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# FY 1992 Annual Update of the Lawrence Berkeley Laboratory Tiger Team Assessment Corrective Action Plan

Office of Assessment and Assurance
Lawrence Berkeley Laboratory
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# FY 1992 Annual Update of the Lawrence Berkeley Laboratory Tiger Team Assessment Corrective Action Plan

December 1992

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# FY 1992 ANNUAL UPDATE
# OF THE LAWRENCE BERKELEY LABORATORY
# TIGER TEAM
# CORRECTIVE ACTION REPORT

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# Executive Summary

## Executive Summary

This annual update report describes the progress of the Lawrence Berkeley Laboratory (LBL) response to a 1991 DOE Tiger Team Assessment. The Tiger Team identified deficiencies in the Environment, Safety and Health (ES&H) Program of LBL and the oversight of the DOE San Francisco Field Office (SF) and Headquarters. This Annual Update to the LBL Corrective Action Plan seeks to maintain the momentum of a progressive and highly responsive ES&H culture at LBL and institute necessary changes within an effective management framework. The Plan provides a new baseline schedule for necessary corrective actions and aligns activities to budgetary projections.

The Plan sustains the CAP action framework that employs discrete Tasks supported by detailed Milestones. During this Safety and Health appraisal, ten Category II Concerns were identified. LBL was also visited by the DOE Technical Safety Appraisal (TSA) Team in July 1989. As of December 21, 1992, 405 Tasks have been identified with 1,522 Milestones to completely address all Tiger Team Concerns and Findings (including those identified during the TSA and those action items for which DOE is responsible). Each Task has associated with it an individual Task Master to assure full accountability and responsibility. Likewise, each Milestone has an assigned Milestone Master. We are submitting this First Annual Update to demonstrate our commitment to, and to provide information on our Corrective Action Plan through the end of FY 1992.

### Funding

The schedule and budget have been adjusted based on guidance from DOE Headquarters Office of Energy Research. LBL requested $1.7 M and $1.0 M in FY 1992 and FY 1993 to augment the Laboratory's operating budget in support of Corrective Action efforts. The Office of Energy Research provided $0.4 M in 1991. No additional funding from OER is assumed based on current guidance. Based on this financial guidance, we have revised our Corrective

Action Plan as presented in Table 1 and supported by the detailed Tasks and Milestone Schedules in Sections 1 through 4.

The lack of supplemental funding from OER has required that the Laboratory increase the allocation of overhead funding to the operating expenses required in the CAP. Major increases in funding include: doubling of the annual funds for the Environment, Health and Safety Division since 1989 addition of an independent review office (OAA) and dedicated NEPA staff for a total of approximately $1.5 M per year; additional operating funds for one-time expenses of approximately $1.5 M per year over the past three years; and a substantial increase in the percentage of other operating funds (e.g. non-capital alterations and maintenance) to address ES&H issues. The Environmental Restoration and Waste Management portion of LBL's budget has grown substantially since FY 1990 but currently is under a great deal of pressure to allow funding of higher priority issues at other DOE sites. Current overall budget problems compounded by the closure of the Bevalac two years earlier than expected has resulted in constrained overhead budgets and has further hampered the Laboratory's ability to allocate increased one-time funds from overhead.

Strategic Planning and Prioritization

The Laboratory has implemented a system to ensure that resources are applied in a way that is both cost-effective and reduces risk in a prioritized manner. In the process of developing the LBL Tiger Team Corrective Action Plan approved by the Secretary of Energy, LBL used a multi-attribute risk prioritization methodology to prioritize the actions proposed.

Since that time the DOE has promulgated a very similar system of prioritization as part of the requirements for the Five-Year Safety and Health Plan. The Office of Energy Research (ER) has broadened its approach to this requirement by incorporation of environmental issues and priorities into Five-Year Environment, Safety and Health Plan Guidance.

The Laboratory has institutionalized the DOE-ER Five-Year Environment, Safety and Health Plan and its system of identifying and prioritizing issues.

This allows the Laboratory to manage its constrained resources in a way that is auditable and has the concurrence of DOE field personnel. Tiger Team corrective actions are now integrated with other ES&H issues using this system so that comprehensive planning is accomplished. In addition, there are compliance issues in the business and administrative area which also need to be funded. LBL plans to expand its prioritization efforts to also address these needs.

This information has begun to be integrated into Lab-wide planning efforts and is included in the LBL Institutional Plan and the Site Development Plan. The Laboratory has a close working relationship with the DOE/SF Berkeley Site Office and Field Office and develops its plans with input and participation from the DOE staff.

Status of Concern, Tasks and Milestone Closures

Table 1 below shows the current planned projection of Concern closures for the period covered by the Corrective Action Plan. These numbers have been modified from those shown in Table 2, which are from the November 8, 1991 Corrective Action Plan approved by the Secretary of Energy on March 2, 1991. DOE-ER guidance has resulted in a significant decrease of Concern closures in FY 1991-1992. In addition, planned Concern closure was affected by converting from a calendar year to a fiscal year. Nevertheless, 87% of the Concerns are planned to be closed by the end of FY 1993. Concern closures continue on an aggressive schedule through FY 1996. However, this schedule is also dependent on LBL receiving substantial capital and non-capital funding from DOE.

LBL has completed 196 of 405 Tasks through the end of FY 1992. An itemized list of these Tasks is shown in Appendix 1. A total of 955 Milestones of the 1,522 have been completed.

Table 1

CAP Planned Progress - December 1992

| Fiscal Year | Number of Concerns to be Closed* | Percent of Actions Completed |
|---|---|---|
| 1991 | 13 | 4 |
| 1992 | 110 | 36 |
| 1993 | 172 | 87 |
| 1994 | 27 | 95 |
| 1995 | 15 | 99 |
| 1996 | 2 | 100 |

*Includes 1990 TSA Concerns

Table 2

CAP Planned Progress - November 1991

| Calendar Year | Number of Concerns to be Closed* | Percent of Actions Completed |
|---|---|---|
| 1991 | 47 | 14 |
| 1992 | 193 | 71 |
| 1993 | 56 | 87 |
| 1994 | 31 | 96 |
| 1995 | 9 | 99 |
| 1996 | 3 | 100 |

*Includes 1990 TSA Concerns

The current five-year budget is shown in Table 3.

**Table 3**

**Combined implementation and ongoing costs by FY for all LBL Tasks ($M, in FY 1992 dollars)**

| FY | Program ES&H Activities | ES&H Support | ERWM | GPP | GPE | MEL-FS | Total |
|---|---|---|---|---|---|---|---|
| 90 | .02 | .18 | 0 | .22 | 0 | .91 | 1.34 |
| 91 | .47 | 2.03 | 2.32 | .08 | .03 | .77 | 5.70 |
| 92 | .16 | 3.39 | 2.16 | .01 | .09 | 1.08 | 6.90 |
| 93 | 1.10 | 3.74 | 3.16 | 2.50 | .69 | 2.72 | 13.91 |
| 94 | .15 | 2.07 | .07 | 1.00 | .50 | 4.56 | 8.37 |
| 95 | .02 | .72 | .07 | 1.00 | .50 | 5.95 | 8.26 |
| 96 | 0 | .07 | 0 | 1.00 | .50 | 4.00 | 5.57 |
| Total | **1.92** | **12.20** | **7.78** | **5.81** | **2.31** | **19.99** | **50.01** |

*Total Implementation Cost* $53.95 M

A further breakdown of Concern Rate Closure (Table 4) shows the Concerns planned to be closed by area (i.e. Environmental, Safety and Health, Management, and Self-Assessment). Footnoted on this Table are the main reasons for closure delays in the last year of the CAP.

Table 4

LBL Corrective Action Plan Concern Closures

| Concern Type | FY 1991 | FY 1992 | FY 1993 | FY 1994 | FY 1995 | FY 1996 | Total |
|---|---|---|---|---|---|---|---|
| Management | 1 | 4 | 13 | 4 | 0 | 2[a] | 24 |
| Environment | 7 | 26 | 33 | 10 | 1 | 9 | 86 |
| Safety & Health | 5 | 79 | 110 | 13 | 14 | 7[b] | 228 |
| Self Assessment | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Total | 13 | 109 | 157 | 27 | 15 | 18 | 339 |
| *Percentage* | *4%* | *36%* | *87%* | *95%* | *99%* | *100%* | |

a - Contingent on funding of the MEL-FS project to construct the EM/IH Building

b - Contingent on funding resolution for the secondary containment of the B77 Waste Treatment Unit.

Laboratory CAP Management Structure and System

The Laboratory Director is responsible for the allocation of Lab-wide resources and implementation of the Corrective Action Plan. The Associate Laboratory Director for Operations is responsible for the Accelerator and Fusion Research, Environment, Health and Safety, Engineering, and Information and Computing Sciences Divisions, as well as the Facilities Department. These units are responsible for the majority of Tasks in the CAP. These Tasks have resulted in both increased infrastructure support and strengthened ES&H programs which will be implemented by LBL line management in all divisions.

Division Directors and Associate Laboratory Directors are responsible for line management oversight. The Office of Assessment and Assurance reports to the Associate Laboratory Director for Operations and has the responsibility for CAP project management, tracking and reporting. This system of Corrective Action Tracking provides a cost-effective mechanism for ensuring Laboratory-wide management accountability and oversight.

LBL has developed an approved Corrective Action Plan Project Management Plan (Appendix 2). The Project Management Plan established a Change Order Control system for CAP Tasks and Milestones. The Corrective Action Plan is updated monthly by submitting schedule and cost information to each Task Master, who revises and returns it to the Office of Assessment and Assurance. Any changes to cost or schedule must be approved by the cognizant LBL division director.

Responsibility for approving changes to corrective actions have been delegated to the DOE-SF Field Office and to the Laboratory. The Associate Laboratory Director for Operations has the authority to approve changes in Task schedules that are up to six months. The Berkeley Site Office approves all changes greater than six months as well as changes in Task scope. Changes that are greater than one year may be approved by DOE/SF but must be transmitted to ER/HQ for information.

This system allows for continuous monitoring of the Corrective Action Plan so that as personnel assignments and funding authorizations change, the data base is updated. This entails sending out Task descriptions to Task Masters who coordinate in turn with the relevant Milestone Masters. Monthly summaries are provided to LBL management to assure that attention is placed on appropriate Concern and Tasks areas. A report is provided to DOE/SF monthly and this Annual Report is provided to DOE Office of Energy Research, Headquarters. In the final quarter of each Fiscal Year, funding guidance and technical information are used to set a new baseline for all Concern closures and Task and Milestone schedules. The new baseline is then used to measure LBL's performance over the then current Fiscal Year. The dates of proposed Task closure from the originally approved Corrective Action Plan are retained in the data base.

Accomplishment of all Tasks and Milestones in the Corrective Action Plan is a formidable challenge. The Laboratory is responding to this challenge by applying significant resources in both manpower and funding. Management oversight is provided through the LBL Corrective Action Tracking System. This system also supports the DOE/SF Field and Site Offices by providing an adequate level of documentation in support of their oversight responsibilities.

Recently the Laboratory has received new guidance on Management of Corrective Action Plans from the Office of Energy Research (ST-30). The Laboratory will update its Project Management Plan to reflect any changes required to meet this Guidance.

Category II Concerns

Category II Concerns are defined as those involving "...a significant risk or substantial non-compliance with DOE Orders but [do] not involve a situation for which a clear and present danger exists to workers or members of the public." During the Tiger Team appraisal, TSA Concerns were also addressed and, in some cases, were recommended for closure and in other cases recommended to stay open pending further action. There are ten Category II Concerns in the CAP, three of which were from the TSA. There were no Category I Concerns identified by the TSA or Tiger Team. All Category II concerns are considered closed by the Laboratory with the exception of RP.5-3. DOE/SF is currently verifying the Closure of these Concerns. All Tasks and Milestones are complete for RP.5-3 with the exception of obtaining final DOE-LAP accreditation. Closure of this Concern must wait until the DOE system for accreditation is available to review and approve the Laboratory dosimeter program.

