

**OFFICE OF CONTRACT ASSURANCE  
LAWRENCE BERKELEY NATIONAL  
LABORATORY**

**Internal Assessment**

**of the**

**LBNL Performance-Based Environmental  
Management System**

**September 2008**

## **Executive Summary**

The Lawrence Berkeley National Laboratory (LBNL) Performance-Based Environmental Management System (EMS) serves as a framework within which the Laboratory satisfies requirements of DOE Order 450.1, *Environmental Protection Program*, and DOE Order 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*. Both Orders direct DOE contractors to implement an EMS as the primary management approach for addressing environmental aspects of energy and transportation functions; establishment of objectives and targets to ensure implementation and collection, analysis, and reporting of information to measure performance. LBNL fully implemented its EMS in 2004. In December 2005, the DOE Berkeley site manager confirmed that the EMS fully conforms to EMS requirements under DOE Order 450.1, *Environmental Protection Program*. The LBNL EMS undergoes an annual internal assessment and triennial third-party validation. The Laboratory is currently evaluating expanded requirements of DOE 450.1A, *Environmental Protection Program*, and developing a plan to fully implement the new requirements by the June 2009 deadline.

The EMS Team Leader and Core Team performed most of the EMS activities in accordance with the EMS Plan and corresponding procedures: proper training; annual review of environmental aspects, identifying and/or updating significant impacts; and developing and/or updating environmental management programs (EMPs). The current EMPs are all multi-year improvement programs:

- Reduce vehicle fleet petroleum consumption
- Reduce Laboratory commute traffic
- Reduce diesel particulate matter emissions
- Reduce electricity use site-wide
- Reduce water consumption intensity
- Increase solid waste diversion
- Increase procurement of Energy Star Products and Recycled Content Products.

Notable achievements of the EMPs include use of compostable packaging at the LBNL Cafeteria, petroleum fuel reductions far exceeding the FY08 goal, and B70A wastewater reuse for cooling tower makeup.

The internal assessment noted one finding in the EMS Management Review program element; there was no annual management review of the EMS per requirements of Revision 2 of the *LBNL Environmental Management System Plan*. Also noted in the assessment are three observations and one noteworthy practice.

## **Introduction**

The LBNL Performance-Based EMS Plan requires an annual internal assessment of the LBNL environmental management system. The internal assessment evaluated the implementation of the EMS against the requirements of the LBNL Performance-Based EMS Plan and supporting procedures. This included maintaining an active EMS Core Team, training appropriate staff, performing an environmental aspects review, creating EMPs, assessing the program and conducting a management review.

The assessment included interviews with the EH&S Division Director, the EMS Core Team Leader, and EMS Core Team Members.

## **Description of the Assessment**

Michelle Flynn of the Office of Contract Assurance performed the assessment. The opening and closing meetings were held, respectively, on August 28 and September 16, 2008 with Ron Pauer, Core Team Leader, and Kim Abbott, observer from the DOE Berkeley Site Office (BSO). Mr. Abbott also attended interviews of the Core Team Leader and two of the Core Team members.

Individuals interviewed:

- Howard Hatayama, Environment, Health & Safety Division Director
- Ron Pauer, EMS Core Team Leader
- Michael Dong, EMS Core Team Member
- Blair Horst, EMS Core Team Member
- Nancy Rothermich, EMS Core Team Member
- John Speros, EMS Core Team Member

Documents and records reviewed were:

- LBNL Performance-Based EMS Plan
- EHS Procedure 271, Establishing the EMS Implementation Team
- EHS Procedure 272, Identification of Significant Environmental Aspects and Impacts
- EHS Procedure 273, Environmental Management Programs
- EHS Procedure 274, Training
- EHS Procedure 275, EMS Assessments and Audits
- EMS Training program
- EMS Training records
- Core Team meeting minutes
- Aspects worksheets
- EMPs and related documents
- Articles from *Today at Berkeley Lab* relevant to EMS
- Final Report, 2007 Annual Berkeley Site Office Review of the Environmental Management System at the Lawrence Berkeley National Laboratory, August 2007
- LBNL Internal Assessment of the LBNL Performance-Based Environmental Management System, August 2007

## **Assessment Findings**

The detailed assessment results are presented in the framework of the LBNL Performance-Based EMS Plan. Therefore, results are presented under the headings:

- EMS program
- EMS implementation team
- Identification of significant aspects and impacts
- Environmental management programs
- Training
- EMS assessments and audits
- Management review

Assessment results are categorized either as findings, observations, or noteworthy practices. Findings are deficiencies in conflict with the LBNL EMS Plan and associated procedures (EH&S Procedures 271-275). Observations are conditions that may lead to conflict with these program documents and also recommendations that may benefit the EMS program. Noteworthy practices are exemplary work activities or policies.

This report also addresses the status of corrective actions taken to address findings from the 2007 internal EMS assessment and 2007 DOE EMS review.

## **EMS Program**

LBNL continues to integrate EMS with the existing ISM system. In FY07 most divisions used the Environmental Review and Self-Assessment Checklist as a basis for assessing their environmental impact and performance. The Environmental Services Group (ESG) EMS website contains the EMS Plan, the 2007-2008 Environmental Management Programs (EMPs), and the internal assessment and third-party audit reports. The website also contains EMS fact sheets with a summary of the EMPs; however, the most recent fact sheet posted is from June 2007. The ESG website also contains the LBNL Site Environmental Report (SER), including a chapter on LBNL's EMS describing the program and status of EMPs. These web pages are accessible to LBNL staff and the public.

LBNL broadly publicized EMS related matters over the past year in *Today at Berkeley Lab*. The daily electronic newsletter included numerous articles on topics such as energy conservation, solid waste diversion, hazardous waste handling, pollution prevention, and sustainable building design.

