



**ERNEST ORLANDO LAWRENCE BERKELEY
NATIONAL LAB 1 CYCLOTRON RD.
BERKELEY, CALIFORNIA USA**

8Y161

Audit Type

Registration Audit
28-APR-2009 - 28-APR-2009

Auditor

WILLEM LAMERS

Standard

ISO 14001:2004

Recommendation

ISO 14001:2004: Registration



Executive Summary	
ISO 14001:2004	<p>At the outset, it should be mentioned that this Facility does not seek ISO 14001 certification. The intent of this registration audit was solely to validate Facility's Environmental Management System in light of the Department of Energy's Order 450.1A, Environmental Protection Program, requirement to establish and implement an Environmental Management System ("EMS") which includes all ISO 14001 elements. Not all detailed requirements of that Standard need to be included in such EMS as long as the elements are covered in general. In some cases Facility's EMS exceeds Standard requirements. Facility, in other words, seeks confirmation that it conforms with the DOE requirement to implement an EMS.</p> <p>Facility does so conform and it is the auditor's recommendation that a "Certificate of Conformance to DOE Order 450.1A" be issued.</p> <p>The audit generated no non conformances and eight opportunities for improvements. Opportunities for Improvement do not require a response to NSF-ISR. Also, during the audit, verification of implementation of the outstanding non conformance resulting from the desk audit was made. Implementation was complete and this non conformance is now totally closed, requiring no further action.</p> <p>Strong Points noted in the EMS during the audit, recorded in no particular order of approval, were: (1) Excellent monitoring program for monitoring key characteristics and associated calibration records; (2) Good level of knowledge on part of LBNL researchers of relevant controls (waste handling, chemical handling, waste minimization, emergency response, e.g.) and (3) Good selection of environmental objectives and targets with associated EMPs and follow up; There are no negative tendencies.</p>

Opportunities	
ISO 14001:2004	None other than those specified as numbered Opportunities for Improvement

Corrective Action Requests	
There is NO Corrective Action Request in this audit.	



Opportunities for Improvements

ISO 14001:2004

Section Name	Observations / Auditor Notes
OFI #4 - Management review	<p>Location of OFI Conference room / Management review;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider making its EH&S Procedure 276 more definitive as to what items should be included "for sure" in its EMS management review.;</p>
OFI # 8 - EMS records	<p>Location of OFI Conference room / Records identification and documentation;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider analyzing its EMS records to ensure all are included the EMS records inventory;</p>
OFI #1 - Documenting Authority level	<p>Location of OFI Conference room / Responsibilities;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider clearly documenting the authority level for entire staff associated with the EMS.;</p>
OFI #2 - External communications	<p>Location of OFI Conference room / External communications;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider establishing a file for documenting commentaries or questions received from external parties and defining who of the recipients has responsibility for responding;</p>
OFI #3 - Documenting "Other requirements"	<p>Location of OFI Conference room / Legal and other requirements;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider a review of all other requirements to ensure they are in fact all identified and documented.;</p>
OFI #5 - Objectives & targets communication	<p>Location of OFI Various LBNL laboratories;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider strengthening its communication programs regarding its environmental objectives, targets and EMPs.;</p>
OFI #6 - Obsolete documents	<p>Location of OFI Conference room / document control;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could, additionally to archiving obsolete documentation in separate archive files, consider watermarking the documents with an "obsolete"; marking of some kind.</p>



Section Name	Observations / Auditor Notes
OFI #7 - Documents of external origin	<p>Location of OFI Conference room / Document control;</p> <p>Discussed With Patrick Thorson;</p> <p>Description Facility could consider documenting identified "documents of external origin" in a special file.;</p>

