

# Environmental Management System Programs Manual

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# **Environmental Management System Programs Manual**

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## Abbreviations

ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.
CEDR	Consolidated Energy Data Report
CEQ	Council on Environmental Quality
DOE	U.S. Department of Energy
E2G2	Energy Efficiency and Greenhouse Gases
<i>ECHOutlook</i>	<i>Environmental Communications and Health and Safety Outlook</i>
EI	energy-use intensity
EISA	Energy Independence and Security Act
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act
EPEAT	Electronic Product Environmental Assessment Tool
FAST	Federal Automotive Statistical Tool
FEC	Federal Electronics Challenge
FEMP	Federal Energy Management Program
FIMS	Facilities Information Management System
FY	fiscal year
GSA	U.S. General Services Administration
LEED	Leadership in Energy and Environmental Design
LM	Office of Legacy Management
LMS	Legacy Management Support
LTS&M	long-term surveillance and maintenance
MCF	thousand cubic feet
NEBA	net environmental benefit analysis
NECPA	National Energy Conservation Policy Act
PPOA	pollution prevention opportunity assessment
PPTRS	Pollution Prevention Tracking and Reporting System
RCRA	Resource Conservation and Recovery Act
Retro-Cx	retro-commissioning
SME	subject matter expert
SPO	Sustainability Performance Office

SSP	<i>Site Sustainability Plan</i>
SSPP	<i>Strategic Sustainability Performance Plan</i>
TIS	Training Information System
U.S.C.	<i>United States Code</i>
USGBC	U.S. Green Building Council
WCP	Water Conservation Program
WMP2	Waste Minimization and Pollution Prevention
WUI	water use intensity

# Executive Summary

## Introduction

This manual is a coordinated effort by the U.S. Department of Energy (DOE) Office of Legacy Management (LM) and S.M. Stoller Corporation, LM's Legacy Management Support (LMS) contractor, to implement the Environmental Management System (EMS) sustainability programs. These programs are part of the overarching EMS, which is a systematic process for improving the environmental impacts that result from LM work activities, products, and services. The EMS programs enable LM and its contractors to implement sustainable environmental stewardship practices that enhance the quality of the air, water, land, and other natural resources affected by LM operations.

In addition to this manual, the EMS is implemented through three other documents: the *Environmental Management System Description* (LMS/POL/S04346), the *Environmental Protection Manual* (LMS/POL/S04329), and the *Environmental Instructions Manual* (LMS/PRO/S04338).

The EMS Description defines the scope, mechanics, and applicability of the EMS and is developed in accordance with International Organization for Standardization 14001, *Environmental Management Systems*. The EMS Description also briefly describes processes for determining environmental aspects, objectives, and targets; evaluating continual improvements; and integrating lessons learned.

The *Environmental Protection Manual* consists of environmental compliance and monitoring programs that implement federal, state, tribal, and local regulatory requirements, agreements, and permitted activities. The *Environmental Protection Manual* also describes how these programs support and integrate projects and functional organizations' areas of responsibility under the EMS into the LM mission.

The *Environmental Instructions Manual* consists of desktop instructions for environmental compliance and monitoring programs that implement federal, state, tribal, and local regulatory requirements, agreements, and permitted activities.

## Purpose of the EMS Programs Manual

This manual provides plans for implementing each of the nine EMS programs via established teams. The team activities adhere to the core Plan-Do-Check-Act principles defined in the EMS Description, the *LMS Commitment to Safety and Protecting the Environment Policy* and the *Integrated Safety Management System Description with Embedded Worker Safety and Health Program* (LMS/POL/S04328) by emphasizing the necessity of integrating environmental sustainability and stewardship into the planning phases of work, and by providing specific plans and procedures that take into account the environment. The team activities align with the LM mission in that actions prescribed for each program are periodically subject to evaluation and corrective action to enable continual improvement.

This manual provides direction to mitigate environmental impacts and establishes programs to meet, lead, and exceed in sustainability through energy efficiency, use of environmentally

friendly products, conservation of natural resources, and source reduction and waste minimization of hazardous and toxic materials. This executive summary describes any additional roles and responsibilities related to the individual teams and not identified in the EMS Description for LM and LMS senior management, project management, line managers, and workers.

## **Scope**

This manual applies to all work conducted in support of the LM mission as identified in the EMS Description.

The environmental sustainability teams will conduct their activities in accordance with DOE Order 436.1, *Departmental Sustainability*; DOE Order 430.1B, *Real Property Asset Management*; Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*; the DOE *Strategic Sustainability Performance Plan*; DOE Policy 450.4A, *Integrated Safety Management Policy*; LM Policy 450.9, *Environment, Safety, and Health Policy* (DOE 2011); the *LMS Commitment to Safety and Protecting the Environment Policy*; and other applicable regulations (e.g., the Energy Independence and Security Act, Energy Policy Act, and National Energy Conservation Policy Act).

This manual consists of 10 chapters that describe the environmental sustainability programs and the teams that support the implementation of the program requirements. Each chapter contains a section on the purpose, scope, responsibilities, procedure, metrics, and records and reporting requirements for that program.

## **Program Training**

Employees will receive awareness-level training as well as refresher training regarding the objectives and targets of the EO 13423, EO 13514, and DOE orders.

Additional detailed training will be pursued for personnel most likely to be affected by implementation of a program or most able to affect the outcome of a program. For example, site managers and facility managers would be requested to receive additional training related to Water Conservation and Energy Efficiency because their sites could be most affected by related conservation activities. Because nearly all employees can affect which products are purchased, all employees would receive training on sustainable acquisition. Development of the formal program training is described in Chapter 10.

In addition to the formal program training, personnel could receive training through work experience and on-the-job training. The program teams will identify personnel who should receive additional training and the required frequency.

## **Program Records**

EMS program and environmental sustainability teams' records are identified and maintained in accordance with the requirements of LM Procedure 200.4, *Records Management* (DOE 2008d), and the LMS contractor *Records Management Manual* (LMS/POL/S04327).

## **Responsibilities**

### **LM and LMS Senior Management**

LM and LMS senior management are responsible for (1) review of performance targets and objectives and (2) review of proposals for initiatives and plans to meet the EMS programs' expenditures in accordance with LMS procedures. LMS senior management is also responsible for ensuring that approved, budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the EMS programs.

### **LM Project Managers, Site Managers, and Office Managers and the LMS Task Order Managers**

LM project managers, site managers, and office managers and the LMS task order managers are responsible for (1) approval of performance targets and objectives, (2) ensuring that approved, budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the EMS programs, and (3) ensuring that staff and equipment are assigned in a timely manner to comply with management programmatic and technical direction to implement the EMS programs.

### **EMS Core Team**

The Core Team is responsible for overseeing the EMS programs teams and functions as the steering committee for management-level decisions. It is composed of an LM senior sponsor and an LMS senior management sponsor, LM and LMS EMS coordinators, and other representatives from various levels of management and project support as needed

### **EMS Program Teams**

EMS program team members are responsible for developing knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve the scope of the individual programs. Periodically, they will also recommend program targets and initiatives, as appropriate. In addition, they are responsible for promoting and championing the programs, helping all employees become aware of the programs, obtaining necessary training, and facilitating implementation of the programs.

### **LM/LMS Workers**

LM/LMS workers are responsible for performing tasks within the scope of duties assigned by site leads and line managers, at a level commensurate with their expertise, and in accordance with their authority to implement the programs. Workers are also responsible for completing assigned program awareness-level training in a timely manner.

### **Environmental Compliance**

The Environmental Compliance organization is a cross-functional support group with the mission of providing compliance support oversight across all programs and projects.

Environmental Compliance is responsible for coordinating the implementation of DOE Order 436.1, EO 13423, EO 13514, the DOE *Strategic Sustainability Performance Plan*, any relevant DOE Headquarters guidance, (e.g., *Site Sustainability Plan* guidance, metering guidance, fleet guidance) and other applicable requirements.

### **LM/LMS Program Advocates**

The role of the joint LM/LMS program advocates is to clearly align the mission of the program and the targets and objectives of the EMS. The primary purpose of this advocacy role is to communicate management's firm commitment to strengthening sound environmental stewardship practices LM-wide and promote environmental sustainability through the use of energy-efficient products and services.

## 1.0 Energy Efficiency and Greenhouse Gases—EMS Program #1

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) and Legacy Management Support (LMS) contractor Energy Efficiency and Greenhouse Gases (E2G2) Program strives to maximize efficiency in the total energy consumed and decrease the generation of greenhouse gases in conducting the LM mission.

### 1.1 Purpose

This E2G2 Program plan establishes a systematic approach for improving energy efficiency and decreasing greenhouse gas generation at LM sites in compliance with Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*; DOE Order 436.1, *Departmental Sustainability*; and other applicable regulations (e.g., the Energy Independence and Security Act [EISA], Energy Policy Act [EPAct], and National Energy Conservation Policy Act [NECPA]).

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable *Quality Assurance Manual* (LMS/POL/S04320) and *Health and Safety Manual* (LMS/POL/S04321) components and requirements by reference.

### 1.2 Scope

This program strives to improve energy efficiency and reduce greenhouse gas emissions through a measurable reduction of energy intensity. EO 13514 requires that the energy goals in EO 13423 remain in effect. The EO 13423 goals require LM to reduce energy intensity and greenhouse gases by 3 percent annually through the end of fiscal year (FY) 2015, or 30 percent by the end of FY 2015, relative to the baseline energy use in FY 2003. In addition, EISA of 2007 requires federal agencies to reduce energy intensity by 3 percent per year, or 30 percent by FY 2015 (compared to an FY 2003 baseline) and EPAct of 2005 requires federal agencies to reduce energy intensity every year in their facilities by 2 percent per year beginning in FY 2006, up to a cumulative 20 percent reduction by the end of FY 2015 (compared to an FY 2003 baseline).

Energy audits are rotated to ensure that 100 percent of the covered facilities are audited every 4 years to meet the requirements of EISA Section 432.

EO 13514 requires DOE to set goals for reducing greenhouse gas emissions. DOE chose to reduce Scope 1 and 2 emissions by 28 percent by 2020, based on 2008 emissions. Scope 3 emissions are to be reduced by 13 percent by 2020.

This program addresses the energy-efficient evaluation, tracking, maintenance, and operation of LM buildings and facilities in a resource-efficient, sustainable, and economically viable manner. Energy efficiency evaluations and initiatives are implemented on the basis of cost effectiveness and feasibility.

Electricity, natural gas, propane, and diesel for stationary engines are included in this program. This program applies at all existing and newly transitioned LM sites that have energy users.

### **1.3 Procedure**

Maintain current and historical energy use at each metered LM site.

Perform energy audits on selected sites. Audited sites are rotated to ensure that 100 percent of the sites are audited every 4 years to meet the requirements of EISA Section 432. Report site audits annually.

Arrange separate metering or estimate use at co-located sites.

Maintain energy intensity baselines for LM sites.

Calculate energy intensity and energy efficiency.

Determine greenhouse gas generation using method established by DOE.

Monitor and evaluate program progress.

Annually catalogue and describe the status of existing LM E2G2 reduction projects.

Periodically determine if demand response programs are offered at LM sites; evaluate their applicability.

Prioritize target sites on the basis of completed LM energy baselines.

Provide life-cycle cost analysis and return-on-investment information to management when applicable.

Propose annual E2G2 goals, initiatives, and metrics, as appropriate.

Post approved Environmental Management System (EMS) E2G2 Program goals, initiatives, and metrics on the EMS website, and update the website as needed.

Prepare annual energy use reports, and update the *Site Sustainability Plan* (SSP) required by the DOE *Strategic Sustainability Performance Plan* (SSPP). Actions identified for the upcoming year to meet the EO goals will be included in the SSP.

Identify and manage E2G2 records in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the *LMS Records Management Manual* (LMS/POL/S04327).

### **1.4 Program Metrics**

#### **1.4.1 Baseline Establishment**

The LM energy baseline uses the cumulative total FY 2003 energy-use and building-size data from all applicable LM sites. For electricity, baseline is defined as kilowatt-hours used per

building gross square footage during the baseline period. For natural gas, baseline is defined as thousand cubic feet (MCF) used per building gross square footage during the baseline period. For propane, baseline is defined as gallons used per building gross square footage during the baseline period. A baseline energy-use intensity (EI) number is calculated for each energy source type by dividing the cumulative annual amount of energy used (kilowatt-hours, MCF, or gallons) in FY 2003 from all applicable LM sites by the cumulative total building gross square footage from all applicable sites.

This is represented as:

$$B_{(E \text{ or } NG)} = EI_{(B-E \text{ or } NG)} = \frac{TU_{(B)}}{SF_{(B)}}$$

where:  $B_{(E \text{ or } NG)}$  = LM energy-use baseline (in FY 2003) for electricity, natural gas, propane, or diesel fuel  
 $EI_{(B-E \text{ or } NG)}$  = energy-use intensity number (baseline) for electricity, natural gas, or propane  
 $TU_{(B)}$  = cumulative total electricity or natural gas used (kilowatt-hours, MCF, or gallons) in FY 2003 for all LM sites  
 $SF_{(B)}$  = cumulative total building gross square footage in FY 2003 for all LM sites

The baseline EI is used as a basis of comparison for determining future performance toward the EO 13423 energy-intensity-reduction goal.

Baselines on newly metered sites and future sites will be established, where applicable. In the absence of metered data, data from the local utilities will be used. For LM sites that transferred to LM after FY 2003, the baseline may be established using data from the first full fiscal year after transition. In instances where data are not available, energy use may be estimated using significant factors such as the number of employees, the types of buildings, and the applicable operations. Assumptions and estimating techniques will be documented to allow for consistency in data acquisition and comparison.

Relevant energy-use data collected from each site for both the baseline and performance periods will be managed in either a database or a spreadsheet. Tracked data will include kilowatt-hours used, MCF used, gallons used, periods of use, sources of data, and changes to building gross square footage. A separate table is maintained for each site.

Adjustments to the baseline data in out-years may be warranted under certain circumstances (e.g., the addition or removal of a large building) if such adjustments are allowed. Adjustments would be documented and authorized by the DOE Sustainability Performance Office (SPO).

Individual site baseline EI numbers may be calculated for each source type to allow for separate site performance analysis.

## 1.4.2 Performance Determinations

Performance toward the EO 13423 goal is based on an annual fiscal year performance period and a cumulative performance period (from FY 2004 through FY 2015). A cumulative EI number is calculated for each performance period. The calculated percent change, as compared to baseline, is used to determine energy intensity improvement (energy efficiency). Percent change is calculated by dividing the difference between the baseline EI and the performance period EI by the baseline EI, multiplied by 100.

This is represented as:

$$\Delta \% = \frac{EI_{(B-E \text{ or } NG)} - EI_{(P-E \text{ or } NG)}}{EI_{(B-E \text{ or } NG)}} \times 100$$

where:  $\Delta\%$  = change in percentage for set performance period  
 $EI_{(B-E \text{ or } NG)}$  = energy-use intensity number (baseline) for electricity, natural gas, propane, and diesel fuel  
 $EI_{(P-E \text{ or } NG)}$  = energy-use intensity number during set performance period for electricity, natural gas, propane, and diesel fuel

The resulting percentage must be a positive value to indicate that EI (energy efficiency) has improved.

The E2G2 Program also conducts more-frequent performance determinations (including site-specific determinations) to assess whether progress is on track toward meeting the EO 13423 reduction goal. Quarterly EI numbers are calculated for both individual and cumulative sites to allow for a comparison of discrete performance periods to baseline. These more-frequent determinations allow the E2G2 Program to take corrective actions, if necessary, to ensure goal achievement.

Greenhouse gas emission reduction performance is calculated by the DOE Federal Energy Management Program (FEMP) based on Consolidated Energy Data Report (CEDR) data, using factors for each energy source. For example, purchased electricity in Ohio would have a different emission rate per kilowatt-hour than electricity purchased in Colorado. Emissions from natural gas, propane, or diesel fuel would not change with the location.

As necessary, corrective action measures are recommended and implemented to address deficiencies toward achieving the overall LM energy intensity reduction goal.

## 1.4.3 Metering

Electricity and natural gas meters should be used at all sites, portions of sites, or buildings to ensure the accurate collection of energy-use data. Existing metering devices were assessed at all sites to develop a list of site portions that are currently unmetered or inadequately metered.

Advanced metering devices will be installed at all sites where the possible energy savings can justify the cost of meter installation. Advanced metering systems should provide real-time data-

collection information and be automated into the metrics database system. The replacement of existing meters at sites with advanced metering systems will occur as necessary.