# Section 1. Environment

*Finding* **A/CF-1 (COMPLETE)**

**Site personnel are not performing air sample exchanges, as required by the Environmental Monitoring Group Procedures. In addition, there are deficiencies in the practices currently being employed that do not safeguard the integrity of radiological air samples.**

*Compliance Protocol* CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 5400.xy; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* Historically, there has been ambiguity in LBL's written instructions regarding sample handling and exchange. The environmental monitoring procedures must be revised to make the standard procedures clear, and personnel must be trained in the new procedures.

*Related Findings* A/CF-6 EM/CF-1 RP.9-1 RP.9-2

*Tasks* T4046(Completed)

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*Finding* **A/CF-2**

**LBL has not adequately demonstrated compliance with the requirements of NESHAPS, Subpart H.**

*Compliance Protocol* 40 CFR 61, Sub. H, Subsec. 61.93(a)&(b)(4); BAAQMD Rules; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; EPA guidelines on Air Quality Models(A-10); EPA-450/2-78-027R; EPA-450/4-87-013; NESHAPS, Sub. H

*Response* The Laboratory identified NESHAPS noncompliance in its Self-Assessment Report and is selecting a vendor to assist in developing the required compliance materials and program. On April 23, 1991 LBL received an EPA Order and Finding of Violation requiring compliance with "National Emission Standards for Emission of Radionuclides other than Radon from DOE Facilities". LBL submitted a compliance plan on 5/21/91 which commits the Laboratory to the schedule detailed in the CAP. Verbal acceptance of the compliance plan was received from the EPA on 6/4/91.

*Related Findings* RP.3-1/T90

*Tasks* T4047(Completed)

T4048

*FYP ADS #* SAN2002

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*Finding* **A/CF-3**

**LBL has not evaluated air permit requirements for all sources at the site and cannot demonstrate that all sources conform with regulatory requirements. There is no formal permitting program in place which will ensure regulatory conformance with all air emission sources. LBL has not developed a detailed emissions inventory of all regulatory air pollutants.**

*Compliance Protocol* 40 CFR 50-88; BAAQMD Reg 1 & 2 Rule 1, Sec 112 & 425; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* The EH&S Division has requested an FTE to address air toxics concerns. The requisition was made 11-27-90, and the position posted 12-7-90. The new air toxics professional will be responsible for evaluating air permit requirements and regulations.

*Related Findings* A/CF-4 A/CF-5

*Tasks* T4049

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*Finding* **A/CF-4**

**LBL air emission sources are not being operated or supervised in a manner which ensures full compliance with BAAQMD rules and regulations.**

*Compliance Protocol* 40 CFR 50-88; BAAQMD Reg. 8-Rule 16, Secs 301.3, 301.4, 501, Reg 8-Rule 19; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* The new air toxics professional referred to in A/CF-3 will be responsible for procedure development and source oversight.

*Related Findings* A/CF-3

*Tasks* T4049

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*Finding* **A/CF-5**

**LBL has not provided EPA Region 9 or BAAQMD with written notification of intent to perform friable asbestos removal operations. LBL does not request copies of notices of intent filed by subcontractors employed to perform operations at the site.**

*Compliance Protocol* 40 CFR 50-88; 40 CFR 61.145, & 61.146; BAAQMD Reg 11, rule 2; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* The responsibility for development of an asbestos removal environmental oversight program, including notification, record keeping, and disposal practices will belong to the new air toxics professional discussed in the task addressing A/CF-3.

*Related Findings* A/CF-3

*Tasks* T2032 T4050

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*Finding* **A/CF-6**

**There are deficiencies in the indoor air, ambient air, and meteorological monitoring networks employed at and around LBL. These include a lack of documentation of the criteria used for establishing the monitoring network performance, insufficient distribution of monitoring stations; improperly sited samplers; lack of calibration, inspection, and maintenance of the monitoring stations; and inadequate training of technicians.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 5400.5; DOE 5400.xy; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* The programmatic, procedural, and equipment deficiencies in radiological air monitoring will be alleviated through the development of criteria for air sampler placement and handling and the preparation of meteorological and Environmental Monitoring parameter review plans.

*Related Findings* A/BMPF-1 A/CF-1 EM/BMPF-1 RP.9-2

*Tasks* T4046(Completed)

T4028 T4051 T4053

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*Finding* **A/BMPF-1**

**There are no documented procedures at LBL for the installation, maintenance, replacement, and testing of HEPA filter systems. Systems are not routinely tested after repair or filter replacement.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013; The Nuclear Air Cleaning Handbook (ERDA 76-21)

*Response* Most of the issues raised in this finding were addressed in the LBL Self-Assessment. A comprehensive program of HEPA filter inventory, testing, installation, inspection, replacement, personnel training, and documentation is planned.

*Tasks* T9149(Completed)

T4052

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*Finding* **A/BMPF-2**

**LBL does not maintain a meteorological monitoring program consistent with DOE and EPA guidance. Meteorological monitoring equipment is sited such that it is subject to aerodynamic influences which may preclude use of the data for regulatory and emergency response applications.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.1 Chap. IV; DOE 5400.5; DOE 5400.xy; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* LBL does not possess the certified expertise to site its meteorological monitoring equipment. A certified vendor will be sought to recommend siting and to assist with program development. Meteorological monitoring deficiencies are also raised by Concern A/CF-6, and are also discussed there.

*Related Findings* A/CF-6 EM/BMPF-1 EM/CF-1

*Tasks* T4051 T4053

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|---|---|
| *Finding* | **SW/CF-1** |
| | **LBL has exceeded wastewater discharge limitations for heavy metals and volatile organics given in the EBMUD permits.** |
| *Compliance Protocol* | 40 CFR 109, 110, 112, 116, 117, 125, 136, 141, 142, 143, 403, 433; California Code of Regulations, Title 23, Chap 3; California Harbors and Navigation Code, Div 1.5, Chaps. 3 & 4; California Water Code Div 7; DOE 5000.3, 5400.5, Draft 5400.xy, 5480.1, 5484.1, 5482.1B, 5700.6B, 6430.1A ; EBMUD Ord. No. 311; EBMUD Ordinance Nos. 270,311; EBMUD Wastewater Discharge Permits 776-00025, 776-00077, 066-00791; Executive Order 11988 |
| *Response* | LBL will comply with EBMUD discharge limits for heavy metals and volatile organics by improving control measures, developing written procedures, and adequately training employees. |
| *Related Findings* | SW-3/CF-4 SW-3/CF-5 |
| *Tasks* | T1010(Completed) T1011(Completed) |
| | T1009 |
| *FYP ADS #* | SAN2004A SAN2004B SAN2006 SAN2019 |

*Finding* **SW/CF-2**

**Conditions identified at LBL's hydraugers, storm sewers, and sanitary sewers indicate that there are potential environmental releases. LBL has not fully characterized and controlled these environmental releases, to minimize risks to the environment or public health, and to anticipate and address potential environmental releases before they pose a threat to the quality of the environment or public welfare.**

*Compliance Protocol* 40 CFR 122.1; 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* LBL will fully characterize releases identified at hydraugers, storm sewers, and sanitary sewers. The risk to the environment or public health will be assessed. The releases will be controlled to acceptable risks. The existing Site Restoration Program will address both groundwater and surface water issues. See SW/CF-5.

*Related Findings* SW/CF-5 SW/CF-1

*Tasks* T1038(Completed) T2073(Completed) T2083(Completed) T2084(Completed) T2085(Completed) T2086(Completed) T8751(Completed) T8755(Completed) T8756(Completed) T8759(Completed) T8761(Completed) T8763(Completed)

T1016 T9012

*FYP ADS #* SAN2012A SAN2012B SAN2004A SAN2004B

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*Finding* **SW/CF-3**

**An SPCC Plan has not been issued by LBL within the timeframe required under 40 CFR Part 112. The current draft LBL SPCC Plan is not consistent with requirements promulgated in 40 CFR Part 112.**

*Compliance Protocol* 40 CFR 112, 112.1(c),112.3(a)(d),112.7(a),(b),(e)(10); 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* LBL will revise its draft of the Spill Prevention Control and Countermeasures Plan to make it consistent with the requirements of 40 CFR Part 112.

*Tasks* T1016

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*Finding* **SW/CF-4 (COMPLETE)**

**LBL is not complying with all quality control provisions and requirements in the EBMUD wastewater discharge permit.**

*Compliance Protocol* CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EBMUD wastewater discharge permit Sec. B,C40 CFR 50-88; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* LBL will modify procedures and documentation in order to ensure compliance with all EBMUD quality control provisions and requirements in the EBMUD wastewater discharge permit. The issue of procedures, in general, is addressed in EM/CF-1.

*Related Findings* SW/CF-1 SW/CF-5

*Tasks* T1017(Completed) T1018(Completed) T1019(Completed) T1020(Completed)

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*Finding* **SW/CF-5**

**SOPs are either lacking or inadequate for wastewater treatment and handling facilities at LBL.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 5484.19; DOE 5700.6B; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* Standard operating procedures will be prepared or revised for wastewater treatment and handling facilities at LBL. The procedures will be reviewed/updated at least annually.

*Related Findings* SW/CF-1 SW/CF-4

*Tasks* T1021(Completed) T1022(Completed) T1024(Completed) T1026(Completed) T1027(Completed) T1029(Completed)

T1023 T1025 T1028

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*Finding* **SW/CF-6 (COMPLETE)**

**LBL has not performed floodplain assessments for DOE-owned or-leased facilities, or for facilities on the UCB campus where DOE activities take place.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013; Executive Order 11988; NEPA

*Response* LBL has not performed floodplain analyses on all of its facilities in the past. LBL will perform floodplain assessments for DOE-owned or DOE-leased facilities, and for facilities on the UCB campus where DOE activities take place.

*Tasks* T1030(Completed) T1031(Completed)

*Finding* **SW/CF-7**

**Antisiphon devices are not installed on several faucets observed with hoses attached and lying in sinks or connected to photoprocessing baths.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; DOE 6430.1A Sec. 0266-2; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* Antisiphon devices will be installed on all potable water faucets where the potential for cross contamination exists.

*Tasks* T1033 T2058

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*Finding* **SW/BMPF-1**

**LBL does not have a formal training program for wastewater treatment system operators.**

*Compliance Protocol* 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013

*Response* LBL will provide training for wastewater treatment system operators. The training will be documented to ensure that all operators are familiar with plant operations and equipment maintenance procedures. This has been incorporated into the tasks for SW/CF-5.

*Related Findings* SW/CF-1 SW/CF-4 SW/CF-5

*Tasks* T1021(Completed) T1022(Completed) T1024(Completed) T1026(Completed) T1027(Completed) T1029(Completed)

T1023 T1025 T1028

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*Finding* **SW/BMPF-2 (COMPLETE)**

**LBL has not determined the applicability of stormwater NPDES permit regulations to the Hazardous Waste Storage Facility operations.**

*Compliance Protocol* 40 CFR 122; 40 CFR 50-88; CAC Title 17; Calfornia Health & Safety Code Sec. 43000; California Health & Safety Code Div. 26 and 27; California Public Resources Code Div. 13; CERCLA; DOE 5400.1; DOE 5400.5; DOE 6430.1A; Draft DOE 5400.xy; EPA-450/2-78-027R; EPA-450/4-87-013; RCRA

*Response* LBL is aware of the new requirements for assessment of the need for stormwater NPDES permits. The Hazardous Waste Handling Facility area is a potential candidate for these new permits and will be assessed along with the rest of the site.

