

Sandia National Laboratories Environmental Management System Meeting the New Requirements



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**Presented at the
EFCOG Environmental Subgroup**

June 20, 2008



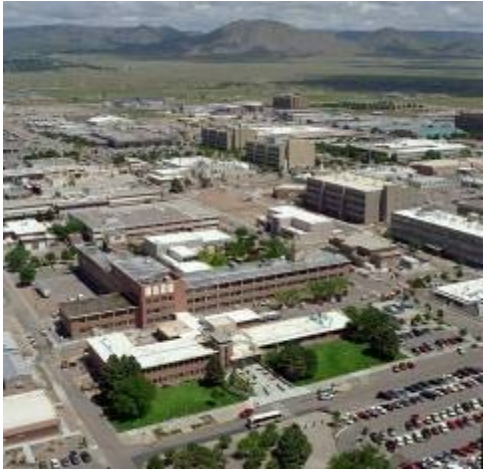
Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.





Sandia Overview

Distributed Facilities to Meet National Needs



**Albuquerque,
NM**



**Kauai Test Facility,
HI**



**Tonopah Test Range,
NV**



**Yucca Mountain,
NV**



WIPP, NM



Pantex, TX



Livermore, CA

Sandia Overview Statistics



- Sandia's facilities and infrastructure systems support a workforce of over 12,400 people, including regular employees, non-regular employees, and resident visitors

▪ Overall, Sandia's physical area encompasses over 188,000 acres of land, 49 miles of paved roads and 38 miles of unpaved roads, 6.9 million gross square feet (GSF) of owned buildings and 461,000 GSF of leased buildings totaling 7.40M GSF



Sandia's Implementation of EMS

- **Element of the Integrated Laboratory Management System (ILMS)**
- **Implemented through the Integrated Safety Management System (ISMS)**
- **Executed through the following:**
 - **Division EMS Team**
 - **Environmental Programs**
 - **the EMS Core Team**
 - **The EMS Coordination Team**

SANDIA NATIONAL LABORATORIES



FISCAL YEAR 2008 ENVIRONMENTAL MANAGEMENT SYSTEM MANUAL



Sandia National Laboratories EMS Manual

September 2007

Rev 1

Sandia National Laboratories FY 2008 EMS Manual Approval

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EMS Program Coordinator

Sept. 24, 2007
Date

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Environmental Planning, Manager

Sept. 24, 2007
Date

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Environmental Programs & Assurance, Manager

Sept 24, 2007
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Date

Philip Newman, 4100
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Sept 24, 2007
Date

Michael Hazen, 4000
Vice President, CFO

Sept 24, 2007
Date

John Stichman, 00003
Executive Vice President

Sept. 26, 2007
Date

Tom Hunter, 00001
President and Laboratories Director

Sept 28, 2007
Date

Environmental Programs



- Ter
- Env
- Cod
- Meteorology
- Energy Management
- Storm Water
- Groundwater Monitoring
- Safe Drinking Water Protection
- Oil Storage
- Waste water Discharge
- Ecology

Policy

- Air Quality Compliance
- Surface Discharge
- Rad National Emission Standards for Hazardous Air Pollutants (NESHAPs)
- Long Term Environmental Stewardship (LTES)
- Hazardous Waste Permitting & Compliance



EMS Core Team

- **EMS Core Team Meets Monthly**
- **Consists of EMS Coordination Team, LIWG Members, Environmental Subject Matter Expert (SME), Owners of Significant Environmental Aspects (Fleet, Energy Management, Procurement, Pollution Prevention, Compliance Programs, NEPA)**
- **Interface between Corporate EMS and Division Implementation**
- **Participate in aspects impacts analysis**
- **Review EMS Manual and other corporate EMS documents**
- **Assist in awareness and grading of EMS Excellence award nominations**



Division EMS Implementation

- **Division EMS Action Plan (Annually)**
- **Division-Level Aspects/Impacts Analysis (Annually)**
- **Set Divisions EMS Objectives and Targets (Annually)**
- **Track Progress toward Achieving EMS Targets (Quarterly)**
- **Provide EMS Progress Reports to division VP and EMS Coordinator (Quarterly)**
- **EMS Briefing to Division (Annually)**



EMS Coordination Team

- **Consists of Members of the Workforce who assist in implementing the Sandia EMS**
- **Annually review and revise the Sandia ES&H Manual to include EMS requirements,**
- **Submit recommendations to managers regarding adequate staffing for the Sandia EMS,**
- **Submit all required EMS reports,**
- **Serve as primary contact with DOE EMS counterparts,**
- **Facilitate EMS Core Team meetings, and record and distribute the results of those meetings,**
- **Conduct weekly EMS Coordination Team meetings: the EMS Coordination Team,**
- **Assist line organizations with implementing divisional EMSs,**
- **Conduct system self-assessments and provide leadership to the EMS,**
- **Work with environmental SMEs, and**
- **Facilitate the top management review of EMS.**



BUDGET AND STAFFING

- **NM**

- 10 Staff members participate – 5.4 FTEs (includes 0.5 FTE funding provided by Energy Management). Total budget \$570,000
- Environmental Programs, Division Implementation, Energy Management and Fleet are separately funded.