#### **1.4.4 Reporting**

The E2G2 Program team will:

- Prepare quarterly reports that identify newly initiated energy-efficiency efforts and updated performance toward energy-intensity-reduction goals established by EO 13423 and greenhouse gas reduction goals established by the DOE SSPP. These reports are provided to management.
- Report energy use and metering status annually, as required by DOE Order 436.1, in the SSP for LM and in the CEDR spreadsheet, which are submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP.
- Provide energy use information to the annual report to Congress in accordance with NECPA and a report to the chairman of the Council on Environmental Quality (CEQ) in accordance with EO 13423.
- Provide annual energy audit and metering status information as required by EISA of 2007, Section 432. This information is provided to the LM team advocate and EMS coordinator for submittal to the SPO. In turn, the SPO submits information to the Office of Management and Budget. The Office of Management and Budget is responsible for issuing semiannual energy management scorecards based on the requirements of EISA Section 432 and making these scorecards available to Congress, other federal agencies, and the public.
- Report progress toward meeting annual initiatives and goals to LM in the quarterly performance assurance report and to the EMS Core Team.
- Maintain copies of reports in records files for the sites, projects, and programs to which pertinent E2G2 Program activities apply.

### **1.5 Records**

EMS program and environmental sustainability teams' records are identified and maintained in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

The following documents are considered records:

- Annual energy report (CEDR spreadsheet)
- SSP
- E2G2 Program decision documents
- Energy-efficiency feasibility evaluations
- Energy-efficiency improvement plans
- Quarterly performance assurance reports and performance calculations
- Metrics data
- Energy audit reports
- E2G2 Program media campaign information

## **2.0 Renewable Energy—EMS Program #2**

The LM and LMS contractor Renewable Energy Program serves to monitor and maximize the amount of renewable energy produced to reduce purchased energy in support of the LM mission.

### **2.1 Purpose**

The purpose of this Renewable Energy Program plan is to implement DOE Order 436.1, the renewable energy elements in EO 13423 and EO 13514, and EAct of 2005 (Title 42 *United States Code* Section 15852 [42 U.S.C. 15852] et seq.).

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### **2.2 Scope**

The EO 13423 stated goals for renewable energy are: Ensure that (1) at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable energy sources and (2) to the extent feasible, the agency implements renewable energy generation projects on agency property for agency use.

As defined in EAct, “statutorily required renewable energy consumed” means not less than 3 percent in FYs 2007–2009, not less than 5 percent in FYs 2010–2012, and not less than 7.5 percent in FY 2013 and each fiscal year thereafter.

The Renewable Energy Program is designed to meet the EO 13423 renewable energy goals. This program is intended to be implemented in accordance with any applicable requirements of DOE orders.

### **2.3 Procedure**

The Renewable Energy Program team catalogues and provides a summary status of existing LM renewable energy projects annually.

The Renewable Energy Program team prepares an annual listing of the LM sites where energy consumed could come from new renewable energy sources (such as sources offered by the utility provider supplying energy to the sites) and the status of existing LM renewable energy projects.

LM reports as one site and has more than one onsite renewable-energy-generating system. LM will continue to pursue onsite projects where feasible. A renewable energy feasibility evaluation for each site were completed for LM and LMS management review. The feasibility evaluations included the cost of installing possible renewable energy projects and the value of energy produced. This information allows return-on-investment calculations to be performed.

The Renewable Energy Program team will conduct onsite renewable energy feasibility evaluations as applicable. If the evaluations show that a large-scale renewable energy project may be feasible, an Energy Savings Performance Contract will be considered. Energy Savings Performance Contracts may allow LM to obtain renewable energy at competitive rates without expending upfront costs.

The Renewable Energy Program team develops annual renewable energy targets, initiatives, or both for consideration by LM and LMS senior management.

LMS implements the annual renewable energy targets, initiatives, or both approved by LM and LMS senior management.

The Renewable Energy Program team will report quarterly on progress toward meeting program targets and initiatives, and annually on the program metrics.

The Renewable Energy Program team will maintain the Renewable Energy Program Web page on the EMS website.

The Renewable Energy Program team will report renewable energy generation and renewable energy credits purchased annually, as required by DOE Order 436.1, in the SSP for LM and in the CEDR spreadsheet, which are submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP.

The Renewable Energy Program team will provide renewable energy information to the SPO for input to the annual report to Congress in accordance with NECPA and a report to the chairman of the CEQ in accordance with EO 13423.

The Renewable Energy Program team will provide feasibility evaluations to management for review and approval if requested.

The Renewable Energy Program team will provide life-cycle cost analysis and return-on-investment information to management when applicable.

## **2.4 Program Metrics**

The renewable energy used as a proportion of total energy at each LM site will be documented annually. The percentage of renewable energy used will be compared to the annual EMS goal for the reporting period.

The progress toward completion of any onsite renewable energy program will be documented annually. Progress will be compared to the annual EMS goal for project completion.

## **2.5 Reporting**

EMS status is provided to LM and LMS management in the quarterly performance assurance reports, and progress is reported quarterly to the EMS Core Team. These reports include information on progress toward established goals. The reports are located on the LM internal EMS website.

The Renewable Energy Program team will report renewable energy generation and renewable energy credit purchases annually, as required by DOE Order 436.1, in the SSP for LM and in the annual energy report (i.e., the CEDR spreadsheet), which are submitted to the SPO.

## **2.6 Records**

EMS program and environmental sustainability teams' records are identified and maintained in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the *LMS Records Management Manual* (LMS/POL/S04327).

Renewable Energy Program records are maintained in an identifiable records system, which are maintained in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Renewable Energy Program was implemented.

The following documents are considered records:

- Annual energy report (CEDR spreadsheet)
- SSP
- Program decision documents
- Onsite renewable energy feasibility evaluations
- Life-cycle cost analysis
- Quarterly performance assurance reports
- Renewable Energy Program media campaign information

## 3.0 Water Conservation—EMS Program #3

The LM and LMS contractor Water Conservation Program (WCP) promotes the conservation of water resources through efficiency and reuse management at LM sites and office locations.

### 3.1 Purpose

The purpose of this WCP implementation plan is to establish a systematic approach for managing potable water and nonpotable freshwater conservation at applicable LM sites that is in compliance with EO 13423, EO 13514, DOE Order 436.1, and other applicable regulations (e.g., EISA, EPCAct, and NECPA).

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan* (DOE 2008c), and LMS contractor *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### 3.2 Scope

The WCP addresses the management of water use, loss, waste, and reuse at applicable LM sites. It provides a system for (1) measuring and tracking potable water-use-intensity, (2) measuring and tracking industrial, landscaping, and agricultural nonpotable water consumption, (3) identifying and prioritizing efficiency improvement opportunities, (4) implementing approved efficiencies, (5) determining and reporting performance toward program goals and requirements, and (6) supporting numerous federally mandated data calls and report submittals.

EO 13423 and EO 13514 mandate that all federal agencies, beginning in 2008, reduce the intensity of potable water consumption relative to the baseline of the potable water use in FY 2007 by a minimum of 2 percent annually through the end of FY 2020, or a minimum of 26 percent by the end of FY 2020. EO 13514 mandates that all federal agencies reduce the consumption of nonpotable freshwater used for industrial, landscaping, and agricultural purposes relative to the baseline of the water use in FY 2010 by a minimum of 2 percent annually through the end of FY 2020, or a minimum of 20 percent by the end of FY 2020. Additionally, the identification, promotion, and implementation of water reuse strategies that reduce potable water consumption is required.

Applicable LM sites that are subject to compliance with these EO goal requirements are referred to as Goal Metrics Program sites, which include all LM sites or portions of sites that meet the following criteria:

- Water (either potable, nonpotable freshwater, or both) is used at the site; and
- The site is owned by the federal government under LM jurisdiction and control (owned by LM) and operated by LM or its LMS contractor; or
- The site is owned by LM and, although the site is leased to another entity, LM or its LMS contractor directly pays the water utility bill; or
- The site is owned by another entity and leased by LM or its LMS contractor, and LM or its LMS contractor directly pays the water utility bill.

The following areas are excluded from the scope of this WCP:

- Water management activities associated with groundwater and surface water monitoring and remediation
- Bottled water consumption
- The management and protection of surface water, including storm water, and groundwater quality is addressed in the *Environmental Protection Manual* (LMS/POL/S04329).

Guidance provided in (1) *Instructions for Implementing Executive Order 13423* (CEQ 2007) and (2) *DOE Supplemental Guidance to the Instructions for Implementing Executive Order 13423; Establishing Baseline and Meeting Water Conservation Goals of Executive Order 13423* (DOE 2008a) and (3) DOE 2007, *Federal Energy Management Program: Water Efficiency* was used to prepare this procedure.

### 3.3 Procedure

#### 3.3.1 Site Categorization

An initial site determination was performed for each LM site to determine if it met the inclusion criteria identified in Section 3.2, to obtain relevant water-use data, and to identify how each site is categorized within the WCP. The site category is used to determine the applicability of the WCP requirements. WCP categories include the following:

- **Non-WCP site:** This category designation applies to LM sites that do not use either potable or nonpotable water. Further application of the WCP is not relevant at non-WCP sites.
- **General site:** This category designation applies to any LM site (or portions of a site) where water, either potable or nonpotable freshwater, is used, but where the site does not meet the Goal Metrics Program site-inclusion criteria identified in Section 3.2. The procedures identified in Section 3.3.2 may be relevant at these sites.
- **Goal Metrics Program site:** This category designation applies to any LM site (or portions of a site) that meets the Goal Metrics Program site-inclusion criteria identified in Section 3.2. The procedures identified in Section 3.3.3 are applicable at these sites.

A master list identifying how each LM site is categorized was generated and is maintained for reference. A review of the initial site determination will be performed if operations or activities at an existing LM site or programmatic objectives change. An initial site determination will be performed for each newly transitioned LM site to determine the site's WCP category.

#### 3.3.2 General Sites

The following overarching WCP components may be relevant at general sites as a best management practice.

##### 3.3.2.1 Sustainable Acquisition Program

The preferential purchase of water-efficient products and services that use sustainable environmental practices is required. When applicable, WaterSense (EPA 2008) products should be purchased, and irrigation contractors who are certified through a WaterSense-labeled program

should be procured. EO 13514 requires that sustainable acquisitions be advanced to ensure that 95 percent of new contract actions (including task and delivery orders) are water-efficient. This requirement is implemented through the Sustainable Acquisition Program (see Chapter 4).

### ***3.3.2.2 Sustainable Buildings***

All new construction and existing building renovation activities must follow the water-use-efficiency criteria established in the EMS Sustainable Buildings Program. This applies to buildings and landscaping. This requirement is implemented through the Sustainable Buildings Program (see Chapter 6).

### ***3.3.2.3 Leased Facilities***

To the greatest extent practicable, LM must include a preference for buildings that have attained Leadership in Energy and Environmental Design (LEED) Gold certification, with emphasis on water efficiency in the selection criteria for acquiring leased buildings. When entering into renegotiations or extensions of existing leases, LM must include lease provisions that support the guiding principles for sustainable buildings, as identified by the EMS Sustainable Buildings Program (see Chapter 6).

### ***3.3.2.4 Other Water-Efficiency Initiatives***

The identification and implementation of other water-efficiency initiatives are potentially relevant at general sites, depending upon the site circumstances. Because LM's control over water use at non-Goal Metrics Program sites is limited, and because efficiency improvements do not count toward LM's water reduction goals, such initiatives at non-Goal Metrics Program sites are not generally considered a priority, and will be pursued on a case-by-case basis as appropriate and approved. Such initiatives may apply to the following subject areas:

#### **Water Use Reduction**

Promote actions, as appropriate, to reduce the use of both potable water and nonpotable freshwater, including that used in industrial, landscaping, and agricultural activities through the application of water-efficient equipment and practices.

#### **Water Reuse**

Promote, as appropriate, the use of nonpotable water sources such as reclaimed, recycled, and gray water for appropriate application.

#### **Media Campaign**

Participate in the EMS media campaign to communicate to the work force and to motivate employees to become more efficient in their use of water.

#### **Information Resource Development**

Network with other DOE programs, federal agencies, and private entities to facilitate the exchange of water conservation ideas and information, to share resources, and to promote continual improvement.

#### **Employee Incentive Program**

Participate in the EMS employee incentive program to reward exceptional performance, by teams or individuals, associated with water conservation improvements.

### Water Conservation Web Page

The WCP team will maintain the WCP Web page on the EMS website.

### **3.3.3 Goal Metrics Program Sites**

Presently, six LM sites are categorized as Goal Metrics Program sites. These are the Fernald Preserve, Harrison, Ohio; Rifle Old, Colorado, Processing Site; Grand Junction, Colorado, Disposal Site; Monticello, Utah, Disposal and Processing Sites; and the Tuba City, Arizona, Disposal Site; and the Weldon Spring, Missouri, Site.

In addition to the components identified for general sites in Section 3.3.2, the following procedures apply at Goal Metrics Program sites.

#### ***3.3.3.1 Metrics Applicability***

The metrics programs that are applicable to Goal Metrics Program sites, including baseline development, metrics tracking, performance assessment, and reporting, are discussed in Section 3.4.

#### ***3.3.3.2 Initial Water System Screening***

The WCP team conducts an initial water system screening at each Goal Metrics Program site to gather preliminary information necessary to identify metering needs, develop the metrics baselines, and prioritize future WCP audits and efficiency improvement initiatives. The information obtained from the screening contains site-contact information, current water use operations, activities, practices, metering locations, the gross square footage of buildings (as applicable), maps, and information on water utility payment processes and contracts.

#### ***3.3.3.3 Metering***

With the exception of the Rifle Old Processing Site, standard water use meters are used at all Goal Metrics Program sites to ensure the adequate collection of potable water-use data. It was determined that the addition of a meter at the Rifle Old Processing Site would not provide an appreciable benefit because it would not improve the accuracy of the site's use data, which is tracked by volume of potable water delivered to the site, because the site is only used intermittently and is a minimum water user, and the field trailer is tentatively slated to be removed from operations in 2012.

Water meters have been placed at all of the other Goal Metrics Program site to measure volumes of potable water used. Potable water use at portions of sites that are not included in the Goal Metrics Program are not captured by the metering.

EISA of 2007 requires that at the Tuba City Site, the quantity of nonpotable water used is measured by the meter at the well head. Quantities of nonpotable freshwater use at other sites are tracked using different methods, such as tracking the volume of water hauled for use, depending upon the circumstance. Nonpotable freshwater use generally occurs for temporary construction projects.

### **3.3.3.4 Audits**

EISA of 2007 requires that 25 percent of the Goal Metrics Program site facilities be evaluated annually for water in a manner that ensures that an evaluation of each facility is completed at least once every 4 years.

### **3.3.3.5 Water Management Plans**

On the basis of results of a Goal Metrics Program site's initial water system screenings or WCP audit, a water management plan will be developed to identify opportunities to improve water use efficiencies and to minimize water loss and waste. The plan should be detailed and should identify specific implementation milestones necessary for achieving the overall EO goals. Proposed operational, maintenance, processing, and technological improvement options (including retrofitting or replacing equipment) will be evaluated using water-efficiency-opportunity assessments. The plan should use a variety of water management strategies and tools to meet the goals, and, at a minimum, it should include four "best management practices" published by the DOE FEMP (DOE 2007) on their website. Water management plans should be incorporated into each Goal Metrics Program site's planning and operating processes.

Water-efficiency-opportunities should fully assess the systematic scope, impacts, and benefits associated with any proposed improvements. The WCP team will recommend appropriate efficiency-improvement initiatives to LM for approval prior to implementation. Recommended water efficiency initiatives should be life-cycle cost-effective. Initiatives with the greatest potential percentage of efficiency gain or circumstantial need will be given WCP priority.

### **3.3.3.6 Efficiencies Implementation**

The WCP team will implement approved efficiency measures as appropriate.

### **3.3.3.7 Efficiency Tracking and Reporting**

The WCP team will track and report implemented performance improvements.

## **3.4 Program Metrics**

Two WCP metrics apply to Goal Metrics Program sites: (1) potable water use intensity tracking and (2) industrial, landscaping, and agricultural use tracking of nonpotable freshwater.

### **3.4.1 Total Potable Water Use Intensity Tracking**

#### **3.4.1.1 Baseline Establishment and Data Tracking**

The LM potable water-use-intensity-metrics baseline was established using the cumulative total FY 2007 potable water-use and cumulative building-size data from all Goal Metrics Program sites. Specifically, the baseline is defined as the cumulative-sites total gallons of potable water used per building gross square footage during FY 2007. The baseline potable water-use-intensity (WUI) number was calculated by dividing the cumulative fiscal year annual potable water-use

total from all Goal Metrics Program sites by the cumulative total building gross square footage from all Goal Metrics Program sites.