Processes

ISO 14001:2004

Section Name	Observations / Auditor Notes
EMS Documentation and Document & Records control	<p>Identify process inputs and describe their interactions with the process: The EMS is electronic in form. The EHS Staff has access to a special "G" Drive which shows the current EMS. The process of document change is initiated by the EMS Program Manager. Review; is by the entire Core Team, and by DOE. Employees with internet access have access to the EMS, however they do not have access to the "G drive." This ensures current copies are available at points of use. There are no controlled paper copies. Procedures are in PDF form and cannot be changed except by EHS staff. The EMS documentation includes the environmental policy and, in section 3.1, the scope of the EMS. Objectives are available to the laboratory's staff on line, under the topic Environmental Management Programs. The List of controlled documents is broad and includes procedures that are part of the Environmental Services Group though not necessarily part of the EMS. The EMS Plan is not on that list but, nevertheless, is controlled. Some documents are available on the general public web site (including the EMS Plan); these also appear in PDF form. Controls are in place to ensure approval and distribution. [Note: EMS Documents are approved by ESH Division Director] Procedures show revision number, revision history, title, and revision number. Obsolete procedures are archived on the G drive in folders marked as "old" or "discontinued" procedures. These cannot be accessed by people outside the Environmental Services Group. These obsolete documents, when printed are not marked "obsolete." [Note: Documents reviewed did not indicate that there is a requirement to mark obsolete documents however.] (OFI-6)</p> <p>Documents of external origin include regulatory documentation. These are identified under "legal requirements; others are equipment manuals which are maintained by John Jelinsky. He includes them as part of the appropriate procedure. There is no specific listing of these documents .[OFI-7]</p> <p>EH&S procedures include a section on the generation of records, and about their maintenance. Records are to be retained indefinitely or as required under the LBNL records retention procedure. Records are retained by the EMS Program Manager. Record may be electronic or in paper form. The archives and records management par 1.17 requires (section 2) for all divisions and departments, a.o., to maintain an "inventory" for their records. A 2008 records inventory was reviewed and an email indicates records are retained for a long period of time. The reviewed documentation showed some records used under the EMS were not yet included in the inventory.[OFI-8] Records reviewed during the audit were all well maintained and could be easily produced.</p> <p>Process objective(s): Ensure document and records control meets requirements; ensure EMS documentation includes major EMS components;</p> <p>Describe whether the process is effective or not: Effective. Documentation and records are effectively controlled though there are some opportunities for improvement in this area.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Patrick Thorson and Kim Abbott. Reviewed were: Environmental Management System Plan (MAR 09, Rev. 4); ESG Controlled</p>



Section Name	Observations / Auditor Notes
	<p>Documents; Document Management and Control 5.08 (10/08); Regulations and Procedures Manual, Archives and Records Management par. 1.17; Operating and Quality Management Plan Rev. 10; JET Owner's Manual SBR-30N /-40N; EH&S Procedure 271 (Rev. 3); :BNL Regulation and Procedures Manual, section 1.17); EMS Plan section 3.16; Monitoring records, minutes of management review, calibration records LBNL_EHS_EIS_Inventory_May_14_2008.excell;</p>
EMS Management:	<p>Identify process inputs and describe their interactions with the process: EMS Changes: Facility's EMS is managed in accordance with its Environmental Management System Plan, March 23, 2009. Facility does not seek ISO 14001 certification but wants; NSF-ISR to certify that the EMS managed and implemented in accordance with its current "Environmental Management System Plan." The Plan has not changed since the Desk Audit review. Operational changes: None. Facility's scope of work is as it was at the time of the previous validation audit.[But note: The specified scope on the certificate has changed and an exclusion has been established] Facility is a research facility. Researchers report through their management chain to the LBNL Site Director. Divisions include support activities. Recently the University of California has added some buildings on the site which it controls and manages exclusively for its own use. These buildings fall outside the scope of Facility's EMS and are now listed as an "exclusion." Outstanding desk audit queries: These were reviewed and were answered satisfactorily as follows: Desk Audit Queries: # 1 - There are "other requirements, as, e.g. Long Range Development plan with a generated mitigation monitoring plan and an agreement with CSPA, an outside group, which affects storm water. # 2: Yes - approval by Ron Pauer reflects approval by "Top Management." # 3. Policy statement is included in the Integrated Safety Management. This is available electronically. New employees receive a general overview and the EMS criteria are part of this program. # 4: DOE order was approved last year and a special plan was prepared to meet requirement. Current EMS Plan is that of March 23, 2009. # 5. Off site facilities are: Joint Genome Institute, OSF Facility, "Potter Street" Laboratory and GBEI. # 6: Management review is conducted and results are report to top LBNL directors and chief operating officer. # 7 - The most current document is that reviewed during the desk audit.# 8: Competency is determined by specialists (Subject Matter Experts) dealing with specific significant environmental aspects # 9: EMS Manager works directly with Core Team members to address all issues.Can develop plans and track them to the schedule. "Big ticket" funding issued get elevated to the higher level management. # 10: Facility changed website. EMS leads to email address. Emails reach four people, including the EMS Manager. Process objective(s): Ensure details of the EMS administration are covered.; Describe whether the process is effective or not: Effective. Record updated as required.; List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Patrick Thorson Kim Abbott.;</p>
Emergency preparedness and response	<p>Identify process inputs and describe their interactions with the process: The emergency response plan is dated December 2005. It is being updated now. The MEPP consists of a base plan and appendices. Responsibilities are defined. The program is supported by a full time; fire department, full time employees in the emergency operations center and volunteers from laboratories to handle other than fire emergencies. Potential incidents are identified in the plan. There are specified "response plan" for injuries, environmental incidents such as spills. Incidents are reviewed through an after action investigation; exercises are also evaluated. Reviewed was the power outage incident investigation (with respect to emergency response); also reviewed was the DOE No Notice Action. Exercises criteria and results were noted. Training is conducted on an annual basis for earthquake response; the entire staff</p>