*Related Findings* SW/CF-3 SW/CF-5

*Tasks* T1038(Completed)

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*Finding* **GW/CF-1**

**A comprehensive, well coordinated groundwater protection management program plan that meets the requirements of DOE Order 5400.1 is not in place at LBL.**

*Compliance Protocol* 40 CFR 300; California Department Water Resources Bulletin 74-90; California State Water Resources Control Board, Article 7; DOE 5400.1, Chap. III, Sec. 4a; Chap. IV, Sec. 9; DOE 5400.4; OSWER Directives 9950.1-.2

*Response* In July 1988 a DOE Environmental Survey Team identified the need for further characterization of soil and groundwater contamination at the LBL site. Consequently, LBL initiated steps in September 1988 to mitigate contamination from known sources and to begin preliminary site characterization studies based on existing geological data and available overhead funds. In addition, in 1988 LBL prepared a conceptual plan for site characterization and remediation and requested funding from the DOE Environmental Restoration and Waste Management (ERWM) Program for FY91 through FY93. As an interim measure, LBL continued preliminary environmental investigations in FY89 and FY90 utilizing expertise in the Earth Sciences Division and overhead funding to identify the sources and extent of known examples of groundwater contamination and to identify other possible soil and groundwater contamination elsewhere on the LBL site. A consistent goal of this work has been to establish a design basis for a Site Restoration and Groundwater Management Program (SRGMP) Plan, to be fully implemented under FY91-93 ERWM funding. The SRGMP will encompass all LBL programs relating to site restoration and groundwater management, and will include environmental monitoring, site restoration, health and safety, and quality assurance components, as well as elements such as a Spill-Prevention Control and Countermeasures Plan and a Well-Management Plan. A geotechnical firm that specializes in site characterization and related regulatory requirements has been selected to develop the SRGMP under the direction of the LBL Environment and Safety Hazards Control Department, with technical support from the Earth Sciences Division and the Plant Engineering Department. The development, approval, and implementation of the SRGMP, and the subsequent preparation of a Remedial Investigation Report, will fully satisfy the response requirements of all Tiger Team Groundwater Findings, and will fully or partially fulfill the response obligations to other findings in the areas of Inactive Waste Sites; Quality Assurance; Environmental Monitoring; and Soils, Sediments, and Biota. Note, however, that the Site Restoration Program will continue beyond the point at which the Tiger Team Findings are closed and will require considerable additional resources.

*Related Findings* EM/CF-3 GW/CF-2 GW/CF-3 GW/CF-4 GW/CF-5 IWS/CF-5 QA/CF-1 QA/CF-3 R/CF-3 SSB/CF-1 SW/CF-2 SW/CF-3

*Tasks* T2073(Completed) T2083(Completed) T2084(Completed) T2085(Completed) T2086(Completed) T8603(Completed) T8751(Completed) T8755(Completed) T8756(Completed) T8759(Completed) T8761(Completed) T8763(Completed)

T1016 T2072 T9012

*FYP ADS #* SAN2012A SAN2012B SAN2004A SAN2004B

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| *Finding* | **GW/CF-2** |
| | **The hydrogeologic regime at LBL has not been adequately characterized to define aquifer relationships, subsurface stratigraphy, extent of contamination, background conditions, and local flow paths, in accordance with the DOE, RCRA, and CERCLA guidance and regulations.** |
| *Compliance Protocol* | 40 CFR 300; 40 CFR 300.430; California State Water Resources Control Board Article 7; CDWR Bulletin 74-90; CERCLA; DOE 5400.1; DOE 5400.1; DOE 5400.4; DOE 5400.4; NCP; OSWER Directive 9950.1&.2; OSWER Directives 9950.1-.2 |
| *Response* | The hydrogeologic regime at LBL will be characterized. This will be accomplished through the development of hydrogeologic cross sections, geologic and structural maps, and cross sections and isopleth maps of contaminants. |
| *Related Findings* | GW/CF-1 |
| *Tasks* | T9012 |
| *FYP ADS #* | SAN2012A SAN2012B |

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| *Finding* | **GW/CF-3** |
| | **Contaminated groundwater is present beneath the LBL site. Existing information cannot identify those operations which have resulted in this contamination.** |
| *Compliance Protocol* | 40 CFR 300; 40 CFR 300.430; 9950.1-2 California State Water Resources Control Board Article 7 ; CDWR Bulletin 74-90; DOE 5400.1 Chap. III.4; DOE 5400.4; OSWER Directives |
| *Response* | LBL will implement a comprehensive Site Restoration Program to prepare for CERCLA/RCRA activities. One goal of this program is to identify and characterize areas of contamination on the LBL site. |
| *Tasks* | T9012 |
| *FYP ADS #* | SAN2012A SAN2012B |

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| *Finding* | **GW/CF-4** |
| | **Presently, there are four groundwater monitoring wells at LBL that are used to monitor the conditions of three underground storage tanks located near Buildings 7 (Electronic Store Shop), 62 (Material and Chemical Science), and 76 (Craft and Maintenance Shop). The maintenance and sampling of these wells and the subsequent reporting of the results have not been performed in accordance with applicable CWRCB regulations.** |
| *Compliance Protocol* | 40 CFR 300; California State Water Resources Control Board Article 7; CDWR Bulletin 74-90; CWRCB Article 7; DOE 5400.1; DOE 5400.4; OSWER Directives 9950.1-.2 |
| *Response* | LBL will comply with RWQCB requirements for closure of underground storage tanks in the context of implementing the Site Restoration and Groundwater Management Program. |
| *Tasks* | T8759(Completed) T8761(Completed) |
| | T1016 |
| *FYP ADS #* | SAN2012A SAN2012B |

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| *Finding* | **GW/CF-5 (COMPLETE)** |
| | **LBL does not have a comprehensive program to inventory, maintain, and properly abandon groundwater monitoring wells, as well as, test wells, dewatering wells, production wells, and slope indicators, in a manner that protects groundwater quality.** |
| *Compliance Protocol* | 40 CFR 300; California State Water Resources Control Board Article 7,; CDWR Bulletin 74-90; CDWR Bulletin 74-90; DOE 5400.1; DOE 5400.4; OSWER Directives 9950.1-.2 |
| *Response* | With the development, approval, and implementation of the Site Restoration and Groundwater Management Program, LBL will comply with all regulations governing inventories, maintenance, inspections, and abandonment of wells on the site. |
| *Tasks* | T8755(Completed) |
| *FYP ADS #* | SAN2012A SAN2012B |

*Finding* **WM/CF-1 (COMPLETE)**

**Generators and waste management personnel have not been adequately trained in characterization and management of hazardous, radioactive, and mixed wastes. Formal OJT programs based on job task analysis have not been established for Hazardous Waste Handling Facility personnel.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Sec 262.34(a)(4); 40 CFR Sec. 262.34(a)(4); 40 CFR Sec. 262.34(a)(4); CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap 6.7, Div. 20; CHWMR Title 22, Article 18, Sec. 67105; CHWMR, Title 22, Art. 18, Sect. 670105; DOE 5400.1; DOE 5400.1; DOE 5400.1, 5400.3, 5482.1B, 5480.4, 5820.2A, 6430.1A, 5480.19; DOE 5480.19; DOE 5480.19; DOE 5480.19; Implementation Guidance for DOE 5400.1 & 5820.2A; INPO-85-017; SEN-0-89

*Response* Training requirements and programs for managers of 90-day accumulation areas and generators and handlers of hazardous, radioactive, and mixed wastes will be developed in the Waste Management Program Plan (WMPP).

*Related Findings* WM-CF/15 WM/BMPF-1 WM/BMPF-3 WM/CF-10 WM/CF-12 WM/CF-2 WM/CF-4 WM/CF-5

*Tasks* T4121(Completed)

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*Finding* **WM/CF-2**

**LBL lacks an effective waste tracking system to inventory and track wastes so that accurate records of their quantities, types, constituents, and locations of wastes are readily available.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Sec. 264.73 & 265.73; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHWMR, Title 22, Article 21, Sec. 67163; DOE 5400.1; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2A; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* A computerized waste tracking system will be designed to replace the manual system currently in place. The new system will result from the expansion of the computerized chemical inventory system currently in place at LBL. The Waste Tracking System will be designed to provide the following information: 1) the types and quantities of wastes disposed of off-site for biennial reports required by Federal regulations and annual reports required by California regulations; 2) the origin and final destination of all wastes disposed of off-site; 3) the wastes on hand at any given time; 4) waste minimization program tracking; 5) annual reports for Land Ban documentation; 6) waste profile information for generators; and 7) training requirements for HWHF staff and generators. The Waste Tracking System will be included in the Waste Management Program to be developed under WM/BMPF-3.

*Related Findings* WM/BMPF-3 WM/CF-1

*Tasks* T4125

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*Finding* **WM/CF-3 (COMPLETE)**

**LBL does not conduct weekly inspections of 90-day container storage areas as required by hazardous waste regulations. Hazardous Waste Inspection Forms currently utilized at the Hazardous Waste Handling Facility (HWHF) do not have checklists of items specific to the particular facility being inspected. Inspection form checklists are not developed for each type of storage area at the HWHF.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Sec. 262.34. 264.15, 265.15; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHSC, Div. 20, Chap. 6.5, Article 1, Subsec. 25123.3(d)(5); CHWMR Title 22, Article 18; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* A comprehensive inspection program will be developed for the HWHF and the 90-day container storage areas. Inspection checklists and schedules have already been developed for the HWHF in the RCRA Part B Application and will be expanded to include the 90-day storage areas. The inspection program will include procedures, checklists, and schedules, and will be incorporated into the Waste Management Program Plan to be developed under WM/BMPF-3. Increased staffing in the waste management area will help to assure that inspections are carried out.

*Tasks* T1005(Completed) T1006(Completed)

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*Finding* **WM/CF-4 (COMPLETE)**

**LBL cannot meet the requirements of CHWCA on waste minimization. LBL has not developed a waste minimization program plan to meet the requirements of the stated performance objectives.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 54 FR 25056; 54 FR 25056; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHSCS Div. 20, Chap. 6.5, Article 11.9, Subsec. 25244.19; CHWCA; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; EBMUD; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* A Waste Minimization Program will be developed for inclusion in the Waste Management Plan (WMP). This program will include procedures to comply with appropriate DOE orders, Federal and state regulations, and existing permit requirements in the area of waste minimization. It will include the following elements: 1) top level management support through the development of LBL policy and directives regarding waste minimization; 2) employee training and awareness; 3) explicit program scopes, objectives, and numeric goals; 4) periodic waste minimization assessments and audits; 5) accurate cost accounting; 6) accurate waste accounting; 7) technology transfer; and 8) program evaluation. The Program will address discharges to sewer; discharges to air; discharges off-site; and minimization of on-site treatment. The program will provide goals for waste minimization and establish funding levels necessary for implementation. (See WM/BMPF-3.)

*Related Findings* WM/CF-1 WM/CF-2

*Tasks* T1001(Completed)

*FYP ADS #* SAN2017A SAN2017B

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*Finding* **WM/CF-5 (COMPLETE)**

**LBL has not developed and implemented low-level radioactive, and mixed waste certification plans.**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2A; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* LBL is currently certified for disposal of all low-level wastes at the Hanford Site. A mixed waste certification program is being developed with guidance from Hanford and will include training of HWHF staff at the Hanford Site. This program will be in compliance with DOE Order 5820.2A and will be certified by the Hanford Site. A waste certification program for TRU wastes cannot be developed at LBL until the Hanford Site is itself certified to accept and transport TRU wastes. Procedures encompassed within waste certification plans include waste generation and characterization; criteria for waste containers, forms, and packaging; and requirements for labeling and marking. The Waste Certification Plans for low-level, mixed, and TRU wastes will be included in the Radioactive Waste Management Plan covered under WM/CF-6 and in the Waste Management Plan covered under WM/BMPF-3.