This is represented as:

$$B_{(GMPS)} = WUI_{(B)} = \frac{TG_{(GMPS-07)}}{SG_{(GMPS-07)}}$$

where:

- $B_{(GMPS)}$  = LM cumulative Goal Metrics Program sites total potable water baseline for FY 2007
- $WUI_{(B)}$  = total potable water-use-intensity number (baseline)
- $TG_{(GMPS-07)}$  = cumulative Goal Metrics Program sites total gallons of potable water used in FY 2007
- $SG_{(GMPS-07)}$  = cumulative Goal Metrics Program sites total building gross square footage in FY 2007

The WUI number is used as a basis of comparison for determining future performance toward the minimum 2 percent annual or 26 percent by the end of FY 2020 potable WUI reduction goal.

Metered data was used to establish the baseline, when possible. In the absence of metered data, data from the local water suppliers were used. In instances where potable water data were not available, potable water-use data were estimated using significant factors such as the number of employees, the amount of irrigated acreage, and water processes. Assumptions and estimating techniques were documented to ensure consistency in data acquisition and comparison.

Relevant potable water-use data are collected from each site and managed in a database. Tracked data include gallons of potable water used, water source locations, periods of use, sources of data, and changes to building gross square footage. The database is used to manage data for both the baseline and performance periods. Table 1 provides an example of the database table used for a Goal Metrics Program site's potable water data tracking.

The baseline data are not adjusted in out-years. The addition or removal of a large building or a site from the program in subsequent years is reflected in a change to that year's use intensity number.

Individual Goal Metrics Program site baseline WUI numbers can also be calculated to allow for separate site performance analysis.

Table 1. Example Database Table for Tracking Potable Water Use by Site

LM Goal Metrics Program Site Name: _____						
Specific Potable Water Source Location <sup>a</sup>	Total Amount of Potable Water Used in Reporting Period (Gallons)	Source of Use Data	Reporting Period Dates <sup>b</sup>		Any Changes to Square Footage of Buildings During This Reporting Period? (Yes/No—explain Yes)	Comment
			Start Date (mm/dd/yy) <sup>c</sup>	End Date (mm/dd/yy) <sup>c</sup>		
Location #1:						
Location #2:						
<b>Total Potable Water Use at Site in FY from all Locations:</b>			<b>Gallons</b>			

<sup>a</sup> List all separate source locations for each specified Goal Metrics Program site (e.g., all meters or utility bills). Insert additional rows as needed.

<sup>b</sup> Ensure that data are represented for each day of the reporting period and that no date gaps occur between reporting periods.

<sup>c</sup> (mm/dd/yy) = month/day/year

### 3.4.1.2 Performance Determinations

Performance toward meeting the potable water use intensity reduction goal is based on an annual fiscal-year performance period and a cumulative performance period (from FY 2008 through FY 2020). A WUI number for LM Goal Metrics Program sites will be calculated for each performance period. The calculated change in percentage, as compared to the baseline, will be used to determine potable water-use-intensity improvement performance. The change in percentage will be calculated by dividing the difference between the baseline WUI and the performance period WUI by the baseline WUI, multiplied by 100.

This is represented as:

$$\Delta\% = \frac{WUI_{(B)} - WUI_{(P)}}{WUI_{(B)}} \times 100$$

where:  $\Delta\%$  = change in percentage (for performance period)

$WUI_{(B)}$  = potable water-use-intensity number (baseline)

$WUI_{(P)}$  = potable water-use-intensity number (during a set performance period)

The resulting percentage must be a positive value to indicate that potable water use intensity has improved (i.e., that a reduction has occurred).

The potable water reduction goal must be achieved at the DOE-complex wide level. As necessary, corrective-action measures will be recommended and implemented to address deficiencies toward achieving the overall LM potable water-use-intensity reduction goal.

### **3.4.2 Nonpotable Freshwater Industrial, Landscaping, and Agricultural Use Tracking**

#### ***3.4.2.1 Baseline Establishment and Data Tracking***

This data tracks nonpotable freshwater, in gallons, used cumulatively at all the Goal Metrics Program sites for industrial, landscaping, and agricultural purposes. FY 2010 was the baseline period for this metric. This metric does not represent intensity, so building gross square footage does not factor into the metric's equation. The baseline number will be used for determining future performance toward the reduction goal.

Currently, these use categories are not separately metered at the Goal Metrics Program sites. If necessary, use per category is estimated as a percentage of the nonpotable water use by site. Significant factors such as periods of use, amount of irrigated acreage, and plumbing line diameters will be considered when determining the percentage of nonpotable water used by these categories at a site. Assumptions and estimating techniques will be documented to ensure consistency in data acquisition and comparison.

Relevant nonpotable freshwater-use data will be collected from each site and managed in a database. Tracked data include gallons of nonpotable freshwater by use category and source locations. The database will be used to manage data for both the baseline and performance periods. A database table similar to Table 1 will be used for a Goal Metrics Program site's nonpotable freshwater data tracking.

The cumulative Goal Metrics Program site baseline total nonpotable freshwater industrial, landscaping, and agricultural use will be calculated to determine overall LM performance toward the reduction goal. Individual Goal Metrics Program site baseline nonpotable freshwater industrial, landscaping, and agricultural total use will also be calculated to allow for separate site performance analysis.

#### ***3.4.2.2 Performance Determinations***

Performance toward meeting the total nonpotable freshwater use reduction goal for the industrial, landscaping, and agricultural use categories is based on an annual fiscal-year performance period and a cumulative performance period (from FY 2011 through FY 2020). The nonpotable water use for industrial, landscaping, and agricultural purposes for LM Goal Metrics Program sites will be calculated for each performance period. The calculated change in percentage, as compared to the baseline, will be used to determine water-use-improvement performance. The change in percentage will be calculated by dividing the difference between the baseline total and the performance period total by the baseline total, multiplied by 100. The resulting percentage must be a positive value to indicate that water use has improved (i.e., that a reduction has occurred).

The nonpotable freshwater reduction goal must be achieved at the DOE-complex wide level. As necessary, corrective-action measures will be recommended and implemented to address deficiencies toward achieving the overall LM water-reduction goal for these use categories.

### **3.5 Reporting Requirements**

Status reports on WCP efforts are included quarterly in the LMS quarterly assurance report, and progress is reported quarterly to the EMS Core Team. Water use and updated performance toward the EO reduction goals are reported in the fourth-quarter report. These reports are provided to LM and LMS senior management.

Water use and metering status are reported annually in the SSP for LM and in the CEDR spreadsheet, which are submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP.

Water usage information is provided in the annual report to Congress in accordance with NECPA and in a report to the chairman of the CEQ in accordance with EOs 13423 and 13514.

### **3.6 Records**

WCP records are identified and maintained in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

The following records are generated as a result of implementing the WCP:

- Annual energy report (CEDR spreadsheet)
- SSP
- WCP decision documents
- Audit reports
- Quarterly performance assurance reports and annual performance calculations
- Metrics data
- WCP media campaign information

## 4.0 Sustainable Acquisition (formerly Environmentally Preferable Purchasing)—EMS Program #4

The Sustainable Acquisition Program is a national approach to educate both the LM work force and LMS contractor staff on leveraging acquisitions to foster markets for sustainable technologies, materials, products, and services while conducting the LM mission.

### 4.1 Purpose

This Sustainable Acquisition Program plan implements a process to manage and continually improve LM's purchase of sustainable goods and services. The plan also serves to facilitate worker awareness about the Sustainable Acquisition Program's purpose, requirements, and goals. These goals are achieved through a full accounting of both economic and social benefits while aligning with the LM mission.

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan*, and LMS *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### 4.2 Scope

The Sustainable Acquisition Program scope is to advance sustainable acquisition and strive toward the long-term goal of 95 percent for new contract actions, including task orders and delivery orders, for products and services (with the exception of credit card purchases) and custodial and construction contracts. Sustainable acquisition means that the products and services acquired under this objective are energy efficient (Energy Star or FEMP designated), water efficient, biobased, environmentally preferable (e.g., Electronic Products Environmental Assessment Tool [EPEAT] certified), non-ozone-depleting, contain recycled content, or are nontoxic or less-toxic alternatives, where such products and services meet the LM performance requirements.

### 4.3 Procedure

The Sustainable Acquisition Program tracks acquisitions for sustainable technologies, materials, products, and services. The activities listed below support this objective.

- Define and maintain EMS object class codes. Develop executive-level definition of applicability for each program and provide key examples. These codes are commonly referred to as the "Y" codes."
- Define and maintain EMS object class codes (also referred to as Cost Elements CELM). These codes crosswalk to the annual pollution prevention reporting for specific commodities and services that are tracked throughout the DOE complex. These codes are commonly known as the "3800 green series."
- Track sustainable acquisition purchases for purchase orders/subcontracts and purchase cards using the reports developed by the Information Technology Department.

- Educate and train Environmental Compliance staff and EMS program leads on tracking and reporting.
- Following EMS Sustainable Acquisition training, continue work force education on the use of tailored Sustainable Acquisition tools.
- Propose annual Sustainable Acquisition Program targets and/or initiatives for consideration by LMS management.
- Maintain the Sustainable Acquisition Web page on EMS website.
- At fiscal year end, evaluate the Sustainable Acquisition Program performance toward green initiatives, specifically looking for ways to strengthen environmental stewardship and to incorporate lessons learned and feedback.

#### **4.4 Program Metrics**

- Provide a quarterly Sustainable Acquisition performance report. The Sustainable Acquisition Program team provides reports, generated from data that has been entered in the Job Cost Accounting Management Information System and the electronic credit card log, both of which allow sorting by the EMS program codes and 3800 green series cost elements.
- Conduct a quarterly evaluation of the impacts to the goal for the procurement actions.
- Perform an annual self-evaluation on Sustainable Acquisition Program performance and generate lessons learned.
- Track overall Sustainable Acquisition performance as a metric comparing total Sustainable Acquisition purchases to total purchases using coded exceptions.

#### **4.5 Reporting Requirements**

- The Sustainable Acquisition Program team reports to LM and LMS management quarterly on progress toward meeting annual initiatives and goals.
- The Sustainable Acquisition Program team provides quarterly performance progress to the EMS Core Team.
- The Sustainable Acquisition Program team compiles annual purchasing and contract action information into the Pollution Prevention Tracking and Reporting System (PPTRS). Sustainable Acquisition reports are provided electronically on the FedCenter website after LM's review and approval. The PPTRS is an annual report completed electronically on the FedCenter website, which provides a status of Sustainable Acquisition activities and presents LM/LMS joint performance against measurable targets and goals.
- Sustainable Acquisition status is reported annually in the SSP for LM, which is submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP.

#### **4.6 Records**

Sustainable Acquisition Program records will be maintained in an identifiable records system that is in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Sustainable Acquisition Program was implemented.

Records are managed in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the *LMS Records Management Manual* (LMS/POL/S04327).

The following documents are considered records:

- Purchase Requisition (Form 90)
- Credit card transaction logs
- PPTRS input
- Quarterly performance assurance report
- SSP
- Sustainable Acquisition Program media campaign information

## 5.0 Waste Minimization and Pollution Prevention— EMS Program #5

The purpose of the LM and LMS contractor Waste Minimization and Pollution Prevention (WMP2) Program is to promote a more sustainable workplace and implement WMP2 as one of several strategies under the EMS for protecting the environment, conserving resources, and enhancing the LM mission nationwide.

### 5.1 Purpose

The purpose of the WMP2 Program plan is to implement DOE Order 436.1, the SSPP, the SSP, and the pollution prevention and recycling elements in EOs 13423 and 13514.

In addition to the requirements outlined in the *Environmental Protection Manual*, the following laws are pertinent to LM's WMP2 Program:

- **Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 et seq.):** This law regulates the ongoing generation, treatment, storage, transportation, and disposal of solid waste, which includes hazardous waste. One purpose of RCRA is to prevent the creation of new abandoned hazardous waste sites (e.g., Superfund sites). RCRA also promotes waste minimization and resource recovery by encouraging reduction of hazardous waste at the source and the recycling of hazardous waste in an environmentally sound manner.
- **Pollution Prevention Act of 1990, as amended (42 U.S.C. 13101 et seq.):** This law expanded the nation's waste prevention policy beyond the RCRA framework to address minimizing or eliminating toxic releases to all environmental media and natural resources.

This plan describes the process of implementing and tracking the progress of pollution prevention achieved by decreasing the purchase of hazardous chemicals and replacing them with chemicals that are more environmentally friendly and less toxic. The plan also describes the process of implementing and tracking the progress of waste minimization achieved by establishing mechanisms to recycle or reuse, to the extent feasible, solid waste and hazardous chemicals and materials that result from LM operations.

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan*, and LMS *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### 5.2 Scope

Typically, WMP2 is universal in scope. However, because the EMS is programmatic, many aspects of WMP2 are covered in other program plans. Therefore, the scope of this WMP2 plan is limited to (1) recycling/reusing all types of materials that are classified as nonhazardous solid waste (e.g., plastic, cardboard, steel, glass, miscellaneous metals, aluminum, and paper) and hazardous chemicals, (2) reducing the hazardous chemical inventory through alternative "green" product procurement, (3) tracking, compiling, and calculating greenhouse gas Scope 3 data to support the Energy Efficiency and Green House Gas Program (EMS Program #1) and for input

into the annual energy report (CEDR spreadsheet), and (4) implementing the pollution prevention opportunity assessment (PPOA) process. The LMS contractor is responsible for periodically assessing LM activities and providing results that help reduce the generation of waste, reduce the use of hazardous chemicals, and enhance operational efficiency through associated cost-benefits.

A summary of EO 13514 requirements is provided below. This WMP2 Program plan incorporates measures and metrics to work toward achieving most of these goals. However, if the goals are not efficient, cost-effective, or reasonably achievable, they will not continue to be pursued.

The EO 13514 requirements include the following:

- Increase source reduction of pollutants and waste.
- Divert at least 50 percent of nonhazardous solid waste by FY 2015 (excludes construction and demolition debris).
- Divert at least 50 percent of construction and demolition materials and debris by FY 2015.
- Reduce printing paper use.
- Increase use of uncoated printing and writing paper containing at least 30 percent post-consumer fiber.
- Reduce and minimize the quantity of toxic and hazardous chemicals and materials acquired, used, and disposed of.
- Increase diversion of compostable and organic materials from municipal waste streams.
- Implement integrated pest management and landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials.
- Increase agency use of acceptable alternative chemicals and processes.
- Decrease agency use of chemicals to assist agency in achieving FY 2020 greenhouse gas reduction targets.
- Report in accordance with the requirements of sections 301 through 313 of the Emergency Planning and Community Right-to-Know Act.

The WMP2 Program accomplishes this scope by:

- Tracking the volume of waste generated and recycled at major LM sites, and during significant construction events at remote sites.
- Tracking the purchases of hazardous chemicals and green alternative chemicals by LM, the LMS contractor, and subcontractors through the Sustainable Acquisition Program procurement system (for more information on the Sustainable Acquisition Program, see Chapter 4).
- Maintaining a system for tracking hazardous chemical inventories.
- Implementing a PPOA process to periodically evaluate new and existing activities for continual improvement ideas and cost-benefit analyses related to WMP2.

- Eliminating the use of ozone-depleting compounds where alternative environmentally preferable products are available, consistent with either (1) the Montreal Protocol (Montreal Protocol 1987) and Title VI of the Clean Air Act Amendments of 1990 (42 U.S.C. 7671 et seq.) or (2) equivalent overall air quality benefits that take into account life-cycle impacts.
- Implementing, as cost-effective and approved by DOE, composting capabilities at active sites.
- Preparing annual Emergency Planning and Community Right-to-Know Act reports, as applicable.

Other activities that may be incorporated and reported under this program are site-specific waste-avoidance efforts, such as treatment by container (as permissible under pertinent regulations), reprocessing waste such as scrap metal, and recycling concrete, asphalt, and other materials.

Once the WMP2 opportunities that are technically and economically feasible are identified and approved by LMS senior management and LM, they will be implemented. It might be necessary to develop new procedures or modify existing procedures to ensure that WMP2 measures are effectively executed.

### **5.3 Procedure**

The WMP2 Program is implemented according to the following actions.

The volume of solid waste generated and recycled at LM sites is tracked by obtaining information from:

- LMS solid waste subcontractors
- Facility recycling subcontractors
- Spreadsheets that track the recycling of waste

This information is used to establish the percent reduction metric required under EO 13514.

The purchases of hazardous chemicals—and chemicals that are less toxic and more environmentally friendly—are tracked through the mechanisms established by the Sustainable Acquisition Program procurement system. Additionally, the system for tracking hazardous chemical inventories is in place to accommodate information necessary to calculate the percent reduction metric required under the orders.

The WMP2 team develops and implements a PPOA process for evaluating new and existing activities as input to continual-improvement and cost-benefit analysis programs.