Section Name	Observations / Auditor Notes
	<p>participates in these exercises. Training for new employees is given via intra net training and is general in nature. More specialized training may be required, depending on Job Hazard Analysis. Training records reviewed showed training given as required. Additionally posted are Emergency Response guides [Note: Observed in all laboratory buildings visited.] and new employees receive a pocket guide of emergency response. An annual site wide "drop, cover and hold drill" was conducted in June 2008.[Note: Not documented at the time; currently an evaluation would be required.]</p> <p>Process objective(s): Ensure potential incidents have been defined and response action exits. Ensure incidents are reviewed and drill executed where practical.;</p> <p>Describe whether the process is effective or not: Effective. Response programs are prepared for identified emergencies. Incidents are reviewed and training is provided to general staff and ER team.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Rocky Saunders, Kim Abbott and Patrick Thorson. Reviewed were: Master Emergency Program Plan for LBNL (DEC 05); Spill Prevention and Control Plan (Rev. 2.0); After Action Report for; JAN 08 Power Outage event; No Notice DOE 2006 exercise evaluation; Training contents for EHS introduction, EOC Training.; Training records for Bigelow, Black and Broadway.; Pocket Guide Emergency Preparedness 2009-2011); Emergency response Guide 2008-2010; LBNL FY 2008 EOC Meeting training, Exercises, Drill and Event Plan. (Rev 19 FEB 08)</p>
Environmental aspects	<p>Identify process inputs and describe their interactions with the process: The Core Team identifies environmental aspects. ; The program is spearheaded by the EMS Program Manager. Aspects are reviewed annually and maintained in an inventory .Most recent review was performed in April 2009. Aspects are defined in broad categories, i.e., waste generation and recycling, emissions and discharges, materials and resource use and land/building development and use. Significant aspects are determined by impact and subsequently by specified ratings, such as severity of impact, duration of impact, legal exposure and others as defined in EHS 272. Scores are weighted. The inventory list indicates significance by band (green) and "Y." Scores are identified for the rating measures. Performance measures or goals are specified in the inventory as well. The process is clear and repeatable. With few exceptions, the concepts of environmental aspects is known by interviewees, all of whom recognized environmental impacts associated with their tasks and who were very familiar with the controls in place to prevent impacts.</p> <p>Process objective(s): Ensure that environmental aspects are identified and significance determined.;</p> <p>Describe whether the process is effective or not: Effective. Aspects are reviewed annually. The process of rating significance is logical and repeatable.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Patrick Thorson. Reviewed were: EMS Plan 3.3; EHS Procedure 272 Rev. 4;Aspects/Impacts Inventory April 13, 2009;;</p>
Environmental policy	<p>Identify process inputs and describe their interactions with the process: The policy as published in PUB 3000, contains the three major commitments required by the ISO 14001 Standard, even though that Standard is not the determining factor for conformance to DOE; requirements. The policy (see bullet 4) sets the basis for establishing environmental objectives and targets. The policy is available to, and communicated to, employees on Facility's web site. The policy is available to the public on the website as well as it is not a restricted document. Interviews show that the policy's commitments are implemented. The policy is appropriate to the nature, scale and environmental impacts of activities conducted on site.</p> <p>Process objective(s): Ensure there is an established policy and that is published, implemented and</p>