*Related Findings* WM/CF-1 WM/CF-15 WM/CF-6 WM/CF-7

*Tasks* T9065(Completed) T9066(Completed)

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*Finding* **WM/CF-6 (COMPLETE)**

**LBL is not in compliance with DOE Order 5820.2A requirements. The annual update to the Implementation Plan has not been completed. The implementation Summary Table did not identify all deficiencies to DOE Order 5820.2A requirements.**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2A; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* LBL will update its Implementation Plan of DOE Order 5820.2A, "Radioactive Waste Management" and will include a schedule of compliance dates and estimated costs in an Implementation Summary Table. The new implementation plan will address all concerns raised by the Tiger Team assessment regarding the implementation of the Radioactive Waste Management Plan.

*Related Findings* WM/CF-15 WM/CF-4 WM/CF-5 WM/CF-7

*Tasks* T9106(Completed)

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*Finding* **WM/CF-7 (COMPLETE)**

**LBL does not have a comprehensive waste characterization program in place to ensure that accurate and reliable information is being used to properly characterize the physical and chemical composition of radioactive, hazardous, and mixed wastes.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR 262.11; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHWMR Title 22, Article 6, Sec. 66471; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2A; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* A comprehensive Waste Management Program Plan will be developed at LBL which will include a Waste Characterization Program. The characterization program will include a Waste Analysis Plan and a Waste Profiling System. The Waste Analysis Plan developed for the HWHF in the RCRA Part B Permit Application will be used as the basis for the LBL plan. The Waste Characterization Program will be included in the Waste Management Program to be developed under WM/BMPF-3. The Waste Profiling System will also be a part of the Waste Tracking System developed under WM/CF-2.

*Related Findings* WM/BMPF-3 WM/CF-1 WM/CF-15 WM/CF-2 WM/CF-3 WM/CF-5 WM/CF-6

*Tasks* T1003(Completed) T4121(Completed)

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*Finding* **WM/CF-8 (COMPLETE)**

**The container staging area at the Hazardous Waste Handling Facility lacks secondary containment. The surface is not impervious and has cracks, and a system is not in place to drain and remove liquids resulting from leaks, spills, or precipitation.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Sec. 264.175; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHWMR Title 22, Article 24, Sec. 67245; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* Secondary containment for drums containing liquid waste was found to be inadequate at the staging area of the Hazardous Waste Handling Facility, leading to noncompliance with Federal and state regulations. LBL has provided secondary containment for all drums temporarily stored at the staging area of this Facility.

*Tasks* T2027(Completed)

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*Finding* **WM/CF-9**

**LBL does not have an adequate response plan for new USTs that contain petroleum products and does not meet the volumetric requirements in Article 3, Subsection 2634(e).**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; CAC Titles 23 Art. 3, Subsec. 2634 (d) (2), e), f) , (g); California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* An Underground Storage Tank (UST) Response Plan will be developed in compliance with state regulations. The plan will describe the prescribed methods for removal of released material from the secondary containment and will provide the names of persons responsible to authorize the work. In the event that the work cannot be performed by LBL personnel, the plan will provide the names of outside contractors who will have already demonstrated that they are qualified to perform the specified work. The plan will designate LBL personnel responsible for tracking UST regulations for changes that would have impacts on LBL's UST program.

*Tasks* T8729

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*Finding* **WM/CF-10 (COMPLETE)**

**WAAs and SAAs are not managed in accordance with 40 CFR 262.34 or Title 22, Article 6, Subsection 66508(a). The 90-day generator WAAs inspected at LBL do not have contingency plans in place to meet the requirements in 40 CFR Section 262.34(d) and Title 22, Article 6, Subsection 66508(a)(4).@@Note: The UCB waste accumulation areas are reported by UCB to have "Working Copy" contingency plans which are being revised by the City of Berkeley before they are finalized. However, the Tiger Team did not verify this assertion.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Sec. 262.34(a)(d); CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHSC Div. 20, Chap 6.5, Subsec. 25123.3(d); CHWMR Title 22, Article 6, Subsec. 66508(a); DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* The Waste Management Plan (WMP) will include all requirements and procedures for the proper management of WAAs and SAAs, as per applicable Federal and state hazardous waste regulations. Contingency plans for the WAAs and SAAs will be developed and included in the WMP.

*Related Findings* WM/BMPF-1 WM/BMPF-3 WM/CF-1 WM/CF-3

*Tasks* T1005(Completed) T4121(Completed) T4129(Completed) T8681(Completed)

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*Finding* **WM/CF-11 (COMPLETE)**

**LBL land disposal restriction notifications and notifications/certifications required by 40 CFR Sections 268.7(a)(1) and 268.7(a)(2) did not contain the proper information and references.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR 268; 55 FR 22660 & 22674; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* Procedures will be developed to comply with Land Disposal Restriction Notification requirements. Personnel will be trained in the regulatory requirements and the oversight policies of the Hazardous Waste Handling Facility (HWHF) regarding contracted hazardous waste handlers and haulers. These procedures and training requirements will be included in the Waste Management Plan.

*Tasks* T8682(Completed)

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*Finding* **WM/CF-12 (COMPLETE)**

**Solvent-contaminated rags and wipes in Buildings 16 and 88 are not managed as hazardous waste in accordance with 40 CFR Section 261.31. In Buildings 51 and 77, solvent-contaminated rags are not effectively segregated from the oily rags, increasing the possibility of mismanagement of both the oily and solvent rags.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Sec. 261.31; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* A program to manage contaminated rags will be developed for inclusion in the Waste Management Plan (WMP). The program will emphasize generator training and segregation procedures.

*Related Findings* WM/BMPF-3 WM/CF-1 WM/CF-2

*Tasks* T4121(Completed) T9068(Completed)

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*Finding* **WM/CF-13**

**LBL does not maintain all of the records for the steam sterilizer in Room 314 of the Melvin Calvin Laboratory, required by Title 22, Article 13, Subsection 66845(a)(4)(e).**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHWMR Title 22, Article 13, Subsec. 66845(a)(4)(e); DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* An Infectious Waste Management Program will be developed for inclusion in the Waste Management Program Plan (WMPP). Existing procedures will be reviewed and updated where necessary to include proper operation and recordkeeping of all required information regarding the use of all steam sterilizers at LBL.

*Tasks* T4121(Completed)

T8628

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*Finding* **WM/CF-14**

**Building 75, Building 75 Yard, and Building 60 hazardous waste storage facilities do not maintain operating records as required by 40 CFR Section 264.73 and Title 22, Article 21, Section 67163.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR 264, Appendix I; 40 CFR Sec. 264.73; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHWMR Title 22, Article 21, Sec. 67163; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* Operating records for the Hazardous Waste Handling Facility will be maintained by the Waste Tracking System.

*Tasks* T4121(Completed)

T4125

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*Finding* **WM/CF-15 (COMPLETE)**

**LBL is storing mixed wastes containing solvents that are subject to land disposal restrictions and storage prohibitions.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Secs. 268.50, 268.35(d), 268.10, 268.11, 268.12; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* The Laboratory will characterize the drums of mixed wastes currently in storage at the HWMF and will prepare an inventory which identifies dates of storage and known contents (as per applicable Federal and state regulations) and dispose off-site, as per Mixed Waste Certification Plan currently being developed in T9066 (WM/CF-5) per appropriate Land Disposal Restriction requirements for mixed waste. This issue is a DOE-wide one and is being addressed in part on a complex-wide basis.

*Related Findings* WM/CF-5 WM/CF-6 WM/CF-7

*Tasks* T1003(Completed) T8686(Completed) T9066(Completed)

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*Finding* **WM/CF-16**

**The SAN Environment and Safety Hazards Control Department (ESHC) appraisal program has not been effective in ensuring compliance with applicable statutory and DOE requirements regarding environmental management. The functional appraisal program has not covered all applicable activities. A formal program for followup of corrective actions for findings resulting from oversight activities is not established at SAN.**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* SF's oversight role and the responsibilities of each SF organizational element will be defined in the LBL Site Management Plan (See MF-21). The plan will establish the basis the frequency and level of physical oversight. SF will develop procedures for conducting and documenting oversight activities. SF will implement a comprehensive data base for tracking audit/appraisal findings, corrective action status, etc.

*Related Findings* MF-21 OA.1-5 QV.1-3

*Tasks* T1124 T4059 T4060 T9193

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*Finding* **WM/CF-17 (COMPLETE)**

**LBL has not developed and implemented an internal appraisal program for evaluating the compliance status of environmental management activities.**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* A comprehensive Waste Management Program Plan will be developed which will include an Internal Appraisal Program to provide oversight of waste management activities at LBL. This program will be in compliance with applicable DOE orders and will be responsive to existing and future hazardous waste regulations. The program will utilize checklists contained in the RCRA Part B Permit Application. Oversight will be the responsibility of the individual operating division, the EH&S Division, and the Independent Review and Assurance Department, as appropriate.

*Tasks* T1005(Completed) T1006(Completed) T9069(Completed)

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*Finding* **WM/CF-18**

**LBL lacks a laboratory-wide closeout procedure to be implemented when individual experimenters leave or when laboratories and/or experiments are terminated.**

*Compliance Protocol* 40 CFR 260 - 280, 259; 40 CFR Secs. 268.50, 262.34; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; CHWCA, Article 1, Subsec. 25123.3(d)(3); CHWMR Title 22, Article 6, Sec. 66508; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* Laboratory closeout policies and procedures will be developed and included in the Waste Management Plan (WMP) in accordance with applicable regulations.

*Related Findings* WM/BMPF-3 WM/CF-4

*Tasks* T8631

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*Finding* **WM/BMPF-1 (COMPLETE)**

**Current labeling practices at LBL do not clearly differentiate between containers or hazardous, radioactive, mixed, and nonhazardous/nonradioactive waste. Spaces to write in the dates that radionuclides are placed into containers are not provided on the tags used for radioactive and mixed wastes.**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* LBL will establish a waste labeling system which will clearly distinguish between various types of waste.

*Related Findings* WM/BMPF-3 WM/CF-1 WM/CF-10 WM/CF-4

*Tasks* T4121(Completed) T4127(Completed)

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*Finding* **WM/BMPF-2 (COMPLETE)**

**LBL has not carried out formal, documented oversight of commercial TSDFs used for the management of LBL wastes. LBL is therefore unable to demonstrate that the commercial facilities used are in compliance with regulatory requirements and that they employ sound management practices.**

*Compliance Protocol* 40 CFR 260 - 280, 259; CAC Titles 22, 23, 14; California Health and Safety Code, Chap. 6.5, Div. 20 & Chap. 6.7, Div. 20; DOE 5400.1, 5400.3, 5482.1B, 5480.4; DOE 5820.2a, 6430.1A, 5480.19; Implementation Guidance for DOE 5820.2A & 5400.1; INPO-85-017; SEN-0-89

*Response* Policies and procedures will be developed to document LBL's oversight of commercial Treatment, Storage, and Disposal Facilities and will be included in the Waste Management Plan (WMP). Visits to contractor sites will be included in these procedures and compliance records will be obtained through FOIA to states and the EPA.

*Tasks* T8687(Completed)

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*Finding* **WM/BMPF-3**

**LBL has not developed and implemented procedures for the management of radioactive, hazardous, and mixed waste at generator storage areas and for the storage and treatment of hazardous, radioactive, and mixed wastes at the Hazardous Waste Handling Facility (HWHF).**

*Response* A Waste Management Program (WMP) will be developed for LBL. The WMP will consists of the correct procedures and requirements for the collection, labeling, handling, transport, characterization, documentation, storage, treatment, disposal, and minimization of hazardous, mixed, and radioactive wastes for generators and for the Hazardous Waste Handling Facility, as per federal and state regulations. Training requirements and programs will be specified in the individual elements of the WMP in accordance with appropriate regulations. Reporting requirements will be consolidated in the WMP following a thorough review of all appropriate regulations and existing LBL environmental permits. Parts of the WMP are already in the process of being developed, ie. maintenance and inspection procedures for the Waste Accumulation Areas. A guide for Waste Generators is currently being developed. The guide will provide detailed procuedures for waste characterization and storage; waste tracking and documentation; and waste segregation. It will include detailed procedures for emergency response; specific disposal procedures for hazardous, mixed, and radioactive wastes; infectious waste; oil and solvent contaminated rags and gloves; and carcinogen enforcement policies.