Site leads, line managers, designated Environmental Compliance staff, and other pertinent project staff discuss and identify potential WMP2 opportunities during project or activity planning phases.

Site staff personnel measure and document waste generation, waste minimization, and pollution prevention activities and report these to the pertinent EMS WMP2 team member or designated Environmental Compliance staff.

The EMS WMP2 team or designated Environmental Compliance staff members compile site WMP2 information and prepare reports, such as a portion of the quarterly performance assurance report, the SSP, and the annual WMP2 report.

The following procedure describes the process for integrating WMP2 into the EMS.

### **5.3.1 Planning**

Effective WMP2 planning requires that pollution prevention assessments be included at the beginning of the work-planning process for new projects. Project activities with significant environmental impacts are identified, and WMP2 goals are established during project planning.

Planned and ongoing pollution prevention assessments (the identification of waste streams, volume, and cost) are conducted by evaluating project processes and operations to better understand the environmental aspects and impacts. These assessments also identify opportunities to use environmentally sustainable goods and services more efficiently, to prevent pollution, to minimize waste generation, and to manage and dispose of waste in compliance with applicable regulations.

The Prevention of Pollution Hierarchy (Figure 1) should be used when determining how to handle waste that is created within a project or during a process. These activities should be planned as follows:

1. Determine if the waste can be reduced or even prevented through source reduction.
2. If this is not feasible, determine if reusing the waste is an option (in-process recycling).
3. Determine if the material can be used in another project (other recycling).
4. If this is not possible, determine if the waste can be treated in a way that would reduce its environmental impact.
5. When all else has been considered and determined impractical, compliantly dispose of the waste.

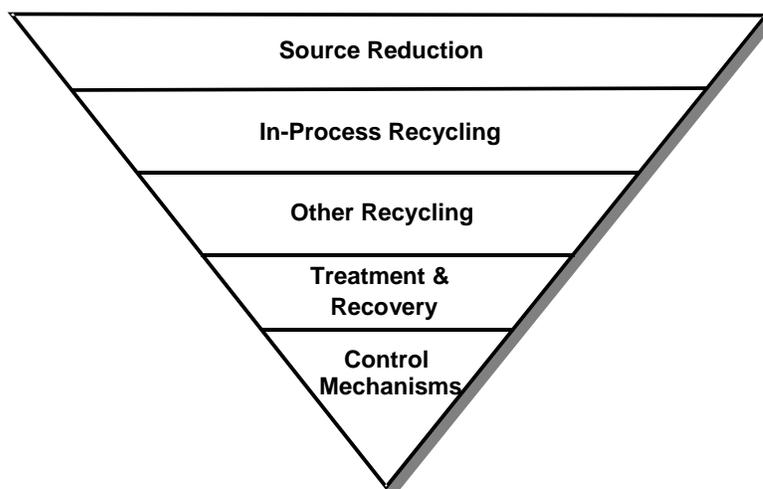


Figure 1. Prevention of Pollution Hierarchy

### 5.3.2 Metrics

Defining program goals and planning the basic elements of the system, including staff and resources needed, are critical to the success of the overall measurement system for WMP2 activities. Goals defined by the orders listed in Section 5.1 include the following:

- LM and the LMS contractor will divert at least 50 percent of nonhazardous solid waste, excluding construction and demolition debris, by the end of FY 2015.
- LM and the LMS contractor will divert at least 50 percent of construction and demolition materials and debris by the end of FY 2015.
- LM and the LMS contractor will reduce printing paper use and purchase uncoated paper containing at least 30 percent post-consumer fiber.
- LM and the LMS contractor will establish targets for purchasing less-toxic chemicals and implement the mechanism for sharing existing inventories of hazardous chemicals.
- LM and the LMS contractor will add composting capabilities at some active sites and track the amount of compostable wastes diverted from landfills, to the degree that it is as cost-effective and efficient to do so.
- LM and the LMS contractor will continue to reduce the overall LM inventory of greenhouse gases at sites by replacing older refrigerators, freezers and cooling systems as the end of viable use occurs.

Progress toward the objectives and targets is reviewed on a regular basis at management meetings. The EMS WMP2 team reports to DOE and LMS management quarterly on progress toward meeting the objectives and targets. Progress is also communicated to employees via bulletin boards, the *E-News Weekly*, and the *Environmental Communications and Health and Safety Outlook (ECHO Outlook)* seasonal publication.

An active continual improvement program to assess WMP2 practices and to implement corrective action of any nonconformance with legal requirements and other EMS requirements is in place and is managed through the LMS contractor's Quality Assurance assessment process and Corrective Action Tracking System.

Documented management reviews of performance against the established target metrics and the effectiveness of the EMS Program in meeting commitments is performed annually by the EMS Coordinators and reported to LM and LMS senior management to solicit input for continual improvement.

## **5.4 Reporting Requirements**

EMS status is provided to LM and LMS management in the quarterly performance assurance reports, and progress is reported quarterly to the EMS Core Team. These reports include information on progress toward established goals. The reports are located on the internal EMS website. Annual pollution prevention and Sustainable Acquisition reports are provided electronically on the FedCenter website after LM's review and approval. The PPTRS is an annual report completed electronically on the FedCenter website, which provides a status of WMP2 activities and presents LM/LMS joint performance against measurable targets and goals. The report also covers Sustainable Acquisition Program goals as well as other environmental sustainability achievements. The WMP2 team also reports information on Scope 3 greenhouse gas emissions in the annual energy report (CEDR spreadsheet) and the SSP, which are submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP.

## **5.5 Records**

Records associated with the WMP2 Program and its associated activities are maintained in records files for the sites, projects, and programs to which the pertinent activities apply. Such records are managed in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

The following documents are considered records:

- Hard-copy purchasing documentation
- Recycling information
- PPOAs
- Quarterly performance assurance reports
- Annual energy report (CEDR spreadsheet)
- SSP
- Annual WMP2 reports
- PPTRS
- WMP2 Program media campaign information

## 6.0 Sustainable Buildings—EMS Program #6

The Sustainable Buildings Program promotes the conservation of natural resources, energy efficiency, waste minimization, and the creation of healthy, productive work environments as part of the cost-effective construction and improvement of new and existing LM-owned and leased buildings.

### 6.1 Purpose

This program plan develops a process to ensure that building designs reduce negative environmental impacts, reduce energy and water use, use recycled-content materials, and improve the health and comfort of building occupants in accordance with the sustainable buildings requirements in EO 13423, EO 13514, DOE Order 436.1, and the DOE SSPP.

This program plan also develops a mechanism for reporting annual local and regional planning activities required by the DOE SSPP.

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan*, and LMS *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### 6.2 Scope

The EO 13423 goals for sustainable buildings (also known as “green” buildings) are to ensure that (1) any new construction and major renovation of agency buildings complies with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (also known as the Guiding Principles) set forth in the *Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding* (MOU 2006), and (2) 15 percent of the existing federal capital asset building inventory of the agency as of the end of FY 2015 incorporates the sustainable practices provided in the Guiding Principles (see Appendix 6A).

EO 13514 expanded upon the energy reduction and environmental performance requirements of EO 13423. The EO 13514 sustainable buildings goal is to implement high-performance sustainable federal building design, construction, operation and management, maintenance, and deconstruction by: (1) beginning in 2020 and thereafter, ensuring that all new federal buildings that enter the planning process are designed to achieve zero-net-energy by 2030; (2) ensuring that all new construction, major renovation, repair, and alteration of federal buildings complies with the Guiding Principles; (3) ensuring that at least 15 percent of the agency’s existing buildings (greater than 5,000 gross square feet) and building leases (greater than 5,000 gross square feet) meet the Guiding Principles by FY 2015 and that the agency makes annual progress toward 100 percent conformance with the Guiding Principles for its building inventory; (4) pursuing cost-effective, innovative strategies, such as highly reflective and vegetative roofs, to minimize the consumption of energy, water, and materials; (5) managing existing building systems to reduce the consumption of energy, water, and materials, and identifying alternatives to renovation that reduce existing assets’ deferred maintenance costs; (6) when adding assets to the agency’s real property inventory, identifying opportunities to consolidate and dispose of existing assets, optimize the performance of the agency’s real property portfolio, and reduce

associated environmental impacts; and (7) ensuring that renovation of federally owned historic buildings uses best practices and technologies in retrofitting to promote long-term viability of the buildings.

Additionally, per the DOE SSPP, one of sustainable buildings applicable goals is to advance regional and local integrated planning by ensuring that planning for new federal facilities or new leases includes consideration of sites that are pedestrian friendly, near existing employment centers, and accessible to public transit. This goal also emphasizes consideration of sites in existing central cities and, in rural communities, near existing or planned town centers. Another goal is to participate in regional transportation planning, recognize existing community transportation infrastructure, and incorporate transportation planning into site policy and guidance documents. The DOE SSPP requires information covering a wide range of topics including local and regional planning, energy coordination, and public visibility including outreach, National Environmental Policy Act actions, and ecosystem improvements.

The Sustainable Buildings Program, an integral part of the EMS, will be implemented in accordance with DOE Order 436.1, the DOE SSPP, EO 13423, and EO 13514, and as approved by LM and LMS management.

## **6.3 Procedure**

The Sustainable Buildings Program is implemented according to the actions described below in Sections 6.3.1 through 6.3.5.

### **6.3.1 Establish Project Team**

Establish a project team that will perform the subsequent actions. The project team can be either the Sustainable Buildings team or an appointed team consisting of knowledgeable staff (e.g., facility manager, construction manager, site manager, Sustainable Buildings Program team member, and someone knowledgeable in the LEED process).

### **6.3.2 Initial Screening**

#### **Existing Buildings and Facilities**

Initial screenings for each LM-owned and contractor-operated capital asset building and facility, including newly transitioned sites, were performed in order to establish a baseline for that building or facility. The initial screening determined if the building or facility met the definition of a capital asset and established building or facility characteristics (e.g., the total net square footage of the building, occupancy status, types of utilities, and age of the building). The screening utilized the building's planned disposition and life-cycle costs, if available. The initial screening was conducted from LM building inventory data contained in the Facilities Information Management System (FIMS) database (available online at the Facilities Information Management System website). The results of the initial screening were used to identify target buildings for potential sustainability enhancements, or to exclude them from further consideration for additional screening.

## **Leased Buildings and Facilities**

Initial screenings were performed for each LM-leased and contractor-operated building and facility to determine the number and location of leased buildings and facilities and when their leases expire. The FIMS database was used as a source of information.

## **New Construction and Major Renovations**

A review was conducted to identify FY 2010 and out-years line item construction projects with acquisition costs greater than \$5 million, as well as renovation, and deconstruction projects with acquisition costs up to \$5 million (total estimated cost). The FIMS database was used as a source of information. Beginning in 2020, ensure that all new federal buildings that enter the planning process are designed to achieve zero-net-energy by 2030.

### **6.3.3 Secondary Screening**

#### **Existing Buildings and Facilities**

A secondary screening was performed for each LM-owned and contractor-operated capital asset building and facility greater than 5,000 gross square feet, including newly transitioned sites, to determine what sustainable features are present that meet the Guiding Principles. The secondary screening was performed using the High Performance Sustainable Building Working Group Existing Building Assessment Checklist, the Portfolio Manager Checklist, or a similar checklist approved by LM (see DOE's *High Performance and Sustainable Buildings Assessment and Compliance Tool*, which is available online at the FEMP website).

Annually review screenings to identify any changes that might impact sustainable features. Update checklists as needed and ensure that the percent completion value (for meeting the Guiding Principles) is submitted to the FIMS group to update the FIMS database.

#### **Leased Buildings and Facilities**

A secondary screening was performed for each LM-leased and contractor-operated buildings and facilities greater than 5,000 gross square feet to determine what sustainable features are present that meet the Guiding Principles. Perform the secondary screening was performed using the High Performance Sustainable Building Working Group Existing Building Assessment Checklist, the Portfolio Manager Checklist, or a similar checklist approved by LM.

Annually review screenings to identify any changes that might impact sustainable features. Update checklists as needed and ensure that the percent completion value (for meeting the Guiding Principles) is submitted to the FIMS group to update the FIMS database.

#### **New Construction and Major Renovations**

Conduct a review to determine what sustainable features are in the current project plans that meet the Guiding Principles. Use the High Performance Sustainable Building Working Group New Construction Assessment Checklist, the Portfolio Manager Checklist, or a similar checklist approved by LM.

## **6.3.4 Evaluation**

### **Existing Buildings and Facilities**

The results of the secondary screening were evaluated, and one or more target buildings/facilities were selected to designate 15 percent (by number of buildings > 5,000 gross square feet) of the existing federal capital asset building inventory that by the end of FY 2015 could incorporate the sustainable practices identified in the Guiding Principles. Periodically evaluate the implementation of sustainable buildings practices in the target buildings/facilities. Identify methods to reduce life-cycle costs of the environmental and energy attributes of the buildings/facilities and implement high-performance sustainable building operation, management, and maintenance practices.

### **Leased Buildings and Facilities**

Evaluate the results of the secondary screening for existing leases to establish a Guiding Principle conformance baseline for leased facilities. Standard lease contract language was developed to incorporate the sustainable practices identified in the Guiding Principles, as well as preference for community-planning-friendly locations. Assist Real Property personnel by providing Guiding Principle conformance data for leased facilities.

### **New Construction and Major Renovations**

Evaluate the results of the review to determine if the project plans incorporate the Guiding Principles and meet LEED New Construction Gold certification or higher if project costs are \$5 million or greater. The sustainability practices identified in the Guiding Principles and LEED should be implemented to the maximum extent possible, as defined by life-cycle assessment and pursuant to criteria in the Office of Management and Budget Circular A-11, Part 7, Section 300 (OMB 2007). If project costs are less than \$5 million, then ensure that the Guiding Principles are met. Ensure that any building projects entering the planning process are designed to achieve zero-net-energy by 2030, and that any renovation of federally owned historic buildings uses best practices and technologies in retrofitting to promote long-term viability of the buildings.

## **6.3.5 Recommendations**

### **Existing Buildings and Facilities**

Make recommendations to LM for approval to implement methods to reduce life-cycle costs of the environmental and energy attributes of the buildings and facilities. Provide recommendations to LM for potential high-performance sustainable building operation, management, and maintenance practices that reduce the consumption of energy, water, and materials.

### **Leased Buildings and Facilities**

Make recommendations to LM for approval to insert standard lease contract language to incorporate the sustainable practices identified in the Guiding Principles when leases are renewed.

### **New Construction and Major Renovations**

Make recommendations to LM for approval for each new construction or major acquisition of \$5 million or more (total estimated cost) planned for FY 2010 and beyond to ensure that the

project incorporates the Guiding Principles and meets minimum LEED New Construction Gold certification to the maximum extent practicable, as defined by life-cycle assessment and pursuant to Office of Management and Budget Circular A-11, Part 7, Section 300 criteria (OMB 2007). Projects less than \$5 million should incorporate the Guiding Principles to the maximum extent practicable.

Make recommendations to LM for the commissioning of new equipment or retrofit construction to ensure that systems are designed, installed, functionally tested, and capable of being operated and maintained to perform in conformity with the project intent. Provide recommendations to LM for potential high-performance sustainable building construction practices that reduce the consumption of energy, water, and materials. Identify alternatives to renovation that reduce existing assets' deferred maintenance costs.

Make recommendations to LM to perform retro-commissioning (Retro-Cx) to review the condition of building systems and return equipment (that has fallen out of desired operating parameters) back into appropriate tolerances. Retro-Cx is the process of optimizing an existing building's operation and maintenance through the implementation of low-cost and no-cost improvements and does not involve equipment replacement. Retro-Cx focuses on energy-using equipment such as mechanical systems, controls, and sometimes lighting.

Provide recommendations to LM when assets are planned to be added to the agency's real property inventory. Identify opportunities to consolidate and dispose of existing assets, optimize the performance of the agency's real property portfolio, and reduce associated environmental impacts.

## **6.4 Program Metrics**

A baseline of existing LM capital asset buildings and facilities operated by the LMS contractor is established by using the FIMS database. The baseline is reviewed annually and updated as necessary.

The LM capital asset baseline is used as a basis of comparison to determine how the Guiding Principles can be applied to existing buildings and to make recommendations to management. The comparison is performed using the High Performance Sustainable Building Working Group Existing Building Assessment Checklist, the Portfolio Manager Checklist, or a similar checklist approved by LM. Adjustments to the baseline data in out-years may be warranted under certain circumstances (e.g., addition of a large building). All adjustments are documented.