**Observation:** The Laboratory lacks a coherent source of information on EMS-related matters. Details on the EMS program, waste minimization/pollution prevention, sustainable development, green purchasing, applicable research, etc., are dispersed throughout LBNL websites. The Laboratory should consider development and maintenance of a centralized source of information.

**Observation:** The Laboratory Director has not specifically endorsed LBNL's EMS. A statement of senior leadership commitment to achieving and maintaining compliance with applicable environmental protection requirements will be required under the new DOE O 450.1A when fully implemented.

### **EMS Implementation Team**

The EMS Core Team is meeting procedural requirements for membership and participation. Under the leadership of the Environmental Services Group Leader, the EMS Core Team designed, implemented, and maintains the EMS Plan. The team meets on a regular basis, approximately quarterly. Meetings are used to train Core Team members, identify significant aspects and impacts, discuss implementation of the EMPs and consider the impact of regulatory updates on LBNL's EMS. The new Facilities Division Sustainability Coordinator joined the team in early 2008.

No findings identified.

### **Identification of Significant Aspects and Impacts**

The EMS team is meeting procedural requirements for identifying significant aspects and impacts. The team began the latest annual review of environmental aspects and determination of significant impacts in January 2008 and completed the review in February 2008. These aspects involve waste generation and recycling, emissions and discharge, materials and resources use, and land and building development and use. The review process is documented in worksheets and aspects are characterized by the requisite factors, including amounts/size, health risk, limits, and goals. Aspects are then scored according to a prescribed list of significance categories.

No findings identified.

### **Environmental Management Programs**

The EMS team is meeting procedural requirements for developing and implementing EMPs. EMPs are used as a formal planning tool and include information regarding tasks, responsibilities, timing, affected department, monitoring requirements, and metrics. The EMPs list objectives and targets established for each significant aspect.

The 2007 Berkeley Site Office EMS Review found that *“The LBNL Performance-Based Environmental Management System Plan does not include a requirement to document why an EMP was closed. In order to evaluate the effectiveness of the plan, the rationale for closure must be documented. (DOE Order 450.1, Attachment 2, Contractor Requirements Document, Requirement 1).* LBNL addressed this finding by modifying EMS Procedure 273 Environmental Management Programs, to require closure information in EMPs.

**Observation:** Data collection for procurement of Energy Star Products (ESPs) and Recycled Content Products (RCPs) remains an arduous task. The EMP for increased

procurement of ESPs and RCPs includes modification of the PCard and PeopleSoft PO and PCard systems to require buyers to enter Environmentally Preferable Purchasing data; however, the target due date for this activity has been deferred several times and by approximately 18 months. An appropriate level EMS Management Review over the last two years may have helped prioritize this important action.

**Recommendation:** Update Procedure 273 *Environmental Management Programs* and the EMP form to require justification for significant extensions to due dates.

## **EMS Assessments and Audits**

Internal and external audits were conducted per procedural requirements. The Office of Contract Assurance (OCA) conducted internal assessments in 2005, 2006, and 2007; and NSF International Registrations, Ltd. conducted an audit in September 2005. Both internal assessments and the third-party audit included interviews of key EMS personnel and a review of all relevant documentation.

No findings identified.

## **Training**

EMS training is conducted per procedural requirements. All Core Team members have attended comprehensive EMS training addressing EMS awareness, environmental aspects and impacts, determination of significance, and preparation of EMPs. The Core Team Leader has attended an EMS implementation training course presented by an external party, and most of the Management Review Team has received EMS awareness training. The internal auditor has attended EMS implementation and EMS auditor training.

No findings identified.

## **Management Review**

The Management Review is intended to aid LBNL management in determining the need to make changes to the EMS program. Topics may include one or more of the following:

- Significant environmental impacts
- EMP progress
- Candidate projects for addressing the significant environmental impacts
- Results of EMS internal assessments and external audits
- Recommendations for continual improvement.

The 2007 internal assessment found that *“The Management Review conducted in March 2007 did not include the appropriate participants; absent were both the Chief Operating Officer and the Chief Financial Officer. The Core Team Leader provided meeting minutes and copies of the handouts to all invitees, and offered to conduct follow-up sessions with the COO and CFO. Neither requested a follow-up meeting.”* In response to this finding the EMS Core Team Leader revised the EMS Program Plan to require, as a

minimum, an annual review with the EH&S Division Director, and attendance of other Senior Laboratory Leadership optional. In addition to an annual management review, the EMS Core Team Leader discusses EMS activities with the EH&S Division Director during routine meetings.

**Finding:** There was no annual management review of the EMS per requirements of Revision 2 of the *LBNL Environmental Management System Plan*. Revision 3 of the *LBNL Environmental Management System Plan* allows for greater flexibility in attendance at management reviews and does not require that they be documented. However, Revision 3 was approved by the EMS Core Team and EH&S Division Director in July 2008 and the most recent documented management review occurred in March 2007, 16 months prior.

**Recommendation:** Reconsider the minimum required participation in the annual management reviews. Conducting the management review at a standing senior laboratory management meeting, such as the Operations Senior Staff, would broaden the audience for the management review, may enhance awareness and ownership of LBNL's EMS, and provide a forum for Senior Laboratory Leadership feedback on the EMPs.

**Noteworthy Practice:** Management increased support of the LBNL EMS by staffing an EMS program manager. Upon the issuance of DOE O 450.1A, *Environmental Protection Program*, the EMS Core Team Leader performed a preliminary needs assessment for implementation of the expanded requirements at LBNL. He proposed a new position to manage the Laboratory's EMS to the EH&S Division Director. Senior Laboratory Leadership approved the new position and recruitment is underway.