*Related Findings* WM/BMPF-1 WM/BMPF-2 WM/BMPF-3 WM/CF-1 WM/CF-10 WM/CF-11 WM/CF-12 WM/CF-13 WM/CF-14 WM/CF-15 WM/CF-17 WM/CF-18 WM/CF-2 WM/CF-3 WM/CF-4 WM/CF-5 WM/CF-6 WM/CF-7 WM/CF-8 WM/CF-9

*Tasks* T1001(Completed) T1003(Completed) T1005(Completed) T1006(Completed) T2027(Completed) T2074(Completed) T4121(Completed) T4127(Completed) T4129(Completed) T8681(Completed) T8682(Completed) T8687(Completed) T9065(Completed) T9066(Completed) T9068(Completed) T9069(Completed) T9106(Completed)

T4125 T8628 T8631 T8729

*FYP ADS #* SAN2017A SAN2017B

*Finding* **TCM/CF-1**

**There are nine ASTs containing diesel fuel which do not have secondary containment at LBL.**

*Compliance Protocol* Clean Water Act/40 CFR Part 112

*Response* There are nine above-ground storage tanks (ASTs) which contain petroleum products and which do not currently have the secondary containment required by 40 CFR 112. LBL's response to this finding will include preparation of a Spill Prevention, Control and Countermeasures Plan, a review of 40 CFR 112 to identify all non-compliant ASTs, an engineering evaluation of the most appropriate secondary containment methods and subsequent provision of appropriate secondary containment for the non-compliant ASTs.

*Related Findings* SW/CF-3 TCM/CF-2

*Tasks* T1016 T2028

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*Finding* **TCM/CF-2**

**Several bulk storage locations at LBL do not have adequate secondary containment or other management provisions to prevent the release of petroleum products and hazardous chemicals to the environment.**

*Compliance Protocol* 40 CFR 112

*Response* Several of LBL's temporary or permanent bulk storage areas for petroleum products and hazardous chemicals lack appropriate secondary containment and/or management provisions to ensure that spilled materials will not contaminate the environment. LBL will (1) relocate all drums to storage areas with adequate secondary containment provisions, (2) formalize procedures for operation and maintenance of all bulk chemical storage areas through the development and implementation of an approved Spill Prevention, Control and Countermeasure Plan, (SPCC) and (3) complete funded projects to provide secondary containment for all remaining bulk chemical storage areas. In the case where a breach in secondary containment involves cracked pavement at Building 69, fresh grout has been applied to the area to provide the necessary barrier between potential spills and the environment.

*Related Findings* SW/CF-3 TCM/CF-1

*Tasks* T2029(Completed)

T1016 T2031 T8733

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*Finding* **TCM/CF-3**

**LBL does have comprehensive asbestos management program based on the requirements of the California Environmental Health Code Section 66508 and does not have a complete inventory of asbestos at LBL and LBL-staffed facilities at UCB.**

*Compliance Protocol* 40 CFR 61, Sub. M; BAAQMD Reg. 11 Rule 2, 29 CFR 19100 and 29 CFR 1926.58; California Health Code Section 66508

*Response* LBL's asbestos management program is not sufficiently formalized to minimize asbestos-related risk to LBL employees and to ensure on-going compliance with local, state, and Federal regulations. The general corrective action will be to develop and implement a formal Asbestos Management Program at LBL. To improve management coordination and communication between LBL and UCB, asbestos issues will be addressed during revision of the Memorandum of Agreement between LBL and UCB. Discussions will include methods promoting management cooperation, coordination, and communication between the UCB Office of Physical Resources, UCB Environmental Health and Safety, and LBL Environment and Safety Hazards Control Department.

*Related Findings* A/CF-5

*Tasks* T2032

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*Finding* **TCM/CF-4**

**The storage and labeling of chemicals at certain LBL and LBL-used UCB facilities are not in conformance with guidelines in the LBL Health and Safety ManuaL (PUB-3000) and are inadequate to prevent the potential release of hazardous materials to the environment. The application of sound chemical storage practices is not consistent throughout LBL-operated facilities.**

*Compliance Protocol* PUB-3000

*Response* Chemical storage and labeling in several laboratories at LBL and in UCB facilities used by LBL employees do not conform to guidelines specified in Cal OSHA, Title 8, Section 5194 and in LBL Health and Safety Manual, PUB-3000. LBL will continue efforts to identify all nonconforming lab areas through an expanded Self-Assessment Program (SAP), provide continuing training to employees who use chemicals, and provide guidance to employees with special chemical needs. UCB has instituted corrective actions to all specific instances of noncompliance cited in the finding. The determination of appropriate standards at UCB facilities hosting LBL activities will be an important element of discussions leading to the revision of the Memorandum of Understanding between UCB and LBL.

*Related Findings* TC.4-1 WS.6-1

*Tasks* T2058 T3020

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*Finding* **TCM/BMPF-1**

**LBL does not have a comprehensive, written program for the management of PCBs that includes written procedures and documented training.**

*Compliance Protocol* 40 CFR 761

*Response* The current PCB management program at LBL is not optimally organized, leading to occasional inability to track PCB-related materials and activities. LBL will develop a comprehensive, written program for the management of PCB contaminated materials that provides for a central authority responsible for all PCB-related activities and for maintaining documentation of all such activities.

*Tasks* T2036

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*Finding* **TCM/BMPF-2 (COMPLETE)**

**The LBL procedures for tracking items in warehouse storage and maintaining proper custody of materials are inadequate.**

*Response* Current procedures for tracking and tagging items in LBL warehouse storage are inadequate. Tagging and chain-of-custody procedures for items released from LBL's Emeryville warehouse facility (Building 901) were found to be inadequate. The Materiel Management Department has already revised the tracking and tagging procedures, and these have been approved and published (Materiel Management Department Standard Procedure 12.01, "Warehoused Material held for Future Projects"). This procedure provides tags that identify an item and its destination and are kept with the item when it is released from storage in Materiel Management Department facilities, thus allowing continuous identification and tracking capabilities for all such items. Existing procedures for more formal chain of custody of items and chemicals which pass through Building 69 are being revised to address this finding.

*Tasks* T2037(Completed) T2038(Completed)

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*Finding* **TCM/BMPF-3**

**The plating wastewater treatment system at Building 77 is designed in such a way that under operating conditions, two parallel pipes, one containing acid solutions and another containing cyanide liquids, are located in close proximity to one another (for at least 50 feet) without any secondary pipe containment. If pipe integrity were compromised there would be no secondary containment to prevent chemicals from mixing with the subsequent potential for generation and release of a toxic gas.**

*Compliance Protocol* 40 CFR 264.193; DOE 6430; Sections 1300-1.4, 1300-3, 1300-3.3

*Response* Design deficiencies in the Building 77 Wastewater Treatment Facility could allow mixing of incompatible chemicals if standard operating procedures are not followed. LBL Plant Engineering has revised operational procedures for the Wastewater Treatment Facility and is redesigning the wastewater delivery system of the Wastewater Treatment Facility to provide both operational and engineered barriers to minimize potential adverse environmental consequences resulting from the operation of this facility.

*Related Findings* SW/BMPF-1 SW/CF-5 WM/CF-2

*Tasks* T1026(Completed)

T2039

*Finding* **QA/CF-1**

**Quality Assurance plans for the LBL's environmental protection, environmental restoration, and waste management programs and projects do not exist.**

*Compliance Protocol* DOE 5400.1; DOE 5700.6B

*Response* LBL lacks documented and approved QA plans for its environmental monitoring activities. QA plans are also not available for the projects and activities funded by the DOE Environmental Restoration and Waste Management Program.
The Laboratory has an approved Institutional QA Plan (IQAP) and associated Divisional plans. However, the Laboratory identified significant deficiencies in these plans, and these findings have been confirmed by the Tiger Team. The Laboratory is engaged in a systematic review and revision of its graded implementation of DOE Order 5700.6B and the associated guidance. The LBL approach to QA incorporates compliance with DOE Order 5480.19 for Conduct of Operations and will be compatible with the DOE/SF Environmenatal Protection QA Plan, to be implemented 9/30/91. Although an IQAP will be retained, Divisional Plans will be replaced with specific documents identified as Facility Notebooks for specialized equipment or collections of equipment in specific laboratories or buildings, Project Notebooks for research activities identified with well-defined sponsors or a set of related sponsors, and Function Notebooks for overhead or program support activities that require a more systematic application of QA. The IQAP will also establish criteria for the classification of facilities, projects, or functions. The classification will be based on the degree to which failure of QA or Conduct of Operations for such units would lead to major consequences for the Laboratory as a whole. These consequences include significant program interruptions, major environmental damage, serious health and safety effects on Laboratory personnel and the public, and severe financial impact. The tasks involved in this new approach are summarized in the corrective action response to Finding MF-22. Specific tasks and milestones for QA.CF-1 described below rely on the development of policy and guidance developed in response to MF-22.
In addition to implementing this Laboratory-wide approach to QA and Conduct of Operations, specific QA plans will be developed for environmentally related operations identified by the Tiger Team as deficient. These plans will govern operations until the Laboratory-wide system is in place. These plans will also form the basis of QA elements that are included in the required Notebooks for these operations.

*Related Findings* MF-22 QA/BMPF-1 QA/CF-2 QA/CF-3 QA/CF-4 QA/CF-6

*Tasks* T2073(Completed) T2074(Completed) T2076(Completed)

T2072

*FYP ADS #* SAN2012A SAN2012B

*Finding* **QA/CF-2**

**The divisional quality assurance activities and plans within the LBL divisions where environmental protection programs reside, including the Environmental Protection, Health and Safety Division; the Earth Sciences Division; and the Administration Division, do not comply with the requirements of DOE Order 5700.6B.**

*Compliance Protocol* 29 CFR 1910.120; 51 FR 45654; 54 FR 9294; 55 FR 51532; DOE 5700.6B; SF MD 5700.6B

*Response* The Laboratory is engaged in a systematic review and revision of its graded implementation of DOE Order 5700.6B and the associated guidance. Effective implementation of the Laboratory's environmental programs requires that those divisions responsible for ES&H activities at the Laboratory have formal, documented QA programs. This corrective action addresses implementation of the Laboratory's proposed approach to DOE Order 5700.6B by the EH&S Division, the Administration Division, and the Earth Sciences Division.

*Related Findings* MF-22 QA/BMPF-1 QA/CF-1 QA/CF-4 QA/CF-6

*Tasks* T2073(Completed) T2074(Completed) T2083(Completed)

T2072

*FYP ADS #* SAN2012A SAN2012B

*Finding* **QA/CF-3**

**LBL's procurement program does not provide formal policies or written procedures to ensure that services obtained from offsite contractors and subcontractors are governed by quality assurance/quality control programs consistent with DOE Order 5700.6B and regulatory requirements.**

*Compliance Protocol* DOE 5700.6B

*Response* LBL's procurement process for ES&H-related services must include formal policies requiring that contractors demonstrate appropriate certification and are governed by QA/QC programs that meet DOE Orders and other regulatory requirements. In addition, the QA plans for the LBL Purchasing Department and its environmental monitoring and ERWM programs must include documented procedures for verifying contractor certification and QA programs. The QA programs for the Laboratory's environmental monitoring and ERWM programs have been addressed in QA/CF-1 and 2. This response addresses corrective actions for the Purchasing Department.