## **6.5 Reporting Requirements**

EOs 13423 and 13514 require LM to ensure that at least 15 percent of its capital asset building inventory (by number of buildings) complies with the Guiding Principles by the end of FY 2015. LM and the LMS contractor track LM progress in meeting this goal by using the High Performance Sustainable Building Working Group New Construction or Existing Building Assessment Checklist, the Portfolio Manager Checklist, or a similar checklist approved by LM as a means to track building performance. The Sustainable Buildings team reports in the LMS contractor quarterly performance assurance report and to the EMS Core Team quarterly on

progress toward meeting the EO 13423 and 13514 goals. Reports are distributed to LM and LMS senior management and located on the LM internal EMS Web page.

As required by DOE Order 436.1, *Departmental Sustainability*, information is reported annually in the SSP for LM and in the annual energy data report, which are submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP. Percent conformance to the Guiding Principles and assessment status are reported in the FIMS database.

High Performance Sustainable Building information is provided in the annual report to Congress in accordance with NECPA and in a report to the chairman of the CEQ in accordance with EO 13423.

### **Local and Regional Planning**

EO 13423, EO 13514, and the DOE SSPP require regional planning information to be annually submitted in the SSP. Annually collect and submit regional planning information as required by the DOE SSPP. The information covers a wide range of topics including local and regional planning, energy coordination, and public visibility including outreach, National Environmental Policy Act actions, and ecosystem improvements.

## **6.6 Records**

Records associated with the Sustainable Buildings Program are maintained in an identifiable records system, in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Sustainable Buildings Program is implemented. Records are managed in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the *LMS Records Management Manual* (LMS/POL/S04327).

The following records will be maintained:

- Quarterly performance assurance reports
- Training records—administrative control record
- Decision documents (e.g., list of capital asset buildings and the life-cycle costs, checklists)
- Design documents
- SSP
- Annual energy report (CEDR spreadsheet)
- FIMS database
- Sustainable Buildings Program media campaign information

## **Appendix 6A**

# **Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings**

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## Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings

The *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings*, adopted in 2006 by 21 federal agencies including the U.S. Environmental Protection Agency (EPA), provide a good model. The Guiding Principles call for integrated design, energy performance, water conservation, indoor environmental quality, and materials aimed at helping federal agencies and organizations:

- Reduce the total ownership cost of facilities;
- Improve energy efficiency and water conservation;
- Provide safe, healthy, and productive built environments; and,
- Promote sustainable environmental stewardship.

### I. Employ Integrated Design Principles

**Integrated design**—Use a collaborative, integrated planning and design process that:

- Initiates and maintains an integrated project team in all stages of a project’s planning and delivery;
- Establishes performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals; and, ensures incorporation of these goals throughout the design and lifecycle of the building; and,
- Considers all stages of the building’s lifecycle, including deconstruction.

**Commissioning**—Employ total building commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include a designated commissioning authority, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.

### II. Optimize Energy Performance

**Energy efficiency**—Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the Energy Star targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating according to the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE), and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, *Energy Standard for Buildings Except Low-Rise Residential Buildings*. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.

**Measurement and verification**—In accordance with DOE guidelines issued under Section 103 of the EPO Act, install building-level utility meters in new major construction and renovation projects to track and continually optimize performance. Compare actual performance data from the first year of operation with the energy design target. After one year of occupancy, measure all

new major installations using the Energy Star Benchmarking Tool for building and space types covered by Energy Star. Enter data and lessons learned from sustainable buildings into the High Performance Buildings Database (DOE 2008b).

### III. Protect and Conserve Water

**Indoor water**—Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 (42 U.S.C. 13252) fixture performance requirements.

**Outdoor water**—Use water efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.

### IV. Enhance Indoor Environmental Quality

**Ventilation and thermal comfort**—Meet the current ASHRAE Standard 55-2004, *Thermal Environmental Conditions for Human Occupancy*, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, *Ventilation for Acceptable Indoor Air Quality*.

**Moisture control**—Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination.

**Daylighting**—Achieve a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.

**Low-emitting materials**—Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, carpet systems, and furnishings.

**Protect indoor air quality during construction**—Follow the recommended approach in *Indoor Air Quality Guidelines for Occupied Buildings under Construction* (SMACNA 1995). After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.

### V. Reduce Environmental Impact of Materials

**Recycled content**—For EPA-designated products, use products meeting or exceeding EPA recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10 percent (based on cost) of the total value of the materials in the project.

**Biobased content**—For U.S. Department of Agriculture–designated products, use products meeting or exceeding the U.S. Department of Agriculture’s biobased content recommendations.

For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.

**Construction waste**—During a project’s planning stage, identify local recycling and salvage operations that could process site-related waste. Program the design to recycle or salvage at least 50 percent construction, demolition, and land clearing waste, excluding soil, where markets or onsite recycling opportunities exist.

**Ozone-depleting compounds**—Eliminate the use of ozone-depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life-cycle impacts.

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## 7.0 Vehicle and Fuel Use—EMS Program #7

The LM and LMS contractor Vehicle and Fuel Use Program is established to conserve finite natural resources by reducing the use of petroleum fuel, increasing the use of alternative renewable fuel, and using alternative-fuel and hybrid vehicles when available.

### 7.1 Purpose

In addition to promoting fuel conservation and the use of renewable resources, the Vehicle and Fuel Use Program plan provides the implementation steps needed to incorporate the requirements for alternative-fuel vehicles and biofuels defined in 10 CFR 490, U.S. Department of Energy, “Alternative Fuel Transportation Program”, EO 13514, EO 13423, DOE Order 436.1, EISA, EPAct, NECPA, and the DOE SSPP.

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan*, and LMS *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### 7.2 Scope

EO 13423 goals for vehicle and fuel use are as follows:

- Increase the leasing of alternative-fuel, hybrid, and plug-in hybrid vehicles to replace existing conventional-fuel fleet to the extent practical.
- Reduce the total consumption of petroleum products in fleet vehicles by 2 percent annually through FY 2015, relative to a baseline year of FY 2005.
- Increase the consumption of alternative fuel by at least 10 percent annually.

EO 13514 goals for reducing the use of fossil fuels and which also apply to the vehicle and fuel use team are as follows:

- Use low-greenhouse-gas-emitting vehicles, including alternative-fuel vehicles.
- Optimize the number of vehicles in the agency fleet.
- Reduce the total consumption of petroleum products by a minimum of 2 percent annually through the end of FY 2020, relative to a baseline year of FY 2005.

An additional requirement of EO 13514, which has been assigned to the vehicle and fuel use team, is to implement strategies and accommodations for transit, travel, training, and conferencing that actively support lower-carbon commuting and travel by agency staff.

Factors that have to be considered in the course of attaining these goals are the addition of sites to the LM system, the addition of work to the LMS contract, the availability of alternative fuel, and the type of vehicle required for LM work (which often includes fieldwork and the need for 4-wheel drive, ¾-ton vehicles with tow capacity).

To achieve the petroleum reduction goals of EO 13423 and EO 13514, LM will strive to:

- Use trip consolidation practices, mass transportation, agency shuttles, videoconferencing, and other methods to reduce vehicle miles traveled.
- Increase the fuel economy of the fleet overall by acquiring vehicles with higher fuel economy (e.g., more fuel-efficient engines, smaller vehicles, hybrid-electric vehicles, and alternative-fuel vehicles).
- Employ the most fuel-efficient vehicles for required tasks and ensure that the fleet contains the appropriate number of vehicles relative to need.
- Closely monitor utilization standards and terminate vehicles not adequately utilized. Prior to termination, vehicles will be reviewed and, if their fuel type or efficiency is more desirable at other sites, they will be transferred there; the less-efficient vehicles will be terminated.
- Employ efficiency strategies, such as using low-rolling-resistance tires, synthetic oil, and other technologies.
- Increase the use of alternative fuels (i.e., non-petroleum-based fuels) as additional fueling stations become available.

### **7.3 Procedure**

The Vehicle and Fuel Use Program team maintains a list of vehicles in the entire LM fleet. The list includes descriptions of the vehicles, the types of vehicles, vehicle fuel types, and similar information. The vehicle utilization database tracks monthly information per vehicle, including miles driven, percentage of days used, fuel used, and type of fuel used. The team also maintains a fuel-tracking database that tracks monthly fuel use for the fleet, including type of fuel and miles driven per month. The database also includes this information for past fiscal years. The team has monthly meetings to discuss the continued fuel use and progress toward the goals. The meeting minutes are documented.

The EOs require the total fuel consumption to be decreased by 2 percent annually relative to a baseline year of FY 2005. LM had dramatically fewer sites and vehicles in the year 2005 therefore it will be a major challenge for LM to decrease petroleum consumption by 2 percent annually as compared the FY 2005 baseline. Through LM's mission, the number of sites will continue to increase with expected programmatic growth by FY 2020. That mission includes managing all LM sites, some of which are very remote and far from a manned office.

All vehicles currently in or acquired for the LM fleet that are capable of using E85 fuel will use this alternative fuel to the maximum extent practicable.

Each site with alternative-fuel vehicles will utilize the DOE's web-based Alternative Fueling Station Locator to identify stations within a 5-mile radius that provide the appropriate fuel. Where no stations exist, site management will investigate possible solutions through private-sector alternative-fuel distributors, including existing fuel vendors and stations.

The U.S. General Services Administration (GSA) determines replacement of GSA-leased vehicles based on vehicles' age and mileage. When it is time to replace a vehicle, GSA notifies LM fleet management. The LM fleet manager tells GSA what type of vehicle is required, using the following considerations:

- The availability of alternative-fuel, dual-fuel, hybrid, or electric vehicles meeting the job or usage requirements will be monitored and optimized in the LMS fleet as technology improvements in the automobile industry are attained.
- The availability of the appropriate fuel options in the areas in which the vehicle will typically operate will be monitored and drivers educated as to which option best meets goals established.

The Vehicle and Fuel Program team will maintain the Vehicle and Fuel Use Web page on the EMS website.

## **7.4 Program Metrics**

The LM fleet currently has 43 vehicles and consists of medium- and light-duty pickups, SUVs, and sedans. Four-wheel-drive pickups and SUVs are the vehicles of preference, necessitated by remote, rough country and job requirements. This vehicle inventory and how each vehicle is used (days used, miles driven, and quantity of fuel purchased) are tracked using standard tracking systems, which includes fuel purchases using GSA-authorized credit cards.

The existing contractor vehicle tracking system will be modified if necessary and used to track fuel use by fuel type and vehicle type. The metrics will be placed in a spreadsheet so that monthly and year-to-date data can be tracked and sorted for easy comparison to previous months or years.

LM will have internal policies that require the accurate tracking of vehicle acquisitions and inventory, mileage, fuel consumption by fuel type, and other relevant data.

## **7.5 Reporting Requirements**

Monthly reports regarding each LM vehicle's use (days used, miles driven, and quantity of fuel purchased) is provided to LM and contractor management personnel and to GSA as appropriate. Fuel purchases are reported using credit card receipts.

Status is provided to LM and LMS management in the quarterly performance assurance reports, and progress is reported quarterly to the EMS Core Team. These reports include information on progress toward established goals. The reports are located on the internal EMS website.

LM is required to provide annual motor vehicle fleet data, including the type and quantity of fuel used, to DOE Headquarters Fleet Office using the GSA 2008 Federal Automotive Statistical Tool (FAST) system no later than December 31 of each year. FAST is a Web-based program developed to measure how federal agencies comply with the DOE requirements pertaining to vehicle and fuel use reduction.

Vehicle and fuel use information is reported annually in the SSP and in the annual energy report (CEDR spreadsheet) for LM, which are then submitted to the SPO. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP.

LM provides vehicle and fuel use information in the annual report to Congress in accordance with NECPA, EISA, and EPAct and in a report to the chairman of the CEQ in accordance with EO 13423.

The Vehicle and Fuel Use Program team reports to LMS management quarterly regarding progress toward meeting program goals.

## **7.6 Records**

Vehicle and Fuel Use Program records (e.g., program metrics and fuel use) will be maintained in an identifiable records system, in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Vehicle and Fuel Use Program was implemented. Records are managed in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the *LMS Records Management Manual* (LMS/POL/S04327).

The following records will be maintained:

- Quarterly performance assurance reports
- SSP
- Annual energy report (CEDR spreadsheet)
- FAST database
- Vehicle and Fuel Use Program media campaign information

## 8.0 Electronics Stewardship—EMS Program #8

The purpose of the Electronics Stewardship Program is to foster the use of beneficial environmental practices with respect to the entire life cycle of electronic equipment used to support the LM mission. Through such practices, LM and the LMS contractor can conserve energy and finite natural resources and reduce costs and pollution.

### 8.1 Purpose

This program plan provides a systematic process for considering positive environmental attributes (such as energy efficiency, lower-toxicity materials, maximum product life, and waste minimization) during electronic equipment's life cycle, which includes its purchase, use, and disposition. The successful execution of this plan enables LM and the LMS contractor to implement the electronics stewardship requirements and goals specified in EO 13423, EO 13514, DOE Order 436.1, and the DOE SSPP.

This plan adheres to the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan*, and LMS contractor *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

### 8.2 Scope

The Electronics Stewardship Program operates as part of the EMS. The program applies to electronic equipment used in support of LM and LMS contractor activities, such as computers, printers, copiers, and fax machines.

The Electronics Stewardship Program implements the electronics stewardship requirements and goals specified in EO 13423, EO 13514, DOE Order 436.1, the DOE SSPP, and associated documents, such as the *Instructions for Implementing Executive Order 13423* (CEQ 2007), to the extent technically and economically feasible and as approved by LM and LMS management.

Electronics stewardship is applicable during the three phases of electronic equipment's life cycle: purchase, use, and disposition. The following basic practices will be used during these phases to benefit the environment:

- Purchase electronic equipment that is energy efficient and constructed of environmentally friendly materials.
- Operate and maintain electronic equipment in a manner that maximizes energy efficiency, utilizes environmentally preferable features, and extends product life.
- Reuse (by transferring, donating, or selling) or recycle electronic equipment at the end of its useful life within LM.

The program strives to achieve the following electronics stewardship goals specified in EO 13423, EO 13514, DOE Order 436.1, and the DOE SSPP:

- Purchase electronic products such that 95 percent meet EPEAT (Green Electronics Council 2006) Silver or Gold standards.
- Purchase Energy Star and FEMP-designated electronic equipment when the EPEAT standard does not apply.
- Enable Energy Star features on 100 percent of computers and monitors.
- Use duplex printing when feasible.
- Extend the useful life of electronic equipment to 4 or more years.
- Reuse (transfer, donate, or sell) or recycle 100 percent of electronic equipment that has reached the end of its useful life within LM.
- Promote the operation of energy efficient servers and data centers. Note: Energy efficient data centers also fall under the purview of the E2G2 and Sustainable Buildings programs.

LM and the LMS contractor will also participate in the Federal Electronics Challenge (FEC) to help achieve or exceed the electronics stewardship goals outlined in EO 13423, EO 13514, DOE Order 436.1, and the DOE SSPP.

## 8.3 Procedure

Electronics stewardship occurs throughout the three phases of electronic equipment's life cycle: purchase, use, and disposition. Sections 8.3.1 through 8.3.3 discuss the actions that are necessary to implement electronics stewardship during each phase.

### 8.3.1 Purchasing Electronic Equipment

Electronic equipment will be purchased as follows:

**Computer equipment (desktop computers, laptop computers, and monitors):** EO 13423, EO 13514, DOE Order 436.1, and the DOE SSPP require that newly purchased computer equipment meet EPEAT standards. Purchasers will use EPEAT to purchase computer equipment that is rated Silver or Gold.

- **Office imaging equipment (e.g., photocopiers, printers, and fax machines) and other electronic equipment:** EPEAT is currently designed to assist with only the purchase of computer equipment. Other environmental standards or assessment criteria, such as those designated by the EcoLogo Program (TerraChoice Environmental Marketing Inc. 2011), Energy Star, or FEMP designated, will be used to assist with purchasing office imaging equipment and other electronic equipment that has favorable environmental attributes. Criteria other than those designated by EcoLogo, Energy Star, or FEMP will be used as recommended by federal resources, such as EPA or the Office of the Federal Environmental Executive, and DOE guidance. Further direction for using other environmental standards or assessment criteria to purchase electronic equipment will be made available to the work force as it becomes available and pertinent.

For the purposes of electronics stewardship, purchasing electronic equipment includes both purchasing and leasing. Lease agreements for electronic equipment will include contract

language concerning the requirements for environmentally preferable equipment, such as EPEAT-registered computer equipment or EcoLogo copiers and printers.

### 8.3.2 Using Electronic Equipment

The following practices will be implemented during the use of electronic equipment so that energy efficiency is maximized, environmentally preferable features are utilized, and product life is extended:

- **Power management:** Power will be managed by activating Energy Star features on all computers, monitors, and other electronic equipment that has such capabilities. Energy Star features may be activated by the manufacturer, vendor, equipment users (with the help of equipment manuals or other instructions), or Information Technology personnel.
- **Duplex printing:** Duplex printing will be enabled as a default setting on printers when feasible.