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	<p>available to employees and the public.;</p> <p>Describe whether the process is effective or not: Effective. Policy meets all requirements.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Patrick Thorson. Reviewed were: PUB 3000- 11.11 Policy;;</p>
Internal audits & Non conformance resolution	<p>Identify process inputs and describe their interactions with the process: Procedure. 275 deals with internal EMS audits. ; EMS audits are required on an annual basis. Most recent audit was performed in September 2008 by Michelle Flynn, a qualified lead auditor. The report reflects that the audit met the requirements of the audit plan. It presented an analysis and findings. Findings are characterized as findings, observations and noteworthy practices. Findings are entered into an electronic system (CATS = Corrective Action Tracking System). Observations may be entered at management discretion. (Observations are "early warning signs" but not yet non conformances). The management program uses a graded approach to issues management. Some findings may require root cause analysis, some may not, (Management determines, depending on type and severity of issue. This is well defined in the system). Responsible managers determine a "reasonable " closure date. Once established the deadline must be met; if not the Issues Mgr. gets involved. Effectiveness review is held. The appropriate period of effectiveness review, after closure, is defined and depends on issue. Review of corrective action plans shows corrective action is adequate and appropriate to the problem identified.</p> <p>Process objective(s): Ensure that internal audits are held as required and findings are resolved using approved procedure.;</p> <p>Describe whether the process is effective or not: Effective. Internal audits are held as scheduled and non conformance resolution is well defined through CATs and implemented.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Michell Flynn, Ron Pauer and Patrick Thorson. Reviewed were: Proc. 275 Rev. 3; EMS Internal Audit Plan; Internal Assessment of the LBNL Performance-Based EMS (SEP 08); Training certificate for EMS lead Auditor Michelle Flynn (SAI GLOBAL- 06 SEP 06); Issues Management Program Manual (LBNL/PUB-5519(1) Rev. 1: Finding 4096-1 and 4097-1</p>
Management review	<p>Identify process inputs and describe their interactions with the process: Minutes reflected detailed discussion of O&T status as well as UC Performance metrics for the EMS and EMS Internal Assessment. The procedure requiring review states the scope is to include; EH&S Senior management evaluation of the effectiveness of the EMS, the environmental policy and compliance programs, review of corrective actions, and assessing opportunities for continual improvement. Also, as needed, there shall be discussion of the environmental policy, identification and determination of aspects and impacts, status of corrective actions, and results of any action items arising from previous management review; neither of these were discussed. Discussion with Ron Pauer showed these points were not considered to be urgent at the time and, furthermore, some of the aspects were reviewed in checking status of O&T and EMPs. [OFI-4] Review of the EMS shall be annual. The most recent meeting was conducted 16 September, 2008.</p> <p>A discussion with Mr. Howard Hatayama, Director E,H & S Division, confirmed the review process. Mr. Hatayama is very familiar with the status of the EMS and indicated satisfaction with the review process. It is he who communicates up the chain with LBNL top management regarding the EMS performance. Patric has complete access to Mr. Hatayama, though the normal process of communicating is through the Group Leader, Mr. Pauer.</p> <p>Process objective(s): Ensure Management review is held as provided and that Minutes of the review are kept.;</p> <p>Describe whether the process is effective or not:</p>



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	<p>Effective. Requirements are met.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</p> <p>Discussion with Howard K. Hatayama (Director EH&S Division) and Pat Thorson. Reviewed were: 16 SEP 08 Management Review Meeting Minutes; EH&S Procedure 276 Re v. 2;;</p>
Monitoring and measurement	<p>Identify process inputs and describe their interactions with the process:</p> <p>Key characteristics are defined in the Environmental Monitoring Plan. Monitored items are specified in that Plan.; Monitoring is described as to rational, parameters, and design and locations and general frequency. Procedures reviewed show very detailed monitoring and associated measures details. Monitoring of Effluent (Sewer) and NESHAP requirements were checked. Monitoring took place as required.</p> <p>Calibration requirements are specified in the associated sampling procedures. Calibration is essentially performed by the site, however certain equipment is calibrated outside. In that case, John monitors the time frame; it is recorded in the calibration record he maintains. Calibration records verified show they are up to date with controls in place to prevent use of non-calibrated equipment.</p> <p>Process objective(s):</p> <p>Ensure monitoring of key characteristics takes place and that calibrated equipment is used with calibration records kept.;</p> <p>Describe whether the process is effective or not:</p> <p>Effective. Very good system of monitoring and maintaining calibration records.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</p> <p>Discussion with John Jelinsky and Patrick Thorson; Reviewed were: Environmental Monitoring Program (23 FEB 06);; Effluent Sampling Procedure 265, Rev. 7; EDMUD Report March 2009 and Sept, 2008; Data base COC collection # 6750 (FEB 09) and # 6765 (MAR 09); HFAS s/n HFAS - 6. and records recorded in ESG Calibration calibration spreadsheet.</p>
Objectives, targets and programs	<p>Identify process inputs and describe their interactions with the process:</p> <p>There are seven environmental objectives. Programs may be multi year and may be backed up by specified action plans which are very detailed. The Period of the objective may be related to Executive; Order or DOE requirement. Objectives fall in categories of Control/Maintain, Improve, or Study/Investigate. Where practical numerical targets are set. Objectives and targets are based on analysis of significant aspects and impacts also. Review of status is frequent. The programs include starting date and date when accomplished. Responsible persons are assigned for each action. There is much evidence in form of statistics and graphs that measurement is pursued and Facility is well aware of status of the objectives and targets. Process interviews however indicate that interviewees are not broadly familiar with the laboratory's objectives, targets and programs. [see OFI # 5]</p> <p>Process objective(s):</p> <p>Ensure objectives and targets are established and are achieved through following associated programs.;</p> <p>Describe whether the process is effective or not:</p> <p>Effective. Seven environmental objectives established with appropriate targets and functional, detailed, programs.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</p> <p>Discussion with Blair Horst and Patrick Thorson. Reviewed were: EMP 07-01b / Action plans associated with 07-01B; FY 2009 LBNL Sustainability Executable Plan (DEC 08; 05-01D; 07-05B;; 07-03B; 07-04; 07-02B; EMS Plan MAR 09 Rev, 4.</p>
Operational controls	<p>Identify process inputs and describe their interactions with the process:</p> <p>Operational controls may be based on permits, regulatory requirements and processes designed to prevent significant impacts. Three procedures were reviewed. They all include clear instructions and; operating criteria. Records are</p>