*Related Findings* QA/CF-1 QA/CF-2 QA/CF-4

*Tasks* T2084(Completed) T2085(Completed) T2086(Completed)

T2087

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*Finding* **QA/CF-4**

**The Environmental Monitoring and the Earth Sciences Division Analytical Laboratories do not have documented and approved quality assurance plans.**

*Compliance Protocol* DOE 5700.6B

*Response* As discussed in responses and corrective actions for QA/CF-1 and QA/CF-2, the EH&S Division and the Earth Sciences Division will develop appropriate Facility, Project, and Function Notebooks, which will incorporate QA/QC and Conduct of Operations for activities in these divisions, including their analytical laboratories.

*Tasks* T2083(Completed)

T2072

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*Finding* **QA/CF-5**

**Quality assurance plans for the SAN Environmental Protection, Environmental Restoration, and Waste Management Programs are not available.**

*Compliance Protocol* DOE 5700.6B

*Response* SF issued a draft Environmental Restoration and Waste Management (ERWM) Quality Assurance Program on October 25, 1990. This document will be finalized and implemented. A similar document covering environmental protection activities will be prepared, reviewed, and implemented.

*Related Findings* QA/CF-7

*Tasks* T1052(Completed)

T9191

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*Finding* **QA/CF-6**

**Routine internal quality assurance reviews (audits) at the program and project level of LBL's Environmental Protection, Environmental Restoration, and Waste Management Programs and Projects activities have not been performed.**

*Compliance Protocol* DOE 5700.6B

*Response* As discussed in QA/CF-1 and MF-22, the Laboratory will implement DOE Order 5700.6B through a graded application of NQA-1. The documents generated for Designated Critical Units, Facilities, Projects, and Functions for each division will establish specific criteria for the internal self-assessments that will be carried out by each division, reviewed by the Safety Review Committee on a triennial basis, and audited by the Independent Review and Assurance Department. This three-tiered approach to self assessment is discussed in MF-15 and SA-1. The self-assessment activities of divisions with responsibilities for the environment have been included in Tasks responding to QA/CF-1, 2, 3, and 4. The only Tasks addressed in this finding deal with activities of the Independent Review and Assurance Department.

*Tasks* T2057(Completed)

T2090

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*Finding* **QA/CF-7**

**SAN has not performed the 1990 scheduled periodic quality assurance appraisals or audits of the LBL Environmental Protection, Environmental Restoration, and Waste Management Programs and/or their associated divisions. Follow up to the previous quality assurance appraisals is not evident.**

*Compliance Protocol* DOE 5700.6B

*Response* SF will prepare an environmental protection QA Plan to provide a basis against which audits may be made. All oversight requirements will be defined and scheduled in the Site Management Plan. A comprehensive data base will be established to track audit/appraisal findings and associated corrective actions. A QA appraisal was conducted during December 11-13, 1990.

*Related Findings* MF-21 OA.1-5 QA/CF-5

*Tasks* T1124 T4059 T4060 T9191

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*Finding* **QA/BMPF-1**

**There are deficiencies in LBL's environmental sampling and analysis activities that can affect the technical validity and legal defensibility of data generated in support of the site's Environmental Protection Programs.**

*Response* The intent of the Laboratory's program to incorporate QA/QC and Conduct of Operations in the development of specific books for Designated Critical Units, Facilities, Projects, and Functions is intended to require formal, documented procedures for both operations and quality assurance. Some tasks included under QA/CF-1, 2, 3 and 4 address QA/QC requirements for environmental monitoring and environmental restoration activities and for those analytical laboratories at the Laboratory that perform environmentally related research. These tasks will also address the detailed issues raised in this finding, since a comprehensive QA program will include sampling procedures, SOPs, and chain of custody as a matter of course.

*Tasks* T2073(Completed) T2083(Completed)

T2072

*FYP ADS #* SAN2012A SAN2012B

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*Finding* **RAD/CF-1 (COMPLETE)**

**Formal documentation does not exist for some of the parameters used in dose assessments of LBL. Written procedures and training on the use and verification of the computer codes used at LBL do not exist.**

*Compliance Protocol* DOE 5400.5; DOE 5400.xy

*Response* A formal documented program for environment radiological DOSE assessment will be developed in conformance with DOE Order 5400.5 and DOE Draft Order 5400.xy.

*Tasks* T4014(Completed) T4015(Completed)

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*Finding* **RAD/CF-2**

**LBL has not established a formal, documented environmental ALARA program to ensure that radiation exposures to the public and the environment remain as low as reasonably achievable.**

*Compliance Protocol* DOE 5400.5

*Response* To ensure that radiation exposures to the public and the environment attributable to LBL operations remain As Low As Reasonably Achievable (ALARA), a formal, documented environmental ALARA policy consistant with DOE Order 5400.5 will be developed and implemented.

*Related Findings* RP.1-1 RP.9-2

*Tasks* T4016

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*Finding* **RAD/CF-3**

**LBL has not characterized known uranium contamination remaining underground from decontamination and decomissioning (D&D) activities associated with the 184-inch Cyclotron. In addition, a formal report on the D&D activities for the outdoor waste storage area adjacent to Building 5 has not been prepared.**

*Compliance Protocol* DOE 5820.2A

*Response* LBL is in the process of a Site Restoration Program which will provide information to generate appropriate Decontamination and Decomissioning reports.

*Tasks* T2073(Completed) T2083(Completed) T2084(Completed) T2085(Completed) T2086(Completed) T8751(Completed) T8755(Completed) T8756(Completed) T8759(Completed) T8761(Completed) T8763(Completed)

T1016 T9012

*FYP ADS #* SAN2012A SAN2012B SAN2004A SAN2004B

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*Finding* **RAD/CF-4 (COMPLETE)**

**The calibration of the neutron detection system and environmental air sampling system is not performed on an annual basis, as required by draft DOE Order 5400.xy and the LBL Site Procedure for Perimeter and In-Accelerator Penetrating Radiation Measurements.**

*Compliance Protocol* DOE 5400.xy

*Response* The LBL fixed area monitoring program will meet five ANSI N323 and DOE Draft Order 5400.XY requirements.

*Related Findings* RP.8-2/T90 RP.8-3

*Tasks* T1104(Completed) T4020(Completed) T4027(Completed)

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*Finding* **RAD/BMPF-1**

**The LBL emergency response organization does not have adequate staffing, training, or procedures in place to perform emergency response actions in accordance with accepted best management practices.**

*Compliance Protocol* DOE 5500.3

*Response* As part of the reorganization of EH&S, a Radioactive Materials & Operations (RMO) section was created. The site senior monitoring personnel have been placed in this section. Additional personnel will be added. Members of the RMO Section will be part of the LBL Emergency Response Team and will participate in periodic training exercises. Backup personnel will be identified and trained to the same level of competence as RMO Section Members.

*Tasks* T8740

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| *Finding* | **IWS/CF-1 (COMPLETE)** |
| | **LBL has not developed a PA report of sufficient scope and detail to satisfy the requirements of DOE order 5400.4, 40 CFR 300.410, 40 CFR 300.420, and EPA PA guidance (OSWER Directive 9345.1-01).** |
| *Compliance Protocol* | DOE 5400.4; OSWER Directive 9345.1-01; OSWER Directive 9345.1-02 ; OSWER Directive 9355.01 |
| *Response* | LBL will improve the existing Preliminary Assessment (PA) in order to prepare a defensible Hazard Ranking System (HRS) score. |
| *Related Findings* | IWS/BMPF-1 IWS/CF-1 IWS/CF-2 IWS/CF-3 IWS/CF-4 IWS/CF-5 TCM/CF-4 |
| *Tasks* | T8751(Completed) |
| *FYP ADS #* | SAN2012A SAN2012B |

*Finding* **IWS/CF-2**

**LBL has not notified DOE-Headquarters of contamination discovered in the subsurface soils near Building 5 in 1985. LBL has also not prepared and submitted a formal report to DOE of the decommissioning of radioactive contamination in the subsurface soils near Building 5 completed in 1985.**

*Compliance Protocol* 29 CFR 1910.120 ; DOE 5484.1 ; DOE 5820.2; DOE 5820.2a

*Response* Unplanned releases of radioactive contamination to the soil/surface water/ground water will be investigated, characterized, and remediated (if required) under the Site Restoration Program. Air releases are covered in actions found in the "Air" section of this report.

*Related Findings* IWS/CF-1 IWS/CF-2 IWS/CF-4 IWS/CF-5

*Tasks* T2073(Completed) T2083(Completed) T2084(Completed) T2085(Completed) T2086(Completed) T8751(Completed) T8755(Completed) T8756(Completed) T8759(Completed) T8761(Completed) T8763(Completed)

T1016 T9012

*FYP ADS #* SAN2012A SAN2012B SAN2004A SAN2004B

*Finding* **IWS/CF-3 (COMPLETE)**

**SAN and LBL do not have a formal program in place to identify applicable regulatory requirements at the early stages of project development. As a result, all applicable regulations and requirements pertaining to the planned site activities of the Site Characterization Project have not been identified.**

*Compliance Protocol* 40 CFR 264,Subpart F ; DOE 5400.1; OSWER Directive 9345.0-01; OSWER Directive 9345.1-01 and 9345.1-02; OSWER Directive 9502.00-2

*Response* The finding centers on the lack of a formal program at SF and LBL to identify applicable regulatory requirements early in project development. SF will work to formalize a strategy for regulatory agency interaction. In addition, SF proposes to assess its resources to determine how it can best identify and meet applicable regulatory requirements in the future.

*Tasks* T8603(Completed)

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*Finding* **IWS/CF-4**

**SAN oversight of responses to releases of hazardous substances and wastes at LBL has been ineffective. DOE cannot demonstrate with written documentation its timely conveyance of critical regulations and guidances to LBL.**

*Compliance Protocol* DOE 5400.1

*Response* SF has been ineffective in its oversight of site characterization projects due to a lack of explicitly defined roles for SF personnel, including a failure to define its oversight roles and interactions with LBL. This has been due to a recent reorganization at SF, and a failure to redefine roles and responsibilities within SF. SF's ineffective oversight has been in part due to a shortage of staff. There is presently one FTE spending approximately 40% of his time on the sitewide Environmental Restoration project. SF will evaluate what level of resources should be dedicated to this project in order to provide the appropriate level of oversight and will request additional resources as appropriate. Part of SF's ineffectiveness in its oversight is due to informality. For example, while SF/ERWM has been involved with LBL in the restoration project, project guidance has been for the most part verbal. Procedures requiring written procedures will be prepared and implemented.