The following practices will be implemented during the use of electronic equipment so that energy efficiency and product life are maximized:

- **Hardware and software upgrades:** Hardware and software upgrades will be implemented, as applicable and feasible, to extend product life.
- **Maintenance:** Electronic equipment will be routinely maintained in accordance with manufacturer recommendations.
- **Reduced use:** Electronic equipment will be used as little as workloads allow.

### 8.3.3 Disposition of Used Electronic Equipment

Once electronic equipment has reached the end of its useful life for LM purposes, it will be considered for reuse or recycling as follows:

- **Reuse (transferring, donating or selling):** Electronic equipment will be transferred, donated, or sold in accordance with (1) GSA guidelines and requirements, which can be found at the FEC website, and (2) applicable DOE policies and guidance regarding the proper management of computer hard drives.
- **Recycling:** Because it might contain constituents that are harmful to the environment (such as toxic metals), electronic equipment will not be disposed of as waste. End-of-life electronic equipment that cannot be reused, donated, or sold will be recycled. Reputable, competent recycling services, as recommended in the *Instructions for Implementing Executive Order 13423* (CEQ 2007), will be used. LM's procedure for recycling electronic equipment is located in the *Environmental Protection Manual*.

Data regarding the purchase, length of service, reuse, and recycling of electronic equipment will be tracked and evaluated to assess performance against the relevant requirements and goals specified in EO 13423, EO 13514, DOE Order 436.1, and the DOE SSPP, and against other program goals as applicable. Tracking such data is discussed more fully in Section 8.4, "Program Metrics."

## 8.4 Program Metrics

The following electronics stewardship data will be tracked so that performance toward Electronics Stewardship Program requirements and goals can be measured:

- Purchases of computer equipment, including computer equipment that EPEAT has rated Silver or Gold.

Purchases of computer equipment that EPEAT has rated Silver or Gold will be compared to purchases of all computer equipment to determine whether the following EO 13423 and EO 13514 goal has been achieved: 95 percent of purchased computer equipment must meet EPEAT Silver or Gold standards.

- Purchases of non-computer electronic equipment (such as printers, copiers, and appliances), including equipment that is compliant with EcoLogo, Energy Star, or other recognized and approved environmental standards.

Purchases of non-computer electronic equipment that is compliant with EcoLogo, Energy Star, or other environmental standards will be compared to purchases of all non-computer electronic equipment to determine what percentage of such equipment has favorable environmental attributes.

Designated employees will maintain an inventory of the type of electronic equipment purchased and the equipment's environmental rating (such as an EPEAT rating), as applicable, using approved inventory and tracking systems.

In addition to using inventory and tracking systems or data-tracking forms, designated employees will track electronic equipment purchases using the system established in the Sustainable Acquisition Program (see Chapter 4).

- The service life of electronic equipment (especially computer equipment).

The length of time electronic equipment has been in service will be tracked to determine whether the following EO 13423 goal has been achieved: extend the useful life of electronic equipment to 4 or more years.

Designated employees will maintain an inventory of electronic equipment and the length of time the equipment has been in service, using approved inventory and tracking systems.

- The type and quantity of used electronic equipment that is reused, donated, sold, or recycled.

Used electronic equipment that is no longer useful for LM purposes will be tracked to determine whether it is reused or recycled and whether the following EO 13423 goal has been achieved: reuse (transfer, donate, or sell) or recycle 100 percent of electronic equipment that has reached the end of its useful life.

The type and quantity of electronic equipment that is recycled will be obtained from recycling vendors when they recycle LM electronic equipment.

Designated employees will maintain an inventory of the type and quantity of electronic equipment that is reused, donated, sold, or recycled using approved inventory and tracking systems.

## 8.5 Reporting Requirements

The Electronics Stewardship Program will report performance toward electronics stewardship requirements and goals and discuss other program activities as necessary during periodic meetings with LM and LMS management and EMS coordinators. Program performance data will be included in performance-related reports, such as the quarterly performance assurance report, PPTRS, the annual energy report (CEDR spreadsheet), and the SSP. Actions identified for the upcoming fiscal year to meet the EO goals will be included in the SSP. Progress is also reported quarterly to the EMS Core Team. Data related to purchases of EPEAT computer systems and recycled electronic equipment will also be included in DOE's *Annual Report of Waste Generation and Pollution Prevention Progress*.

## 8.6 Records

Electronics Stewardship Program records are maintained in pertinent program and EMS record files. Such records are managed in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

The following records are maintained:

- Annual targets
- Audit findings and associated corrective actions
- Program metrics data
- Quarterly performance assurance and annual program performance reports
- Annual energy report (CEDR spreadsheet)
- SSP
- PPTRS input
- Electronics Stewardship Program media campaign information

## 9.0 Land Stewardship—EMS Program #9

The Land Stewardship Program advocates improving ecosystem health on LM properties as approved by LM and in accordance with DOE Order 436.1, *Departmental Sustainability*; DOE Order 430.1B, *Real Property Asset Management*; and federal regulations, such as the Endangered Species Act (16 U.S.C. 1531–1544) and the Federal Noxious Weed Act (7 U.S.C. 2801–2814). The program provides a process to (1) systematically evaluate and assess existing ecological site surface conditions and trends; (2) document ongoing routine improvements, enhance ongoing projects, and identify and propose new improvements that would be beneficial on a landscape ecosystem scale; and (3) implement improvements with consideration of adjacent land uses, owners, and political entities. The program defines success based on measurable parameters.

### 9.1 Purpose

The purpose of this program plan is to define how the Land Stewardship team implements the Land Stewardship Program. The plan incorporates the Integrated Safety Management System concept of promoting continual improvement through the Plan-Do-Check-Act approach and encompasses applicable LM *Quality Assurance Program Plan*, LMS contractor *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

#### 9.1.1 Need for Program

DOE Order 430.1B, Change 2, states that Departmental land and facilities are valuable national resources. Land use planning and stewardship responsibilities will be implemented consistent with the principles of ecosystem management and sustainable development. LM's long-term strategies for remediated LM sites are protective of buried contaminated materials; however, erosion and invasive species are a cause for concern on many sites. Ecosystems that were originally present prior to various human extractive or operational activities (e.g., mining/milling or facilities associated with underground nuclear explosions) were lost during the prescribed uses and remedial actions.

The geomorphologic processes active at remediated LM sites shape the form and function of the evolving landscape, which in turn influences the success of introduced plants and associated wildlife. Site reclamation typically includes grading a site for positive drainage, constructing drainage channels to ensure that the disposal cell or other site areas are not flooded or eroded, and revegetating the site. However, these efforts do not result in complex or sustaining ecosystems that restore an area to a former (or similar) ecosystem that is adapted to the surrounding climate, soils, elevation, and geomorphology. The result often includes a reduced diversity of vegetation and wildlife and the additional problem of alien species moving into an area due to the absence of predator-prey relationships, the artificial nature of the introduced ecosystem, or the "island effect," whereby an introduced landscape facilitates dysfunctional relationships. In addition, the opportunity to provide productive habitat for species that were formerly present but that can thrive only within specific ecosystems is lost.

Areas seeded with native vegetation species may prevent or minimize erosion but they may not always result in intact and productive communities because of difficulties related to plant

establishment at remote areas, influences from surrounding areas, human activities, or even problems with seed purity and methods used in the seeding or replanting program. Seed may be selected for durability and ground cover rather than ecosystem value, which will contribute to nonproductive ecosystems.

## 9.2 Scope

The intent of the Land Stewardship Program is to improve LM's stewardship of its properties by providing a structure that will lead to planned enhancements of ecosystems present on selected long-term-maintenance properties. As a result of a designed enhancement process, it is expected that more cost-effective and efficient maintenance of sites under long-term surveillance and maintenance plans will occur. Sustainable ecosystems include balanced and healthy vegetation and wildlife communities better able to withstand environmental insults. The implementation of this program results in reduced site erosion, fewer invasive plant species, reduced site maintenance, and enhanced biodiversity.

The primary goal of this program is to improve site conditions on a landscape-ecosystem level that is consistent with historical ecosystems in the region or reference areas. DOE has publicly stated that it is a steward of the land and that it will work to preserve the environment for future generations. This implies responsibilities for replacing or improving ecosystems that have been lost over time due to various federal programs that resulted in cleanup actions and changed the integrity of the land through remediation activities. An important part of this goal is the achievement of more efficient and cost-effective long-term management of LM sites. Improved ecosystems are expected to result in fewer long-term maintenance and management costs through the reduction of erosion issues, the reduction of invasive weeds, and the achievement of ecologically sustainable site conditions.

The desired program outcome includes a more complex and balanced ecological community at selected LM sites that can sustain a higher level of biodiversity, is attractive to targeted wildlife communities, contains species capable of outcompeting undesirable plants and animals, and reduces soil erosion (where soil erosion is an issue). Because many of the LM sites are remote, improved ecosystems provide habitat for migratory birds and for listed or valuable species that formerly inhabited the area or that need sanctuary.

Secondary goals of the program are to track the everyday activities and enhancements of existing projects that contribute to improved ecosystems, and to identify small projects that are easily implemented and also contribute to improved land management. An example of an everyday activity that is currently being tracked is the use of integrated pest management or chemicals to reduce noxious weed infestations. A tracking log would be used to manage the results of this activity. An example of a project enhancement is the added benefit of rangeland habitat improvement from planting native desert shrubs for phytoremediation of soil and groundwater. An example of a small project that could be quickly pursued and implemented would be to evaluate the height and type of LM property fences in conjunction with site visitation observations on deer or antelope mortality resulting from inappropriate configuration or height of the fence. The outcome of this evaluation would be to remove the upper strand of wire if it were found to entrap deer, or to replace the lower strand to remove impediments to antelope travel, or to do both.

## 9.2.1 Regulatory Relations

DOE has publicly stated its stewardship obligations and has included them as a part of various orders and in a policy statement. LM has additional responsibilities under related federal regulations to manage lands in a sustainable manner.

**DOE Order 430.1B, Change 2, Real Property Asset Management:** This change to the order issued in April 2011 states that Departmental land and facilities are valuable national resources. It requires that land use planning and stewardship responsibilities will be implemented consistent with the principles of ecosystem management and sustainable development.

**Endangered Species Act of 1973 (16 U.S.C. 1531 et seq., as amended):** This law requires the management of federally listed species and their habitat. If habitat is lost in areas that formerly contained federally listed species, the federal land administrator must restore the lost habitat.

**Federal Noxious Weed Act of 1974 (7 U.S.C. 2801 et seq., as amended):** This act requires responsible stewardship related to the control of alien species. Federally listed noxious weeds must be controlled under this act. In addition to the federal act, individual state requirements also address weed control.

**National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.):** This act promotes efforts to prevent or eliminate damage to the environment and biosphere, and to: “enrich the understanding of the ecological systems and natural resources important to the nation.” It also directs the federal government, under Title I, Section 101(b), “to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may... fulfill the responsibilities of each generation as trustee of the environment of succeeding generations.”

## 9.2.2 Coordination with Existing LMS Contractor Activities

LM’s primary concern at sites where long-term surveillance and maintenance (LTS&M) activities have begun is to maintain the integrity of the remedy. The Land Stewardship Program does not duplicate LTS&M objectives. However, Land Stewardship Program objectives to improve or enhance ecological conditions at non-disposal-cell areas enhance the LTS&M efforts. Successful ecological strategies reduce future costs related to controlling and reducing erosion and invasive species.

Invasive weeds are controlled at the LM disposal sites as required by federal and state law (such as the Federal Noxious Weed Act of 1974 and individual state requirements). Invasive weed control will continue as needed. The Land Stewardship Program is not a weed control program and does not duplicate efforts or objectives related to weed control. Instead, it integrates those control systems into the individual site strategies. Sites selected for ecological improvements are expected to need less invasive-weed management. As stated in Section 9.2, a new element to the weed control program would be to track site weed reductions as related to contributing to improved land stewardship.

### **9.3 Responsibilities**

LM and LMS senior management are responsible for overseeing the program and approving program elements.

The program manager and site lead for the selected site have overall management responsibilities for implementing the strategy. Changes to budgets or schedules are coordinated through the program manager and site lead.

The team leader is responsible for ensuring compliance with identified monitoring and reporting requirements and preparing program progress reports. The program team is responsible for communicating the program plan and its objectives and for obtaining approval from DOE, senior management, and project management to implement the plan. The team members are also responsible for ensuring that coordination with related LM programs continues, ensuring that field data are used as productively as possible, and for developing and recommending program goal modifications or additions when appropriate.

Qualified staff will carry out the program's field aspects. The use of interns or students to assist with fieldwork will be considered. As much as practicable, data will be collected and site enhancements will be implemented during required site visits.

### **9.4 Procedures**

Sites are selected for ecosystem enhancement on the basis of a selective screening program, which is defined below. Existing data and site knowledge are used to initially screen all selected sites. Based on the results of the initial screening, sites are selected for a more detailed, or secondary, level of screening. The results of the secondary screening are used to prioritize sites for active process intervention. The reseeding or planting of species that would improve site conditions or provide attractive habitat for wildlife may be included in such an intervention. All subsequent sites transferring to LM are screened after the transfer is complete.

All screening of sites is completed or coordinated by appropriate LMS contractor specialists.

#### **9.4.1 Initial Screening**

Initial screening is applied to all current LM sites and to future sites as they transition to LM. A simple "yes"-or-"no" answer format quickly eliminates sites that are not suitable for further consideration. Appendix 9A of this chapter includes a questionnaire that is used for initial screening.

## 9.4.2 Secondary Screening

Sites considered suitable for more evaluation are screened on a more detailed level and are scored according to “yes,” “true,” or “no” responses. The total site score is used to assist in prioritizing sites selected for ecosystem enhancements. The form used to screen sites is included in Appendix 9A of this chapter. Secondary screening includes evaluating the level of erosion, the presence of invasive species (wildlife and vegetation), the wildlife habitat or potential habitat, use of surrounding land, site conditions, and the level of interest in site improvements.

## 9.4.3 Prioritize Sites for Further Evaluation

Sites are prioritized according to the results of the secondary screening and also with consideration of specific site knowledge of intangible factors or other information that may influence proposed project success.

## 9.4.4 Ecosystem Enhancement Strategy

Ecosystem enhancement strategies will be developed for selected sites. These strategies will incorporate the sites’ attributes and use current programs, collected information, and best management practices. Other strategies, which include incrementally staged site improvements, will be developed as alternatives to the primary strategy.

A net environmental benefit analysis (NEBA) or a similar analysis will be applied to the proposed strategies. The NEBA compares the current cost of maintaining the site to the costs and benefits associated with the site ecosystem enhancements and future costs related to associated activities, such as monitoring. This process assists in identifying the most appropriate and cost-effective scenario. Not only is the process valuable for facilitating the comparison of alternatives to the current approach, but it also is useful for assigning economic values to elements considered intangible. For more information, see *Planning and Promoting Ecological Land Reuse of Remediated Sites* (ITRC 2006).

Once the above steps are completed, a proposal that identifies the existing site condition, proposed strategies to improve the landscape ecosystem, and the results of the NEBA are provided to LM to assist in decision making.

## 9.4.5 Success Criteria

Success criteria are used to assess how well the strategy is working. Criteria may include improved biodiversity, improved soil integrity and water retention, increased wildlife diversity and use, and reduced erosion. Each site plan includes specific and measurable criteria that assist in analyzing trends and that monitor the success of the proposed remedy.

## 9.4.6 Monitoring

A monitoring plan is developed for each selected strategy. The monitoring plan includes, at a minimum, the type of data to be collected, the frequency of monitoring and data collection, the method for data collection (e.g., satellite imagery), other potential uses for site-specific data

collected, and evaluation criteria for measuring overall site success. The monitoring of the program is assigned to the appropriate site personnel and is incorporated into annual site visits.

If monitoring indicates that the selected strategy is not performing as expected, adaptive management, which can include researching a new strategy or modifying the selected strategy, is conducted. Monitoring continues until the strategy is considered self-sustaining. At that point, information about the project’s success is provided to LM so that details of the success may be distributed to the appropriate media outlets. Projects that succeed in improving the environment reflect well on LM’s commitment to land stewardship.

### 9.4.7 Process Summary

The following process flow diagram (Figure 2) illustrates the general steps required to initiate and complete a site-specific ecosystem enhancement strategy. The circular nature of the steps illustrates the relationship to the EMS Plan-Do-Check-Act process.