Section Name	Observations / Auditor Notes
	<p>generated in accordance with these procedures . Records sampled were found to be complete, well maintained, accessible and in order.</p> <p>Communication of requirements to contractors is based on a Facilities Division listing of master specs, which include environmental requirements. The document reviewed shows detailed requirements. The requirements, as agreed to by the contractor, is reviewed by a number of people and approvals are issued. The "package" is returned to the Facilities Divisions. Work is not performed until approvals have been signed off. Approvals were checked for Building 51 project and found in order. Interview with Ken Fletcher confirmed a process of contractor supervision which ensures contractors follow the requirements. Process interviews in the laboratories sampled during this audit show good understanding of the operational controls by researchers and safety/environmental coordinators responsible for specific laboratories.</p> <p>Process objective(s): Ensure operational controls are in place. Ensure LBNL environmental requirements are communicated to contractors and suppliers.;</p> <p>Describe whether the process is effective or not: Effective. Review show acceptable procedures, which, where sample were implemented. There is a good system of communication of requirements to contractors.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Patrick Thorson, Rosann Shadlou, Kim Abbott and Ken Fletcher. Reviewed were: EMS Plan Rev. 4; OPER-344 Rev. 2; EHS procedure 270 Rev. New;; EHS Procedure 831 Rev. 10; SBR 611 Report (01 APR 09);Construction Guidelines Standard Project Specifications Outbox Section 01020 EHS General requirements; Building 51 Demolition record - Project waste management lan SEC-WM-001 (approval); B67 Tree Sampling (for tritium)1-16-04. and 6318;</p>
Performance measurement	<p>Identify process inputs and describe their interactions with the process: DOE sets specific requirements in which the performance for the EMS is measured. Detailed requirements include evaluation of major elements, all of which are scored. An external audit is part of the; specified requirement. The report includes metrics which are scored in accordance with prearranged values. Completed EMS projects are given credit points as well. An acceptable score is "B+" or falling into the "Green" zone [rather than yellow or red] For the fiscal year 2008 LBNL met this requirement. Mr. Abbott indicated there are a couple of concerns for the current fiscal year, but there is still time before the report submittal is due. The report is submitted to the DOE Berkeley Site Office.</p> <p>Process objective(s): Ensure DOE required performance metrics are met to the degree an acceptable score is obtained.;</p> <p>Describe whether the process is effective or not: Effective: Detailed performance metrics are specified and reported for DOE consideration. They were met for the fiscal year 2008.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Kim Abbott (DOE Berkeley Site Office Oversight). Reviewed were: 2008 Annual Report, Documentation explaining evaluation, Attachment to current contract, EMS Matrix Contract; performance metrics.</p>
Process visits and interviews (Thursday)	<p>Identify process inputs and describe their interactions with the process: The areas visited and people interviewed are listed in section D. Responses given herein are put in general terms. Discussed were the following items;; (1) EMS: The EMS is known to interviewees. Impact was thought to be significant. Activities most affected included waste management, recycling, training and compliance. Ken and Shirley both mentioned sustainability efforts. The cafeteria stressed green and organic food issues and change to composting rather than disposal. In Facilities there is specific emphasis on maintenance replacement, "Green" assessment and 3 R program. The EMS web page was not widely visited by these interviewees.</p>