*Related Findings* IWS/CF-5 OA.1-5

*Tasks* T8604(Completed) T8606(Completed)

T4057 T8605

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| *Finding* | **IWS/CF-5** |
| | **SAN has not identified the appropriate natural resource co-trustees, nor have they formally notified them of past hazardous substance releases, groundwater contamination, and corrective actions planned or underway at LBL.** |
| *Compliance Protocol* | DOE 5400.4 |
| *Response* | SF will identify the appropriate natural resource co-trustees and will formally notify them of past hazardous substance releases, groundwater contamination, and corrective actions planned or underway at LBL. |
| *Tasks* | T8607 |

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| *Finding* | **IWS/BMPF-1 (COMPLETE)** |
| | **LBL has not established a program to prevent the inadvertent movement of potentially contaminated soils throughout the site.** |
| *Compliance Protocol* | 40 CFR 261.4 |
| *Response* | To minimize the future potential for inadvertent disturbances of potentially contaminated soil, the Laboratory will develop an approved Contaminated Soils Plan. |
| *Tasks* | T8759(Completed) |
| *FYP ADS #* | SAN2012A SAN2012B |

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|---|---|
| *Finding* | **IWS/BMPF-2 (COMPLETE)** |
| | **A draft health and safety plan that was developed for the Site characterization Project inadequately identifies and evaluates the entire array of potential hazards expected to be encountered during field investigations. In addition, LBL did not develop formal health and safety plans for field investigations of potential hazardous waste sites.** |
| *Compliance Protocol* | 29 CFR 1910.120 ; 51 FR 45654; 54 FR 9294; 55 FR 51532 |
| *Response* | LBL's Site Restoration and Groundwater Management Program (SRGMP) Plan will include a Health and Safety Plan as one component. The development of the SRGMP Plan will address all aspects of this finding. |
| *Tasks* | T8756(Completed) |
| *FYP ADS #* | SAN2012A SAN2012B |

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| *Finding* | **IWS/BMPF-3 (COMPLETE)** |
| | **LBL has not prepared project management plans, quality assurance project plans, and sampling and analysis plans prior to conducting field activities associated with the investigation of hazardous substance releases.** |
| *Compliance Protocol* | DOE 5400.4; DOE 5700.6B |
| *Response* | LBL's Site Restoration and Groundwater Management Plan (SRGMP) will include a Site Restoration Program Management Plan, quality assurance plans and sampling and analysis plans as elements. Development and approval of the SRGMP will address all issues discussed in this finding. |
| *Related Findings* | IWS/CF-2 |
| *Tasks* | T1052(Completed) T2073(Completed) T2083(Completed) T8751(Completed) |
| *FYP ADS #* | SAN2012A SAN2012B |

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| *Finding* | **IWS/BMPF-4 (COMPLETE)** |
| | **LBL has not determined the need for SARA Title III, Section 313 annual reporting using the criteria stated in 40 CFR 372.22(b) and DOE memorandums.** |
| *Compliance Protocol* | 40 CFR 3732; SARA 313 |
| *Response* | The Laboratory is reviewing SARA Title III, Section 3004H reporting requirements for applicability to LBL. |
| *Tasks* | T9124(Completed) |

*Finding* **NEPA/CF-1**

**There has been no NEPA guidance issued at LBL until recently (January 11, 1990). The draft Guidelines for Compliance with NEPA and the California Environmental Quality Act (CEQA) at LBL (0222) are inconsistent with the DOE-Headquarters guidance regarding NEPA.**

*Compliance Protocol* 40 CFR 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508 ; DOE 5440.1C; SEN-15-90

*Response* LBL's Draft NEPA Guidance Manual contains several inconsistencies with current DOE policies. These will be addressed in a second draft document based on comments provided by the Tiger Team NEPA determinations from DOE. LBL will work with DOE/SF and EH-25 to ensure that proposed NEPA systems comply with Orders and Guidance. These systems will cover all FTPAs, "work for others" requests, small and large construction projects (including GPP, maintenance, and non-capital alterations) and other actions such as personnel actions and procurements.

*Related Findings* MF-1 MF-14 NEPA/CF-2 NEPA/CF-3 NEPA/CF-4

*Tasks* T9111(Completed)

T4079 T4080 T9112

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*Finding* **NEPA/CF-2**

**The LBL review process is such that many proposed actions are not sent to SAN for NEPA review and determination; therefore, de facto NEPA determinations have been made by LBL.**

*Compliance Protocol* 40 CFR 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508 ; DOE 5440.1C; SEN-15-90

*Response* LBL has been making de facto NEPA determinations by either not seeking NEPA determinations for some projects or by assuming that projects are exempt from NEPA. This is not consistent with the Interim Guidance for SEN-15-90. To address this concern, LBL has developed a NEPA Guidance Manual and a NEPA Training Program Plan. These procedures and training will be implemented over the next Fiscal Year in conjunction with pending DOE/SF Management Directives and OER/HQ Guidance. These steps will result in a compliant and auditable program. (See NEPA/CF-1). The tasks in NEPA/CF-1 partially address this finding. As a part of the LBL activities to comply with NEPA requirements, non-construction activities are being addressed through review of proposals for operating funds.

*Related Findings* MF-1 MF-14 NEPA/CF-1 NEPA/CF-3 NEPA/CF-4

*Tasks* T9111(Completed)

T2051 T4079 T4080 T9112

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*Finding* **NEPA/CF-3**

**Actions have been taken by LBL for which there is no valid NEPA documentation. Furthermore, for several projects, decisions have been made prior to the NEPA process. NEPA documents are often written after decisions have been made.**

*Compliance Protocol* 40 CFR 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508 ; DOE 4300.1B; DOE 5440.1C

*Response* LBL has been making NEPA determinations prior to the decision making process by either not seeking NEPA determinations for some projects or by assuming that some projects are exempt from NEPA. This is not consistent with the Interim Guidance for SEN-15-90. To address this concern, LBL has developed a NEPA Guidance Manual and a NEPA Training Program Plan. These procedures and training will be implemented over the next Fiscal Year in conjunction with pending DOE/SF Management Directives and OER/HQ Guidance. These steps will result in a compliant and auditable program. Site planning activities will be coordinated with the Office of Planning and Assurance NEPA activities to avoid precluding NEPA considerations at the early stage of project inception. The tasks for NEPA/CF-1 and NEPA/CF-2 will fully correct this finding.

*Related Findings* MF-1 NEPA/CF-1 NEPA/CF-2 NEPA/CF-4

*Tasks* T9111(Completed)

T4079 T4080 T9112

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*Finding* **NEPA/CF-4**

**LBL's NEPA documentation suffers from several deficiencies.**

*Compliance Protocol* 40 CFR 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508

*Response* LBL's NEPA documentation is inadequate because of a lack of a full understanding of the Interim Guidance for SEN-15-90. To address this concern, LBL has developed a NEPA Guidance Manual and a NEPA Training Program Plan to develop procedures that will ensure that all current and future NEPA documents meet DOE requirements. These procedures and associated training will be implemented over the next Fiscal Year in conjunction with pending DOE/SF Management Directives and OER/HQ Guidance. The training program will be updated as DOE requirements change. LBL will also take advantage of DOE HQ and SF training when it is made available. LBL also plans to be proactive in seeking out guidance from EH-25 before and during the development of NEPA documents. Tasks from NEPA/CF-1 and NEPA/CF-2 fully address this finding.

*Related Findings* MF-1 NEPA/CF-1 NEPA/CF-2 NEPA/CF-3 NEPA/CF-5

*Tasks* T9111(Completed)

T4079 T4080 T9112

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*Finding* **NEPA/CF-5**

**Neither LBL nor SAN has an integrated system for tracking the status of NEPA review and determinations for all LBL actions (0221 and 0225). There are no procedures for record keeping (0221) and there is no evidence to indicate that LBL and SAN staffs have a complete understanding of NEPA procedures (0225). This results in inadequate SAN oversight of NEPA documentation (0190) and inadequate LBL and SAN tracking of projects at the site.**

*Compliance Protocol* DOE 5440.1C

*Response* SF and LBL will develop tracking systems for NEPA determinations. Appropriate procedures for NEPA recordkeeping will be developed, and staff will be trained in their use. Overall NEPA training will be required for SF line managers. (See Task 4070.)

*Related Findings* MF-1 MF-14 NEPA/CF-1 NEPA/CF-2 NEPA/CF-3 NEPA/CF-4 NEPA/CF-6

*Tasks* T4072(Completed) T9111(Completed)

T4071

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*Finding* **NEPA/CF-6**

**Guidance from SAN, Secretarial Officers (Program Senior Officials), and the Office of Environment, Safety, and Health (EH) has either not been transmitted or is in draft and incomplete.**

*Compliance Protocol* 40 CFR 1500,1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508 ; DOE 5440.1C; DOE 5440.1C; SEN-15-90

*Response* The NEPA Order is included in the environment and safety orders covered by the contract with UC. Guidance from EM, ER, and EH will be completed and issued. Guidance from PSO's will be sent in memos to line managers at the Field Office. Guidance from EH will be sent in memos to the NEPA Complaince Officer, who will send guidance to line managers. Line managers will provide guidance to the contractor. SF will correct, finalize, and issue specific guidance and procedures to LBL. Additional training will be scheduled for SF.

*Related Findings* NEPA/CF-1 NEPA/CF-5

*Tasks* T4065(Completed) T4067(Completed) T4068(Completed)

T4063 T4064 T4066

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*Finding* **EM/CF-1**

**The existing procedures for the LBL Environmental Monitoring Group do not adequately address the monitoring program operations and are not of sufficient detail and scope to ensure consistent and defensible performance and reporting of environmental monitoring sampling and analysis activities.**

*Compliance Protocol* DOE 5400.1; DOE 5400.5; DOE 5400.xy; DOE 5484.1 ; DOE 5700.6B

*Response* While the discussion section lists only 18 specific deficiencies, the procedures will be reviewed against relevant sections of the DOE Orders and updated as appropriate. Corrective actions for a number of the specific deficiencies are tasked elsewhere. LBL will resolve issues relating to elevated levels of radioactive and nonradioactive contaminants that have been identified at the site in the soil, sediment, and biota section.

*Related Findings* A/BMPF-1 A/CF-1 EM/BMPF-1 RP.2-1 SSB/CR-1

*Tasks* T4054

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*Finding* **EM/CF-2 (COMPLETE)**

**The LBL Annual Site Environmental Report was reviewed to determine the Laboratory's regulatory compliance status with the requirements listed in the performance objective. Deficiencies were noted in the following areas.**

*Compliance Protocol* DOE 5400.1; DOE 5484.1

*Response* The Environmental Monitoring Report will be issued on schedule and will contain all information regarding LBL environmental activities, impacts, and assessments required by the applicable DOE Orders.

*Tasks* T4055(Completed)

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*Finding* **EM/CF-3 (COMPLETE)**

**LBL has not updated its Environmental Protection Implementation Plan (PUB 5242, October 1989) as required in DOE Order 5400.1, Chapter III. In addition, the following documents required in DOE Order 5400.1, Chapter III were not available: the Long-Range Environmental Protection Program Plan, the Groundwater Protection Management Program, the Waste Minimization Program Plan, and the Pollution Prevention Awareness Program Plan.**

*Compliance Protocol* DOE 5400.1; DOE 5484.1

*Response* LBL will update the Environmental Protection Implementation Plan. LBL will prepare and update the Long Range Environmental Protection Plan, the Groundwater Protection Program, the Waste Minimization Plan, and the Pollution Prevention Awareness Program Plan.

*Related Findings* EM/BMPF-1

*Tasks* T1001(Completed) T1040(Completed) T1041(Completed) T1044(Completed) T8761(Completed)

*FYP ADS #* SAN2017A SAN2017B SAN2012A SAN2012B

| | |
|---|---|
| *Finding* | **EM/BMPF-1 (COMPLETE)** |
| | **LBL is carrying out environmental monitoring without the necessary elements of a monitoring plan in place.** |
| *Compliance Protocol* | DOE 5400.1; DOE Draft 5400.xy |
| *Response* | A comprehensive environmental monitoring plan consistent with the requirements of DOE Orders 5400.1 and 5400.5, and DOE Draft Order 5400.xy will be prepared for LBL. The plan must be reviewed annually and updated every 3 years. |
| *Related Findings* | A/BMPF-2 A/CF-1 A/CF-2 A/CF-3 A/CF-4 A/CF-5 A/CF-6 EM/CF-1 EM/CF-2 GW/CF-1 GW/CF-2 GW/CF-3 GW/CF-4 GW/CF-5 IWS/CF-1 IWS/CF-3 IWS/CF-5 QA/BMPF-1 QA/CF-1 QA/CF-3 QA/CF-4 QA/CF-5 QA/CF-6 R/CF-3 SSB/CF-1 SW/CF-2 SW/CF-4 SW/CF-6 TCM/BMPF-1 |
| *Tasks* | T8603(Completed) T8742(Completed) |

| | |
|---|---|
| *Finding* | **SSB/CF-1** |
| | **LBL has not fully characterized the extent, nature, and source of elevated levels of radioactive and nonradioactive contaminants which have been identified at the site in the soil, sediment, and biota.** |
| *Compliance Protocol* | DOE 5400.1 |
| *Response* | All issues relating to contaminated soil, sediment, and biota at the Laboratory will be addressed in the context of the Site Restoration Program. |
| *Related Findings* | EM/CF-1 |
| *Tasks* | T2073(Completed) T2083(Completed) T2084(Completed) T2085(Completed) T2086(Completed) T8751(Completed) T8755(Completed) T8756(Completed) T8759(Completed) T8761(Completed) T8763(Completed) |
| | T1016 T9012 |
| *FYP ADS #* | SAN2012A SAN2012B SAN2004A SAN2004B |

*Finding* **EOR/CF-1 (COMPLETE)**

**SAN has not maintained an appropriate level of involvement in all environmental regulatory activities.**

*Response* SF line programs have direct line responsibility to ensure successful accomplishment of DOE programs. ER, NE, ERWM, and DP line programs with support from the Environment and Safety Support Division will provide guidance and oversight to help ensure regulatory compliance through the "oversight plan". SF is committed to providing the necessary personnel resources to meet these responsibilities.