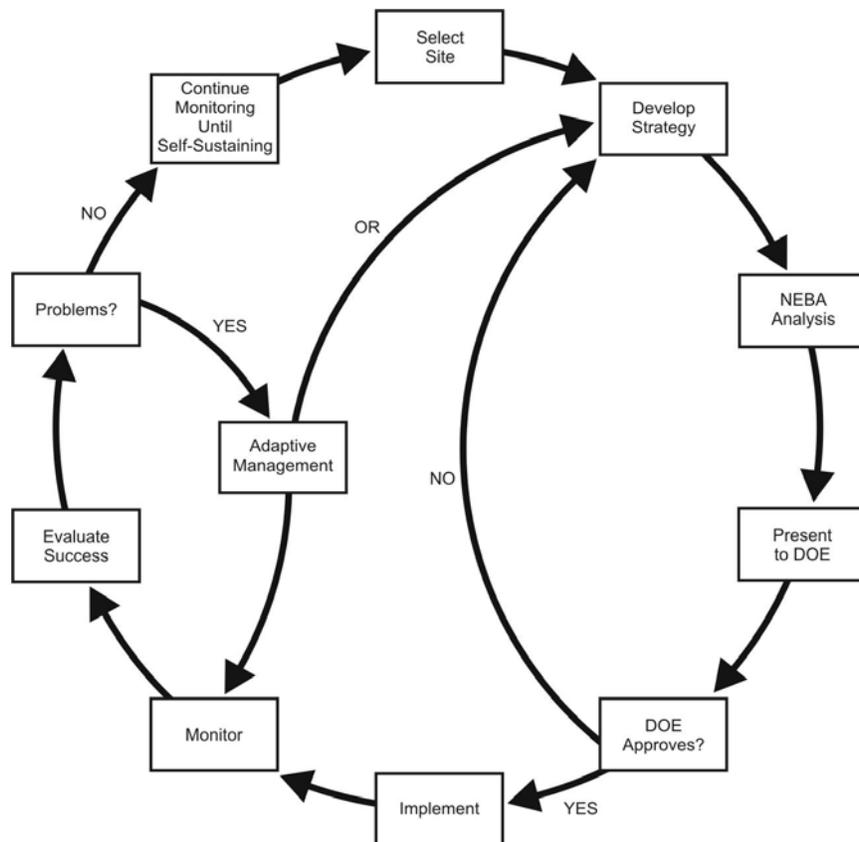


Figure 2. Process Flow Showing Steps and Decisions in a Site Ecological Enhancement

## 9.5 Program Metrics

In addition to the measurable criteria that are developed for each site plan to identify trends and levels of success (see Section 9.4.5), the Land Stewardship Program metrics include the overall acreage improved per year, noted decreases in erosion related to individual plan strategies,

increases to or improvements in wildlife habitat, increased biodiversity, and reductions in invasive species, as related to program activities.

## **9.6 Reporting Requirements**

Quarterly and annual reports that summarize the overall progress of this program, as well as site-specific activities, will be provided to LM. EMS status is provided to LM and LMS management in the quarterly performance assurance reports, and progress is reported quarterly to the EMS Core Team. These reports include information on progress toward established goals. The quarterly performance assurance reports are located on the internal EMS website. The annual report will discuss any recommended changes to program elements or site-specific plans, based on lessons learned from the preceding year.

## **9.7 Training**

A general awareness of the Land Stewardship Program will be provided as applicable to specific site staff. For example, for selected sites, LM and LMS contractor site leads will need to commit to schedule and budget needs and to appropriating resources. An understanding of the program elements and requirements will make it easier to provide resources as they are needed. Ecological site enhancements will be evaluated, identified, and supervised by experienced scientists who have the necessary expertise. Scientists will include contractor geologists, ecologists, and environmental scientists as appropriate to the approved strategy.

## **9.8 Records**

All records will be managed in accordance with LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

Records that are retained include:

- The first- and second-level screening forms for all sites
- The types of background information used to identify an ecosystem strategy
- The results of the NEBA
- The results of monitoring
- Management and DOE approvals for site-specific strategies
- Quarterly performance assurance reports
- SSP
- Annual reports
- Land Stewardship Program media campaign information

## **Appendix 9A**

### **Site Evaluation for Ecosystem Enhancements**

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# Site Evaluation for Ecosystem Enhancements

## Initial Screening Form

Name of Site: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Completed By: \_\_\_\_\_

1. Is the site a records-only site, is the site planned for disposition, or is the site privately owned?

If the answer to any part of question 1 is yes, do not consider the site further. If no, continue.

2. Does LM have jurisdiction and control over the site (i.e., custody and control), or is the site withdrawn from another federal agency?

If the answer to either part of question 2 is yes, proceed to secondary screening. If no, do not consider the site further.

Example form number EMS LSP-001

# Site Evaluation for Ecosystem Enhancements

## Secondary Screening Form

Site: \_\_\_\_\_

Date of Response: \_\_\_\_\_

Completed By: \_\_\_\_\_

Each yes answer or True statement is assigned a value of 1, and each no answer receives a value of 0.

Category	Description	Y = 1 N = 0	Total Score	Comments
Level of Erosion Present	a. Are active gullies present that threaten site integrity?			
	b. Could site modifications control activities causing erosion on site, including activities occurring off site by others?			
Invasive Species Present (Wildlife or Vegetation)	a. Are invasive species present to a degree that requires control, or is control required by local, tribal, state, or federal law?			
	b. Do invasive species threaten other site resources? (If <u>yes</u> , provide descriptive comment.)			
	c. Are invasive species present due to the uses of or lack of attention paid to/by adjacent property/owners?			
Wildlife	a. Are listed, candidate, or sensitive species present currently, known to have been present on the site in the past, or, can the site with enhancements provide appropriate habitat for listed, candidate, or sensitive species? <sup>1</sup>			
	b. Does the site provide unique habitat for nesting or breeding migratory birds?			
	c. If the site is surrounded by land administered by other federal agencies or tribes, are there wildlife considerations in the area that are considered important for their management goals?			

Category	Description	Y = 1 N = 0	Total Score	Comments
Surrounding Land Uses	a. Are administrators/owners of the surrounding land willing to extend similar enhancements on their own properties?			
Water/wetlands	a. Are wetland areas present on the property that would benefit from enhancements?			
	b. Would the addition of a water feature provide a needed source of water for wildlife?			
Site Conditions	a. Does the site have sufficient area available for an ecological enhancement?			
	b. Is more than 80% of the site area occupied by a rock cover?			
Community Involvement/Area Interest	a. Are stakeholders or other concerned parties interested in improving site conditions?			
	b. Would adjacent landowners be positive neighbors to an improvement?			
	c. If non-DOE funding were available for adjacent land improvements that would be consistent with the LM improvement, would landowners participate?			
	d. Can LM cooperatively work with surrounding federal, state, or tribal entities to share costs and maintain enhancements?			
Cost Reductions	a. Does a preliminary evaluation indicate that a site improvement of any kind would result in a reduction in long-term maintenance costs?			
Remedy Improvement	a. Can an ecological improvement contribute to remedy enhancement? For example, would renovation of a cover improve the sustainability of a waste disposal cell?			
	b. Would phytoremediation be an appropriate enhancement to pursue?			
<b>TOTAL</b>				

<sup>1</sup>Listed species include those that the federal, state, or tribal government has classified as threatened or endangered.

## 10.0 EMS Support Teams

Three teams have been developed that will support coordination, dissemination of information, and training for the sustainability programs until they become fully integrated into the day-to-day LM activities. The three ancillary teams are the EMS Core Team, the EMS Media Team, and the EMS Training Team. The purpose and activities for each of these teams are described below.

### 10.1 EMS Core Team

The EMS Core Team is responsible for overseeing the EMS programs teams and functions as the steering committee for management-level decisions. It is composed of an LM senior sponsor and an LMS senior management sponsor, the EMS coordinators, and other representatives from various levels of management and project support as needed.

#### 10.1.1 Purpose

An EMS Core Team was assembled to help integrate LM's EMS and Integrated Safety Management System. This team comprises key Health and Safety, Environmental Compliance, Quality Assurance, and project management personnel from both LM and LMS staff.

#### 10.1.2 Responsibilities

The EMS Core Team is responsible for overseeing the development, maintenance, and continual improvement of the EMS. Additional responsibilities of the EMS Core Team include:

- Ensuring that existing programs, procedures, and controls address the EMS elements required by DOE Order 436.1, EO 13423, EO 13514, and International Organization for Standardization 14001;
- Identifying any need for new or revised programs, procedures, or controls;
- Reviewing significant environmental aspects and related targets and objectives for LM and LMS contractor activities; and
- Ensuring that targets and objectives are tracked and that progress is reported to LM and the LMS contractor senior management.

#### 10.1.3 Records

EMS program and environmental sustainability teams' records are identified and maintained in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

Records include copies of meeting minutes and summaries; results of annual management review; backup information from the environmental aspect identification, objective, and target development process; and establishment of annual targets.

## **10.2 EMS Media Team**

The EMS Media Team conveys information from the EMS Core Team to the work force and the public about environmental sustainability. Progress is also communicated to employees via bulletin boards, *E-News Weekly*, and *ECHOutlook*.

### **10.2.1 Purpose**

The EMS Media Team was developed to raise employee and community awareness about environmental compliance and sustainability and, as a result, further the LM mission by improving LM and LMS contractor performance.

### **10.2.2 Scope**

The EMS Media Team activities consist of assisting with the development and maintenance of EMS Web pages, including a EMS site, an EMS Sustainable Programs site, an Environmental Compliance Program site, individual program pages, and an EMS Internet site. In addition, the EMS Media Team tracks the different types of communication, including the details of the communication or media within the EMS, by utilizing an EMS communications table. The EMS Media Team also tracks environmental-related communication from external parties, the topic of the communication, the site or program area to which the communication pertains, and the status of the communication.

The EMS Media Team also develops and assists with fliers, pamphlets, posters, and *ECHOutlook* and *E-News Weekly* articles on behalf of the EMS Core Team and program teams to promote the EMS and inform LM and LMS employees of EMS events throughout the LM sites. These materials inform employees about DOE EMS news, awards, meetings, seminars, and workgroup sessions. The Media Team may also take the lead in internal EMS contests, awareness events, and community outreach events.

### **10.2.3 Responsibilities**

#### **LM and LMS Senior Management**

LM and LMS senior management are responsible for approval of the LMS contractor media budget, review of proposals, and concurrence in proposals and expenditures in accordance with LMS procedures. LMS senior management is also responsible for ensuring that approved, budgeted resources are available and for reviewing and approving any posters, contests, newsletters, etc., that are produced by the EMS program teams.

#### **Project Managers**

Project managers are responsible for communicating environmentally sustainable achievements and improvements to the EMS Core Team so the EMS Core Team can continue to promote EMS awareness and provide demonstrative results and benefits of the EMS.

## **Program Team Members**

Program team members are responsible for promoting and being champions of the program, for facilitating program implementation, and for helping employees become aware of the program by providing program-specific goals, activities, and achievement information to the EMS Media Team.

## **LMS Staff Members**

Staff members are responsible for communicating ideas to promote the EMS, suggesting ways to improve EMS communications, and providing information on sustainable environmental practices used during their routine work activities.

### **10.2.4 Program Instructions**

Sustainability program teams work with the EMS Media Team to revise and update Intranet pages as necessary, advertise upcoming activities and achievements, and promote program awareness through internal communications. Internal and external communications and media are managed in accordance with the *Communication Programs Manual* (LMS/POL/S04846). This document describes internal communications and distribution of information, including the development of Intranet pages, *E-news Weekly* articles, posters, documents, forms, directives, employee updates, and Information Technology department broadcasts. The document also describes external communications such as community and media relations and development of public documents, graphic design, and internet pages.

The EMS Media Team works closely with Public Affairs, Publication Services, graphics personnel, and Document Production to ensure that program communications are conducted in accordance with the publications manual and other internal requirements. The EMS Media Team works closely with EMS program teams to ensure that their Web pages are maintained and updated.

The EMS Media Team works with other departments and the EMS program teams to develop internal communications and to ensure distribution of and updates to internal communications, such as:

- *E-News Weekly* articles
- *ECHOutlook* articles
- EMS Intranet pages
- Posters, pamphlets, fliers, and other internally distributed literature
- Promotional items

The EMS Media Team works with Public Affairs and Publication Services on external communications such as:

- Community outreach activities:
  - Partnerships
  - Sponsorships

- Donations
- Volunteering
- News releases:
  - Interviews
  - Articles
- EMS posters, pamphlets, fliers, and other externally distributed literature.
- EMS Internet page.
- Distribution of promotional items.

### **10.2.5 Training**

EMS Media Team members who develop media for publication and distribution are trained in applicable areas of communication.

### **10.2.6 Records**

Copies of documents and literature distributed internally or to the public are maintained as records. Records are identified and maintained in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the *LMS Records Management Manual* (LMS/POL/S04327).

## **10.3 EMS Training Team**

The EMS Training Team fosters the development of training to support the EMS. EMS training contributes to improving LM's environmental performance by making LM and LMS workers more aware of the environmental impacts of LM operations and informing workers about the requirements, objectives, and targets of the EMS and its various programs. Training plans are developed in consultation with the LMS Training department to identify training needs, sources of training, and training schedules.

### **10.3.1 Purpose**

The EMS Training Team establishes a systematic process for developing and implementing EMS training. Conformance with this plan produces EMS training that is informative, relevant, useful, and consistent. Appropriate EMS training contributes to LM's compliance with EO 13423, EO 13514, and DOE Order 436.1.

### **10.3.2 Scope**

This program plan describes the work sequence for developing and implementing EMS training. The plan identifies the information common to all EMS training but does not dictate the specific content. The specific information required for a particular EMS training topic and the target audiences for the training are determined through a cooperative effort among the training developer (subject matter expert [SME]), pertinent EMS program team, and LM and LMS contractor EMS training coordinators.

Two types of training are developed for the EMS: awareness training and competence training.

### **Awareness Training**

Awareness training, whether developed for the entire EMS or for specific EMS programs, may be directed at the entire LM and LMS work force or pertinent functional groups. It provides broad information about EMS topics, such as the purpose, structure, and targets of the EMS or a particular EMS program. Awareness-level training is developed for the EMS as a whole and for each of the sustainability programs.

### **Competence Training**

Competence training (sometimes termed functional training) is usually directed at a specific group of workers whose activities have the potential to significantly impact the environment. It is more specialized than awareness training and focuses on informing workers about the potential adverse environmental impacts of their work and the specific operational controls necessary to minimize those impacts. For example, hazardous waste management training would be provided to employees who generate or manage hazardous waste. EMS training coordinators and program teams develop or pursue competence training on an as-needed basis and identify specific personnel required to receive the training.

Though awareness and competence training differ, the process for their development, which is explained in Section 10.4, is the same.

Since the EMS is a joint program between LM and the LMS contractor, every effort is made to develop a single EMS training course that serves both parties. The training is offered to both parties through the LMS Training department.

## **10.3.3 Responsibilities**

### **LM and LMS Management**

LM and LMS management are responsible for the following:

- Ensuring that all workers are held accountable for complying with the requirements of EMS training
- Providing adequate resources (personnel, funding) to implement EMS training

### **EMS Coordinators**

The LM and LMS contractor EMS coordinators are responsible for overseeing the development and operation of all facets of the EMS, including training.

## **EMS Training Coordinators**

The LM and LMS contractor EMS training coordinators are responsible for the following:

- Overseeing the development, implementation, and continual improvement of EMS training
- Leading and maintaining the EMS Training Team
- In cooperation with the EMS coordinators and EMS program teams, determining EMS training needs
- Working cooperatively with SMEs, EMS program teams, and the LMS contractor Training department to develop EMS training courses

## **LMS Contractor Training Department**

The LMS contractor Training department, within the scope of its responsibilities as the LMS contractor's training support organization and in accordance with EMS requirements, is responsible for the following:

- Working cooperatively with EMS staff, including EMS training coordinators, the EMS Training Team, and SMEs, to develop EMS training courses
- Offering EMS training to the LM and LMS contractor work force
- Maintaining EMS training courses in its Training Information System (TIS) database
- Maintaining EMS training records in LM's Corporate Human Resource Information System (CHRIS) and the LMS contractor's TIS database, including records for individual LM and LMS workers and for the overall worker completion numbers for various EMS training courses

## **Subject Matter Expert**

The SME is highly proficient in a particular EMS program or topic, such as renewable energy or sustainable buildings. The SME is responsible for the following:

- Working cooperatively with EMS training coordinators and pertinent EMS program teams to develop EMS training
- Serving as the EMS point of contact with the LMS Training department to facilitate development of EMS training courses
- Developing the initial draft of an EMS training course in the SME's area of expertise

## **EMS Program Teams**

EMS program teams are responsible for working cooperatively with EMS training coordinators and SMEs to develop and implement pertinent EMS training.