Section Name	Observations / Auditor Notes
	<p>(2) Aspects / Impacts Operational controls: Concept "aspects" not generally known, but certainly no problem with impacts, which were defined and controls specified. Waste minimization important. Bill spoke to reviewing items prior to disposal to ensure no hazardous waste gets mixed with regular waste disposal, which is one of his duties. Recycling is generally practiced; Cafeteria has interesting approach in using cups and other items that decompose. Ken mentioned operational control changes which reduced "blow out" by increased cycles in cooling systems. Mentioned communications with suppliers and contractors on environmental requirements through Safety Plans, Work Contracts. Project leads ensure contractors comply.</p> <p>(3) Environmental Objectives and targets / EMPs. Bill is involved in petroleum use reduction and Waste reduction EMPs. Shirley works with Bill in the area of increasing recycling. (4) Communication: EMS communications confirmed. Meetings and emails common communication tools. Contact for questions frequently is the subject matter expert; Ken and Bill have worked closely with Pat Thorson, the EMS Program Mgr. on a number of projects</p> <p>(5) Emergency response: Well known. Potential incidents for their area defined and appropriate action steps noted.</p> <p>(6) EMS training: At first blush Bill did not recall specific EMS training, however later confirmed training in the area. Shirley very involved in training from her own firm (Cal Dining). Ken mentioned added emphasis in this area for training on the who, how and why. (custodians e.g.)</p> <p>(7) Responsibility / authority: Well understood. All have authority to "stop work" if they observe unsafe or environmentally improper action or problem. [The latter authority extends to all site personnel levels.]</p> <p>Process objective(s): Ensure Interviewees know and apply key EMS requirements.;</p> <p>Describe whether the process is effective or not: Effective. Key elements understood and applied.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Bill Llewellyn (Site Service Mgr), Shirley J. Ferentino (Sustainability Coordinator- "Cal Dining" Cafeteria), Ken Fletcher (Operations Mgr - Facilities Division);</p>
Process visits and interviews (Wednesday)	<p>Identify process inputs and describe their interactions with the process: The areas visited and people interviewed are listed in section D. Responses given herein are put in general terms. Discussed were the following items:; (1) EMS: The EMS is known although it has not impacted these interviewees to a great extent as many environmental controls predated the EMS. Some indicated an increased level of awareness due to communications on the EMS. The EMS website was accessed by some but not by others.</p> <p>(2) Operational controls: Associated with environmental impacts, a concept that was known to all but one interviewees, are in place. Waste minimization was one point most frequently mentioned but hazardous waste handling (SAA available in fume hood in Earth Sciences lab e.g.) was well known. Recycling is generally practiced. The Earth sciences division has received good results with modification of procedures and with uses of the site-wide chemical inventory.</p> <p>(3) Environmental Objectives and targets / EMPs. These are not generally known. Typical answers address general concepts, such as environmental stewardship. The one exception was the Green Purchasing objective managed by interviewee John Speros, who demonstrated various means by which this objective is promoted. Results are measured. [OFI-5]</p> <p>(4) Communication: Several interviewees confirmed emails and other publications received on the EMS. Very few however recognized who was in charge of the program. Contact for questions frequently is the subject matter expert and the Safety Liaison personnel, who, incidentally are also familiar with EMS requirements.</p> <p>(5) Emergency response: Well known. All explained major potential incidents for their area and appropriate action steps. Pointed out were published and posted informational materials.</p> <p>(6) EMS training: All confirmed some training in the area, be it through class room or through the intra net. Training for some includes refreshers. The</p>