- **CA**

- EMS Implementation is included within the Environmental Programs budget.



Management Review

- **NM**
 - Quarterly status of objectives and targets for both Sandia corporate and divisions
 - Annual approval of EMS Manual
 - Semi-annual EMS review meeting with Sandia management and DOE
- **CA**
 - Semi-annual management reviews formed around the ISO standard
- **IN THE WORKS – Establishment of EMS Management Advisory Group**
 - More formal review of objectives and targets
 - Set high level direction and guidance for EMS implementation



Communications

- **Newsletters**
- **Lecture Series**
- **EMS Excellence Awards**
- **Fact Sheets**
- **Internal and External Websites**
- **National Atomic Museum Video and display**
- **Public Meetings**
- **Youth Education (Youth Conference & Education models)**
- **Internal Publications (Cafeteria Events, SDN, Porcelain Press, LabNews)**



Environmental Management System Excellence Awards

Sandia National Laboratories

Submit Nominations Now!

The Semi-annual Environmental Management System (EMS) Excellence Award recognize innovation made by members of the workforce that contribute to the vision of Sandia's EMS. The EMS Core Team will recognize those individuals and teams who demonstrate environmental excellence in five specific categories:

- 1. Water Conservation/Energy Reduction*
- 2. Risk Mitigation/Environmental Protection*
- 3. Environmentally Preferable Purchasing*
- 4. Waste Minimization*
- 5. Recycling*

Where Can I Find More Information On EMS Award Criteria?

Please visit our website at <http://ems.sandia.gov> for information on the award nomination process. Also, refer to either your EMS Champion, Environmental Compliance Coordinator and/or Pollution Prevention Representative; they will be glad to assist you with the nomination preparation.



Please submit nominations to:
kmwagne@sandia.gov

Deadline:
January 7, 2008



Earth, Wind & Sun

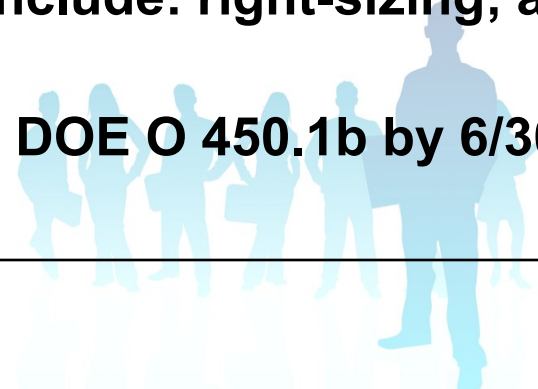
Sandia National Laboratories - July 23 & 24, 2008





The New Requirements

- Executive Order 13423
- DOE Order 450.1a
- DOE Order 430.2b

1. Requires independent validation of EMS consistent with the ISO14001 standard
 2. Requires a verifiable compliance management approach
 3. Increases scope of EMS to include energy, water, sustainability and fleet operations
 - a. Reduce water use 2% per year (16% total)
 - b. Reduce energy 3% per year (30% total)
 - c. Increase green buildings to 15% of total building stock
 - d. Fleet goals include: right-sizing; alternative fuel and AFV use.
 4. Compliance to DOE O 450.1b by 6/30/2009
- 



Independent Validation of EMS

- **Sandia, CA**
 - **ISO 14001 Certified**
 - **Performance Track Partner**
- **Sandia, NM**
 - **Pursuing ISO 14001 Certification (target date is Feb. 2009)**
 - **Performance Track Application (Fall 2008)**
 - **Waste Wise Partner**
- **EMS implementation and validation at Sandia's smaller sites is accomplished by division implementation**



Verifiable Compliance Management Approach

- **In NM, compliance management is described in each of the Environmental Program Plans.**
- **Compliance Audits:**
 - **Accomplished through our internal audit and assessments program as well as regulatory, corporate (Lockheed Martin), DOE and other audits and inspections. These results are documented and tracked in LESA (Laboratory Enterprise Self-Assessment) and CATS (Corrective Action Tracking System) databases.**



EMS Scope must include Energy, Water, Sustainable Design and Fleet Operations

- **Energy Management is an Environmental Program. It's scope includes energy management, water conservation and, in concert with Environmental Planning, sustainable design**
- **Representatives from energy management and fleet operations serve on the EMS Core Team**
- **Energy, water, transportation (on-site and off-site), land use an**