## **Workers**

LM and LMS workers are responsible for complying with EMS training requirements, including keeping pertinent EMS training up to date.

## 10.4 Procedure

This section describes the following:

- How EMS training is developed and implemented
- Information to be included in every EMS training course that is developed in house
- Workers who must receive every EMS training course (in addition to the target audiences identified for specific EMS training)

EMS staff and the LMS Training department develop and implement EMS and sustainability training using a sequential process to ensure that timely and pertinent input is provided. This process enables multiple EMS personnel to contribute to EMS training content and incorporates the Training department's best management practices for training development.

EMS training primarily consists of Web-based training courses. This training is developed in house by the appropriate EMS program team, the EMS training team, and the LMS contractor Training department. EMS training information presented herein pertains to the in-house web-based training approach. If other types of EMS training are offered, the following principles of training development and implementation should be adhered to:

- EMS training coordinators should endorse and oversee the development of other types of EMS training
- Other types of EMS training should be developed in a systematic way to ensure that a number of staff with EMS experience, especially EMS training coordinators and EMS program teams (as applicable), can contribute to the training and have the opportunity to review draft and final versions before the training is made available to workers
- Other types of EMS training should be developed by personnel proficient in the training topic

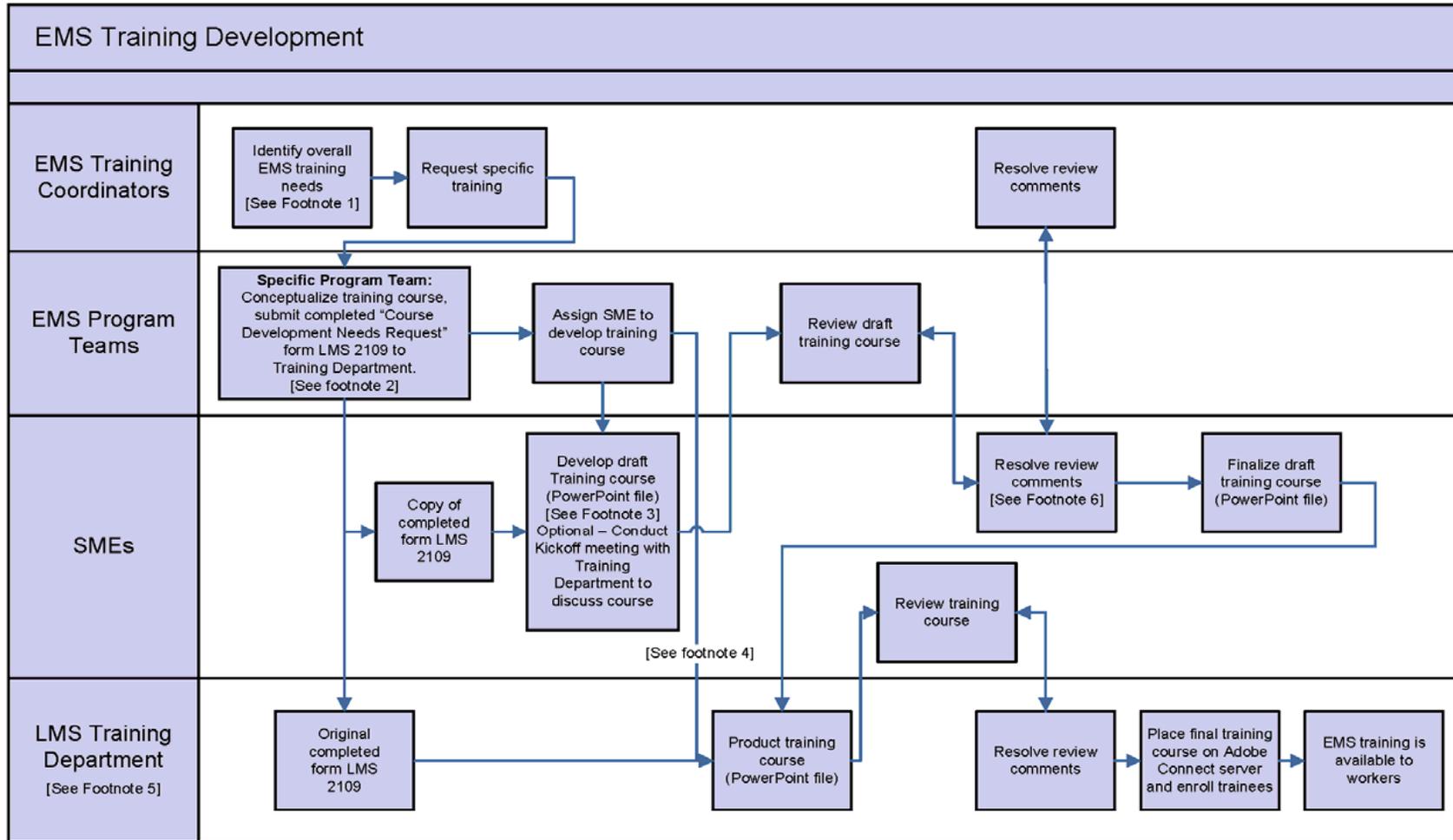
The LMS Training department should be involved with the administration (and development, as needed) of other types of EMS training, including tracking worker training records.

Additional EMS and sustainability training may come through employees participating in workshops, seminars, conferences, webinars, etc.

The EMS training team provides training information annually for the SSP and annual energy report (CEDR spreadsheet).

### 10.4.1 EMS Training Development

Figure 3 illustrates the process for developing EMS training. An EMS training course is available to workers once the LMS Training department has finalized the training and published it to the Adobe Connect server.



<sup>1</sup> May include input from EMS Sustainability Coordinators and EMS program teams.

<sup>2</sup> A copy of the Course Development Needs Request (form LMS 2109e) can be obtained on the LM Intranet.

<sup>3</sup> A list of topics that are required in every EMS training course is provided in Section 10.4.2.

<sup>4</sup> If EMS and SME resources are not available to develop draft EMS training course, the LMS Training department may be requested to develop draft EMS training using course content provided by the pertinent EMS program team. In such cases, the EMS program team or the EMS training coordinators will designate a point of contact to interface with the Training department for course development.

<sup>5</sup> Once a specific training course is under development, the LMS Training department works with only the SME to complete development of that course.

<sup>6</sup> The SME must resolve all review comments with an EMS Program Team before submitting a draft training course to EMS training coordinators for review.

Figure 3. EMS Training Development

## **10.4.2 EMS Training Course Content**

At a minimum, the following information is included in every in-house-developed EMS and sustainability training course:

- Goals
- Objectives
- Drivers
- Environmental aspects and impacts, and the consequences of not complying with drivers and procedures
- Quiz questions
- Contacts

## **10.4.3 EMS Training Course Trainees**

The target audience for an EMS training course, which is first designated on the LMS Training department's Course Development Needs Request, is dependent on such factors as the type of training (awareness training, competence training), the training topic, and a worker's job function. EMS training coordinators, program teams, and SMEs should work together to identify the final target audience for a particular EMS training course. In addition to the target audiences identified for particular EMS training courses, the following positions (which are both LM and LMS contractor positions) must receive every EMS training course:

- EMS coordinators
- EMS training coordinators
- EMS media coordinators
- EMS program advocates
- EMS program team leads
- Environmental Compliance managers

## **10.5 Program Metrics**

Metrics for EMS training consist of tracking EMS training records for individual LM and LMS workers and keeping an accounting of the overall worker completion numbers for various EMS training courses. The LMS Training department maintains this information in its TIS database and can provide it upon request.

## **10.6 Reporting Requirements**

There are no formal EMS reporting requirements for EMS training records, including individual worker training records and the overall worker completion numbers for various EMS training courses. The LMS Training department tracks this information in its TIS database and can provide it upon request.

Sustainability training status and plans are reported annually in the SSP. In addition, the number of people trained and the amount of money spent on sustainability training is reported in the annual energy report (i.e., the CEDR spreadsheet).

## **10.7 Records**

EMS training records, including records for individual LM and LMS workers and the overall worker completion numbers for various EMS training courses, are maintained by the LMS Training department in its TIS database. LM maintains a separate tracking system—the Corporate Human Resource Information System—for their employees. All records will be managed in accordance with the requirements of LM Procedure 200.4, *Records Management*, and the LMS *Records Management Manual* (LMS/POL/S04327).

## 11.0 Glossary

**Alternative fuel:** Fuel that is not petroleum-based, such as ethanol, natural gas, hydrogen, biodiesel, and electricity. Also defined in Title 10, *Code of Federal Regulations*, Part 490, “Alternative Fuel Transportation Program.”

**Alternative-fuel vehicle:** A dedicated-fuel, flexible-fuel, biofuel, or dual-fuel vehicle powered by alternative fuel as defined in Section 301 of the Energy Policy Act of 1992.

**DOE Federal Energy Management Program (FEMP):** A program managed by the DOE Office of Energy Efficiency and Renewable Energy that assists federal agencies in the areas of energy efficiency, water conservation, renewable energy, and utilities management.

**EcoLogo:** A program used to certify that products meet predetermined green standards. In terms of electronic equipment, EcoLogo is a desirable green certification for certain imaging equipment (e.g., photocopiers, printers, fax machines). Additional information is located at the EcoLogo website.

**Ecosystem:** A natural unit consisting of plants, animals, and microorganisms that function together and with all of the area’s nonliving physical factors.

**Electronic equipment:** Refers primarily to computer equipment, such as desktop and laptop computers (including central processing units and monitors). Under certain circumstances, can also refer to computer peripherals (such as keyboards, scanners, mice, and printers), copiers, fax machines, televisions, and miscellaneous items such as mobile phones.

**Electronic Product Environmental Assessment Tool (EPEAT):** A publicly available web-based tool that helps users evaluate, compare, and select computer equipment based on desirable environmental attributes such as energy efficiency, recycled material content, and upgradeability. The use of EPEAT is supported in the Federal Acquisition Regulation through Federal Acquisition Regulation Case 2006-030. Additional information is located on the EPEAT website.

**Energy efficiency:** Measures, practices, or programs that reduce the energy used by specific devices and systems, typically without adversely affecting the services provided. Such savings are generally achieved by substituting more technically advanced equipment or by improving operating procedures (e.g., operations and maintenance procedures) to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less energy input.

**Energy efficiency and greenhouse gases feasibility evaluation:** Development and documentation of relevant information sufficient to allow informed decisions to be made regarding energy efficiency and greenhouse gas generation.

**Energy intensity:** Energy consumption per gross square foot of building space, including industrial and laboratory facilities.

**Energy Star:** A joint EPA and DOE program that recommends energy-efficient products and practices. Additional information is on the Energy Star website.

**Environmentally preferable products:** Products that are biobased, energy efficient, recycled content, water efficient, or that have some other desirable environmental attribute.

**Sustainable acquisition:** The preferential purchasing of products and services that have a lesser or reduced negative effect on human health and the environment when compared with competing products and services that serve the same purpose.

**Federal Automotive Statistical Tool (FAST):** A tool that is used to submit Standard Form 82, Agency Report of Motor Vehicle Data. The vehicle data include fuel consumption and age of vehicle.

**Federal Electronics Challenge (FEC):** A partnership program for federal agencies that helps participants purchase, use, and recycle electronic equipment in an environmentally conscientious manner. Many of the FEC's goals align with the electronics stewardship goals in EO 13423. Additional information is on the FEC website.

**“Green” building:** A building that practices increasing the efficiency with which the building uses resources (energy, water, and materials) while reducing building impacts on human health and the environment through better siting, design, construction, operation, maintenance, and removal—the complete building life cycle.

**Greenhouse gases:** Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

**Hybrid vehicle:** A vehicle that uses two or more distinct power sources for propulsion.

**Land stewardship:** The practice of carefully managing land use to ensure that natural systems are maintained or enhanced for future generations.

**Leadership in Energy and Environmental Design (LEED):** A sustainable (green) building rating system developed by the U.S. Green Building Council (USGBC) in 2000. LEED is a tool for buildings of all types and sizes. LEED is a point-based system in which projects earn LEED points for satisfying specific sustainable building criteria. LEED certification is available in four progressive levels: Certified, Silver, Gold, and Platinum.

**Life-cycle cost:** Cost of a product or facility over its entire life, including acquisition, owning, operating, and disposal costs. Life-cycle costing takes into account initial cost, the cost of money, energy costs, operation and maintenance costs, component replacement costs, salvage value, and other factors that will affect cost over the entire life of the project or facility.

**Life-cycle cost-effective:** A measure of whether the life-cycle costs (the sum of the present values of capital costs, installation costs, operating costs, maintenance costs, and disposal costs over the lifetime of the project, product, or measure) are estimated to be equal to or less than the base case (i.e., the current or standard practice or product).

**LM energy baseline:** A determination of the amount of energy consumed on a specified periodic basis at identified locations or aggregated locations for which information is available through metering, utility company billing, or calculation based on system design capacity.

**Major renovations:** Construction activities that (1) result in replacement of the Real Property Record, change of the Building Usage Code, or replacement of multiple building systems that significantly impact building operations and/or extend a building's useful life and (2) involve acquisition costs up to \$5 million (total estimated costs).

**Net environmental benefit analysis (NEBA):** Assignment of economic values to costs and benefits associated with the proposed actions and compared to the existing costs associated with maintaining the site.

**New construction:** A new construction or major acquisition with costs greater than \$5 million (total estimated cost).

**New renewable energy:** Renewable energy generating sources placed in service after January 1, 1999.

**Non-petroleum-based fuels:** See **alternative fuel**.

**Pollution prevention:** Reducing or eliminating the release of pollutants into the environment by means such as source reduction, sustainable acquisition, modified product design, alternate work practices, and the segregation of waste materials from nonwaste.

**Pollution prevention opportunity assessment (PPOA):** A systematic method of examining work processes and materials to identify opportunities for reducing or eliminating the release of pollutants into the environment and the generation of waste.

**Potable water:** All water that is obtained from public water systems or from natural freshwater sources such as lakes, streams, and aquifers, where the water is classified or permitted for human consumption.

**Recycling/reuse:** The repeated utilization of the same material by either treating or processing the material to enable further use (recycling) or extending the life of a material by using it multiple times without treatment or processing (reuse).

**Renewable energy:** Energy produced by solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), hydrokinetic, geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.

**Renewable energy feasibility evaluation:** Development and documentation of relevant information sufficient to allow a management decision on whether to implement a renewable energy generation project or grant a waiver.

**Site:** Any building, installation, structure, land, fixture, or other property.

**Source reduction:** The reduction or elimination of the quantity or toxicity of hazardous substances, pollutants, or wastes entering a waste stream or being released into the environment before recycling, treatment, or disposal, thereby reducing the hazards to public health or the environment.

**Statutorily required renewable energy consumed:** As defined in EPCA of 2005, of the total electric energy consumed by federal entities, renewable energy shall be at least 3 percent in

FYs 2007–2009, at least 5 percent in FYs 2010–2012, and not less than 7.5 percent in FY 2013 and each fiscal year thereafter.

**Sustainable building:** A building that incorporates sustainable design principles to reduce or minimize the negative impact to the environment and reduce the energy, electricity, and water consumed by the building. Sustainable buildings are designed, built, and operated in a way that reduces their negative impact on the natural environment. “Sustainable” building is synonymous with “Green” building.

**Sustainable design:** A building design that seeks to reduce negative impacts on the environment, reduce consumption of nonrenewable resources, minimize waste, and create healthy, productive work environments, thereby improving building performance.

**U.S. Green Building Council (USGBC):** A nonprofit organization whose membership consists of leaders from every sector of the building industry. The USGBC works to promote buildings that are environmentally responsible, profitable, and healthy places to live and work. USGBC has developed the LEED Green Building Rating System as a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

**Waste minimization:** Reducing the volume of hazardous materials used, or recycling or reusing solid and hazardous materials, such that the materials are not placed in landfills. Examples of waste minimization include reprocessing scrap metal to use in other products, reprocessing asphalt to resurface roads, recycling paper products, and recycling used oil.

**Water-consumption intensity:** Potable-water consumption measured in gallons per gross square foot of building space, including office space, industrial and laboratory facilities (provided that the building space uses water), and surrounding land, as applicable to Goal Metrics Program sites. Potable water used for landscape irrigation is to be reported in the total water use, but the amount of turf or landscape area is not included in gross-square-footage reporting.

**Water use:** Includes all potable water used for human consumption, building processes, the cooling of power plants or buildings, landscape, irrigation, or industrial purposes.

**WaterSense:** A partnership program sponsored by EPA to help preserve the nation’s water supply. If a product or program is labeled “WaterSense,” it meets established water-efficiency and performance criteria. The label indicates that a product will perform well and help save money. Additionally, WaterSense has partnered with irrigation professionals and water product manufacturers. Information is available on the EPA website.

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