Section Name	Observations / Auditor Notes
	<p>Principal Investigators or Laboratory Leads, indicated their role in instructing their lab staff regarding lab safety, waste handling, chemical handling and related EMS subjects.</p> <p>Process objective(s): Ensure LBNL staff is aware of key EMS concepts and applies them in their work.;</p> <p>Describe whether the process is effective or not: Effective. Concepts are known and applied. Particularly strong implementation of waste and chemical controls.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with: Wayne Lukens & Jerry Beecher (Chemical Sciences), John Kerr and Guy Kelly (EET Division); Garry Andersen and Yvette Piceno, Vivi Fissekidou (Earth Sciences), Ben Gilbert (Earth; Sciences - Nano & Geo Science Lab), Wade Crossen (Human Resources), Procurement (John Speros). Reviewed were lab manuals, waste storage areas , emergency response booklets, green purchasing website, Corporate Express order website, Health & Safety @ a glance bulletin (4 JUN 08); Report to DOE on purchasing;</p>
Regulatory and Other Requirements Management	<p>Identify process inputs and describe their interactions with the process: The process of identifying legal requirements are defined as part of the contract between DOE and the Regents of the University of California. A set of requirements is identified as the ES&H; Standards Set for LNL. The DOE Order 450.1A sets specific requirements for the EMS which are addressed in the EMS Plan. Some "Other requirements", such as the LBNL Fire Protection Program are included in the lists, but not all are. For example an agreement with CSPA which pertains to storm water issues is not listed. [OFI-3] Section 3.14 of the EMS Plan deals with Evaluation of compliance. Audits are performed by the Environmental Services Group through its environmental compliance audit and assessment program. Audits are performed in conformance with the ECAAP Schedule, prepared for three-year period. Audits are conducted each quarter. A report format is specified. The two reports completed in the first quarter of 2009 were reviewed. The reports met prescribed contract requirements and the audits reflected the requirements for audits as stated in the schedule. Both audits were performed by outside contractors.</p> <p>Process objective(s): Ensure legal and other requirements are identified and documented. Also ensure compliance is evaluated.;</p> <p>Describe whether the process is effective or not: Effective. Good identification and documentation of legal requirements. Periodic, defined, evaluation of compliance through audits.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Patrick Thornson. Reviewed were: EMS Plan (23 MAR 09); Environmental Safety and Health Standards Set for LBNL (06 NOV 08); DOE O 450.1A; Environmental Compliance Audit & Assessment; Program Manual (MAR 09, Rev. 1); Appendix A Three-Year ECAAP Schedule by Environmental program (2009 through 2011) Environmental Compliance and Audit Assessment reports (Storm Water Management (17 MAR 09 and Environmental Restoration Program (18 MAR 09)</p>
Structure, Responsibility & Communication	<p>Identify process inputs and describe their interactions with the process: EMS Plan is the guiding document for Facility's EMS. The table of contents addresses the all elements included in the ISO 14001 Standard and additional-ones as well.; Structure and responsibility is outlined in section 3.6 of the Plan. Senior Management commitment is the responsibility of the Director of the Office of Institutional Assurance. This is further defined in the OQMP. Environmental responsibilities are defined in section 2.3 of this Plan. Other responsibilities are also defined for management review, internal auditing, compliance auditing and Core Team. It is the Core Team that is primarily responsible for the implementation of the EMS; the team is lead by the EMS</p>



Section Name	Observations / Auditor Notes
	<p>Program Manager. An appointment letter confirms Patric Thorson as EMS Program Manager. Responsibilities for EMS management are further defined in his Position Description. He is the main liaison between the Core Team and LBNL Senior Management. EMS records are also maintained by him. Authority level is not documented but well understood by him [OFI-1] Where discussed during process interviews it is clear people understand their responsibilities and level of authority.</p> <p>Communication is governed by section 3.8 of the EMS Plan. It describes requirements for the publication of an annual Site Environmental Report. The report for 2007 was reviewed. 2008 is being prepared right now. The report is sent to a distribution list including lab and community members. The EMS Plan is available on the site's web page. (See A-Z Index). Communications are published in the publication "Today at LBL." . There is a program called "One Minute for Safety" which constitutes slides available on the intra net. They included EMS and environmental times as for example storm water and energy savings. External communications are possible through the website. The process allows external parties to access the LBNL website, and using the A-Z index go to EMS or search bar (EMS) . At the end of the resource listing there is a provided EMS email address for comments or questions. To date very few comments or questions have been received. Copies go automatically to Deputy Director, ESH Director, HS Group leader and to the EMS Program Manger. Facility's EMS does not specifically require a repository for questions received and there is no process specified for who responds. [OFI-2].</p> <p>Process objective(s): Ensure responsibilities are defined and authorities are clear. Ensure communication takes place as required.;</p> <p>Describe whether the process is effective or not: Effective. Good definitions of responsibilities. Communication is broad. Feedback on EMS from External parties is solicit on web.;</p> <p>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc... Discussion with Pat Thorson. Reviewed were: EMS Plan (23 MAR 09 Rev. 4); Operating and Quality Management Plan (Rev. 10); 1 OCT 08 letter to Patrick Thorson re EMS Program Mgr. appointment; Position; description Pat Thorson (JUN 08); Site Environmental report 2007; Vol 1; Articles in Today at LBL; 1 Minute for Safety Slides;</p>
Training and competence evaluation	<p>Identify process inputs and describe their interactions with the process: Environmental training and EMS related training identified in JHA system and by subject matter expert. Job tasks also identify training needs. Patric involved in defining EMS training.; JHA is a control that evaluates hazards of a task. Employees take the JHA analysis and training needs are flagged. Records are maintained through maintenance of completion records, which indicate who has completed the training and who still needs to. Where required a refresher is offered. That refresher pops up automatically in the system. The safety coordinator for the division checks that training is up to date. Environmental training (EMS specifically) is determined by Pat Thorson). Every employee must take this training and, in the near future, refreshers will be annual for this subject. Competency is evaluated also through JHA, which identifies qualifications, certifications and knowledge for each task. For contractors, the project manager is responsible for evaluating contractor personnel competency. Individual records are kept for this evaluation. Training records reviewed that training was given as necessary. During process interviews interviewees confirmed receiving training in relevant EMS or environmental training and confirmed refresher training were necessary.</p> <p>Process objective(s): Ensure required training is identified and given. Ensure competency is evaluated.;</p> <p>Describe whether the process is effective or not: Effective. EMS (and other environmental training) is given. Competency is determined.;</p> <p>List the records verified, personnel interviewed, training, job relevance,</p>