Sandia's Environmental Aspects FY08

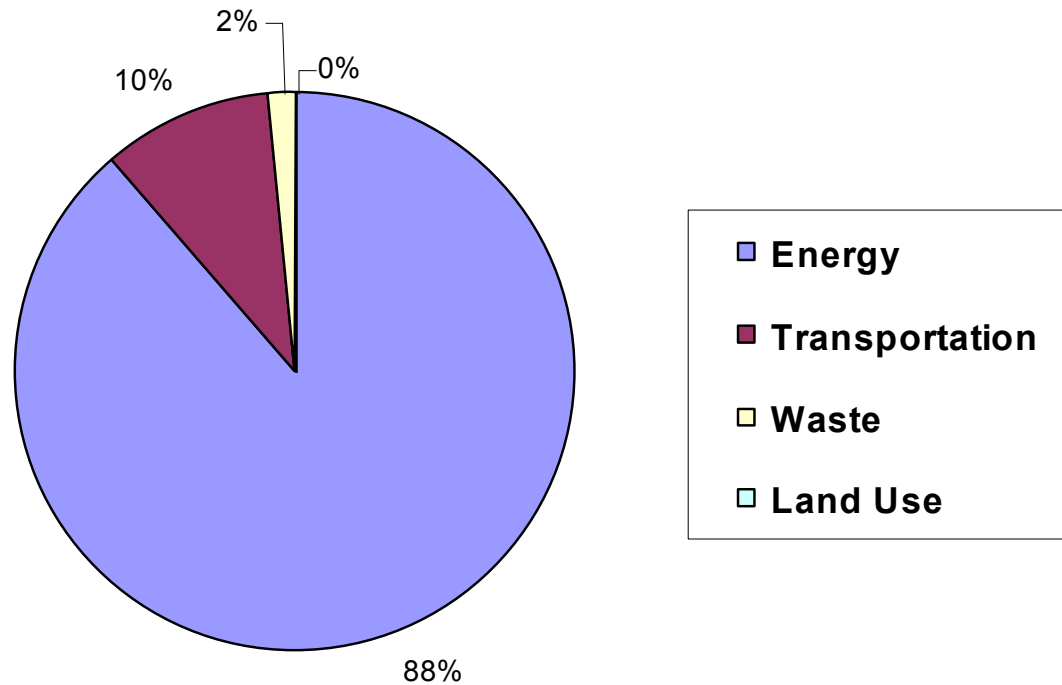
13 ASPECTS
Land Use
Air Emissions
Water Discharges (Sanitary Sewer and Storm water)
Personal Transportation
Hazardous Material Use and Storage
Resource Use (water, natural gas, electricity, materials)
Fire Risk
Material Transportation
Noise and Vibration
Radioactive Material Use, Storage, and Waste Management
Hazardous Waste Management
Solid Waste Generation, Handling and Disposal
Use, Storage and Disposal of Biological Hazards

Note: Aspects in **bold** were deemed significant and require objectives and targets to mitigate their impacts.

OBJECTIVE	TARGET	STATUS
Reduce Energy Use	Reduce as annual energy use by 1 percent in FY08 compared to FY07 for all buildings excluding exempt buildings	An 8% and a 16% reduction in energy use was seen in the first and second quarter of FY08, respectively compared to FY07.
Reduce Water Use	Reduce water by 2 % in FY08 compared to FY07.	Water consumption decreased by 2.4% and 15.9% during the first and second quarters respectively by compared to FY07.
Green Building	Certify two LEED-NC and one LEED-EB buildings	CINT, MESA-Lab, and WIF are LEED-NC certified. Two buildings, 929 and 702 are being evaluated for LEED-NC. Institutional credits are being developed.
Reduce environmental impact of transportation	Complete a site-wide transportation study for on-site movement and commuters.	Data is being gathered and analyzed.

GRAPH OF ECOLOGICAL FOOTPRINT

Ecological Footprint By Category





Energy Management Program

- The Energy Management Program mission is to follow energy efficiency leadership goals that apply to energy, water, and utilities management using a life-cycle cost effective approach. Our goal is to reduce energy consumption, increase water conservation, reduce greenhouse gas emissions, and support the use of renewable energy, at all Sandia facilities.

- **Last year SNL spent \$13,500,000 in combined gas & electric usage (expected to double)**
- **Last year SNL used a total of 550,000,000 gallons of water (expected to decrease)**
- **Over the last 3 years, Lab & Industrial energy intensity has increased by 15% (probably stable)**



Sustainable Transportation at Sandia

- All DOE Order 430.2b goals have already been met.
- Fleet Services has historically had a partnership with P2 and, more recently, with EMS.
 - Fleet is a member of the EMS Core Team.
 - Aspects are evaluated and objectives and targets are included in division EMS Action Plan and the corporate EMS Manual.

Sustainable Design at Sandia to Date

- **Almost 10% of SNL/NM S.F. is/will be LEED certified**
- **SD has been applied to Line Items, GPPs, Major Renovation, Restoration and M&O**
- **More certified buildings than any other NM entity**
 - **4 LEED NC certified buildings**
 - **WETL, JCEL, CINT, MESA Fab**
 - **2 LEED NC registered buildings**
 - **MESA MicroLab & WIF**
 - **2 LEED buildings in design**
 - **ESC and IBL**
 - **1 LEED EB registered building**





CA Reorganization – to better integrate with E.O requirements

- **EMS Manager now has responsibility for
Logistics and Fleet management**
 - **Better alignment with Reapplication**
 - **Better integration with EMS and Fleet**



Barriers to Implementation

- **Organizations, outside the environmental area, must be folded into EMS. This includes the rigor that ISO 14001 requires.**
- **Declining budgets.**
- **Flow-down to contracts – one of our targets this year is to revise contract documentation to use environmental stewardship (EMS) as a selection criteria.**
- **ISMS integration.**