Section Name	Observations / Auditor Notes
	<p>policy, shift audited, etc... Discussion with Lara Jain, James Basore and Patrick Thorson. Reviewed were: JHA; Required / Completion Report;; EHS 0010 Overview of EH&S; Required training for EHS 0010; training record for James Basore and Lara Jain.</p>



Process Matrix	
Audit	Audited Processes
Desk Audit (J0060858) Mar 26, 2009	<ul style="list-style-type: none"> Communication EMS Manual Documentation, Document & Record control Emergency Response Environmental Policy Environmental aspects Environmental objectives, targets and programs Internal Audits and Non conformance Resolution Legal & Other Requirements & Evaluation of Compliance Management Review Resources, Roles, Responsibility and Authority Training, Awareness and Competence
Audit	Audited Processes
Registration Audit (J0060859) Apr 28, 2009	<ul style="list-style-type: none"> EMS Documentation and Document & Records control EMS Management: Emergency preparedness and response Environmental aspects Environmental policy Internal audits & Non conformance resolution Management review Monitoring and measurement Objectives, targets and programs Operational controls Performance measurement Process visits and interviews (Thursday) Process visits and interviews (Wednesday) Regulatory and Other Requirements Management Structure, Responsibility & Communication Training and competence evaluation



Audit Summary Matrix for ISO 14001:2004		
Clause & Description	IDESTAUD Mar 26, 2009	IREGAUD Apr 28, 2009
4.1 - General Requirements	Partial	Yes
4.2 - Environmental Policy	Yes	Yes
4.3 - Planning	Yes	Yes
4.3.1 - Environmental Aspects	Yes	Yes
4.3.2 - Legal and Other Requirements	Yes	Yes
4.3.3 - Objectives, Targets and Programs (THIS MUST BE AUDITED EVERY VISIT)	Yes	Yes
4.4 - Implementation/Operation	Partial	Yes
4.4.1 Resources, Roles, Responsibility and Authority	Yes	Yes
4.4.2 - Training, Awareness & Competence	Yes	Yes
4.4.3 - Communication	Yes	Yes
4.4.4 - Documentation	Yes	Yes
4.4.5 - Control of Documents	Partial	Yes
4.4.6 - Operational Control	Not Applicable	Yes
4.4.7 - Emergency Preparedness & Response	Yes	Yes
4.5 Checking/Corrective Action	Partial	Yes
4.5.1 Monitoring & Measurement (THIS MUST BE AUDITED EVERY VISIT)	Yes	Yes
4.5.2 Evaluation of Compliance (THIS MUST BE AUDITED ANNUALLY)	Yes	Yes
4.5.3 Nonconformity, Corrective and Preventive Action (THIS MUST BE AUDITED IN EVERY VISIT)	Yes	Yes
4.5.4 Control of Records	Partial	Yes
4.5.5 Internal Audits (THIS MUST BE AUDITED EVERY VISIT)	Yes	Yes
4.6 Management Review (THIS MUST BE AUDITED EVERY VISIT)	Yes	Yes

KEY (Related to matrix section)

IBASELINE – Base Line Audit; IDESTAUD- Desk Audit; IREADREV- Readiness Review Audit; IREGAUD- Registration Audit; IVERAUD- Verification Audit; ISERVAUD-Surveillance Audit; IREASAUD- Re-assessment Audit

**Verification of CARs For ISO 14001:2004**

Have you verified the effectiveness of all previous CARs? (List all new CAR's that you initiated in this report because you did not verify effective implementation of a previous CAR)

Yes.

Discuss your evaluation in detail.

Reviewed the Minutes of the Management Review Meeting held September 16, 2008. This was the missing document at the time of the document review. The Minutes show detailed discussion of EMS status and .

the Major NC resulting from the desk audit is hereby closed.



Key Measurements / Facilities Historic & Comparison Measures