*Tasks* T1122(Completed) T1122(Completed) T8603(Completed) T9040(Completed)

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*Finding* **EOR/CF-2 (COMPLETE)**

**SEN-7A reports submitted by SAN are incomplete and are not prepared in full accordance with SEN-7A and guidance issued by DOE-Headquarters.**

*Response* SEN-7A established reporting requirements for environmental compliance status. Subsequent SEN-7A reports will include sections which were not previously included: compliance with environmental regulations and DOE Orders; NEPA compliance activities; evaluation of M&O contractor performance; and notification of sensitive documents to be released in the next three months.

*Related Findings* A/CF-3 EOR/CF-3 NEPA/BMPF- NEPA/CF-2 NEPA/CF-5 SW/CF-3 TCM/CF-1

*Tasks* T1071(Completed) T1072(Completed) T1073(Completed)

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*Finding* **EOR/CF-3**

**LBL and SAN have failed to effectively implement corrective actions for Environmental Survey findings. SAN and DOE-Headquarters (EH-22) have failed to adequately follow up and track corrective actions taken and planned in response to LBL Environmental Survey findings.**

*Response* SF and LBL have not updated the Final Action Plan addressing the 1988 Environmental Survey, or reported changes in status of the survey findings. EH-22 has not provided guidance to the field regarding preparation of Action Plan updates. SF has not established a method to formally validate actions taken and subsequently close findings from assessments. The Tiger Team identified 17 of the 23 findings as still open.

*Related Findings* EOR/CF-2

*Tasks* T1074(Completed)

T4059 T4060

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**TASK: T1001 Prepare Waste Minimization Plan** *Complete:* 09/01/91

LBL will develop a plan for a Waste Minimization Program that complies with all appropriate Federal, state, and local regulation and permit requirements. The program will establish goals and funding levels necessary for implementation. (ERWM funds for this project were deleted in the last budget cycle. LBL is requesting restoration of these funds.) In addition, a waste minimization specialist will be hired to service the plan.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 06/15/91 |
| *Waste Minimization Plan prepared* | *Done:* 08/15/91 |
| *Waste Minimization Plan revised* | *Done:* 09/01/91 |
| *Waste Minimization Plan reviewed* | *Done:* 08/20/91 |
| *Waste Minimization Plan approved* | *Done:* 09/01/91 |
| *Waste minimization specialist hired* | *Done:* 08/01/91 |
| *Waste Minimization Plan implemented* | *Done:* 09/01/91 |

**TASK: T1003 Develop Waste Characterization Program** *Complete:* 12/01/91

This task involves the preparation of a Waste Analysis Plan for LBL that will describe waste sampling methods and specify analytical procedures that are necessary to properly characterize various waste streams. This plan will include procedures for analyzing low level radioactive and hazardous wastes. The purpose of the waste analysis plan is to obtain detailed chemical and physical analyses of waste as required in 40 CFR Part 264.13 and CCR, Title 22. High priority LBL waste streams will be identified and sampling methods designed for each of these waste streams. This task also involves compiling, reviewing and preparing documents that are required for submittal to Federal, state, and local agencies relative to LLW and mixed waste, and assistance in implementing the LBL transuranic (TRU) waste certification program.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 06/07/91 |
| *Existing Waste Analysis Plan reviewed* | *Done:* 08/01/91 |
| *Waste Characterization Plan prepared* | *Done:* 08/30/91 |
| *Waste Characterization Program plan reviewed* | *Done:* 07/15/91 |
| *Waste Characterization Program plan revised* | *Done:* 08/01/91 |
| *Waste Characterization Program plan approved* | *Done:* 09/01/91 |
| *Waste Characterization Program plan implemented* | *Done:* 12/01/91 |

**TASK: T1005 Develop 90-day WAA Checklist** *Complete:* 08/01/91

LBL will develop inspection programs and checklists for 90-day accumulation areas and the HWHF for inclusion in the Waste Management Program Plan.

| Milestones: | *Schedule* |
|---|---|
| *Appropriate regulations reviewed* | *Done:* 06/07/91 |
| *Checklist prepared* | *Done:* 06/15/91 |
| *90-day WAAs inspected* | *Done:* 08/01/91 |

**TASK: T1006 Develop Improved HWHF Checklists** *Complete:* 04/15/91

LBL will develop a weekly Hazardous Waste Handling Facility checklist that meets all the requirements of Title 40 CFR Section 262.34 and California Health and Safety Code, Division 20, Chapter 6.5.

| Milestones: | *Schedule* |
|---|---|
| *Regulations for HWHF inspections reviewed* | *Done:* 03/15/91 |
| *Existing HWHF checklists reviewed* | *Done:* 04/01/91 |
| *Improved HWHF checklist developed* | *Done:* 04/15/91 |
| *HWHF inspected* | *Done:* 04/15/91 |

**TASK: T1009 EBMUD Violations—Site-Wide Activities**

A site-wide survey will be performed to identify activities that potentially violate EBMUD discharge limits. Each potential source will be evaluated. Appropriate controls will be implemented and training will be provided.

| Milestones: | *Schedule* |
|---|---|
| *Personnel trained on survey procedures* | *Due:* 11/01/92 |
| *Survey procedures prepared* | *Due:* 02/01/93 |
| *Survey plan prepared* | *Due:* 02/01/93 |
| *Potential sources inventoried and evaluated* | *Due:* 03/01/93 |
| *Source controls developed and implemented* | *Due:* 09/30/93 |

**TASK: T1010 EBMUD Violations—Building 25 Plating Shop** *Complete:* 08/23/91

The Building 25 Printing Circuit Board Shop will ensure compliance with EBMUD discharge limits by improving control measures, developing written procedures, and adequately training employees.

| Milestones: | *Schedule* |
|---|---|
| *Control measures identified* | *Done:* 03/01/91 |
| *Control measures evaluated* | *Done:* 07/30/91 |
| *Control measures improved* | *Done:* 08/23/91 |
| *Maintenance procedures developed* | *Done:* 08/23/91 |
| *Train personnel* | *Done:* 08/23/91 |

**TASK: T1011 EBMUD Violations—Building 77 Plating Shop** *Complete:* 09/01/91

The Building 77 Plating Shop will ensure compliance with EBMUD discharge limits by improving control measures, developing written procedures, and adequately training employees.

| Milestones: | *Schedule* |
|---|---|
| *Control measures identified* | *Done:* 05/01/91 |
| *Control measures evaluated* | *Done:* 06/01/91 |
| *Control measures improved* | *Done:* 07/01/91 |
| *Maintenance procedures developed* | *Done:* 08/01/91 |
| *Personnel trained* | *Done:* 09/01/91 |

**TASK: T1016 Spill Prevention Plan Revision/Update**

To achieve and ensure continuing compliance with regulations concerning secondary containment of drums that contain petroleum products or potentially hazardous materials, LBL will develop formal procedures for storage of such products at permanent bulk storage areas. LBL is working with a qualified contractor to develop a Spill Prevention, Control and Countermeasures (SPCC) Plan. The Plan will include general information such as facility descriptions, as well as specific information on storage operations, spill prevention features, maintenance, and inspection procedures for all bulk chemical storage areas on the site. When implemented, this plan will provide for compliance with all relevant regulations and will ensure that LBL employees have unambiguous guidelines for following approved procedures for the environmental management of potentially hazardous materials at the site.

| Milestones: | *Schedule* |
|---|---|
| *Regulatory requirements reviewed* | *Done:* 03/15/91 |
| *SPCC Plan prepared* | *Done:* 07/01/91 |
| *SPCC Plan reviewed* | *Done:* 07/15/91 |
| *SPCC Plan revised* | *Done:* 08/15/91 |
| *SPCC Plan approved* | *Due:* 10/30/92 |
| *SPCC Plan implemented* | *Due:* 11/30/92 |

**TASK: T1017 EBMUD Permit—Incomplete Distribution** *Complete:* 06/01/92

LBL will develop and implement procedures to ensure that upper level LBL management personnel receive copies of EBMUD correspondence from the site.

| Milestones: | *Schedule* |
|---|---|
| *Procedures approved* | *Done:* 05/01/92 |
| *Procedures developed* | *Done:* 06/01/92 |
| *Procedures implemented* | *Done:* 06/01/92 |

**TASK: T1018 EBMUD Permit—Reporting Requirements** *Complete:* 06/11/92

LBL will develop and implement a tracking system to ensure and document that all EBMUD permit reporting requirements are met.

| Milestones: | *Schedule* |
|---|---|
| *Permit reporting requirements reviewed* | *Done:* 02/01/92 |
| *Tracking procedures developed* | *Done:* 03/15/92 |
| *Tracking procedures approved* | *Done:* 06/01/92 |
| *Tracking procedures implemented* | *Done:* 06/11/92 |

**TASK: T1019 EBMUD Permit—Chain-of-Custody Document** *Complete:* 11/07/91

LBL will modify the existing chain-of-custody document to add information required by the EBMUD permit.

| Milestones: | *Schedule* |
|---|---|
| *Permit document requirements reviewed* | *Done:* 09/01/91 |
| *Chain-of-custody document revised* | *Done:* 10/21/91 |
| *Chain-of-custody document approved* | *Done:* 11/01/91 |
| *Chain-of-custody procedures implemented* | *Done:* 11/07/91 |

**TASK: T1020 EBMUD Permit—Incomplete Documentation** *Complete:* 06/01/92

LBL will develop and implement procedures to ensure that EBMUD reports are properly signed and dated.

| Milestones: | *Schedule* |
|---|---|
| *Procedures developed* | *Done:* 03/01/92 |
| *Procedures approved* | *Done:* 06/01/92 |
| *Procedures implemented* | *Done:* 06/01/92 |

**TASK: T1021 SOP—Building 25 Wastewater Treatment System** *Complete:* 08/25/92

LBL will prepare a standard operating procedure (SOP), including an operating log, for the Building 25 Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 12/15/91 |
| *SOP prepared* | *Done:* 02/14/92 |
| *SOP approved* | *Done:* 08/24/92 |
| *Facility operators trained on SOP* | *Done:* 08/25/92 |
| *SOP made accessible in facility* | *Done:* 08/25/92 |

**TASK: T1022 SOP—Bldg. 51 Sump Collection/Treatment System** *Complete:* 10/23/91

LBL will prepare a Standard Operating Procedure (SOP), including an operating log, for the Building 51 Sump Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 07/01/91 |
| *SOP prepared* | *Done:* 08/21/91 |
| *SOP approved* | *Done:* 10/01/91 |
| *Facility operators trained on SOP* | *Done:* 10/15/91 |
| *SOP made accessible in facility* | *Done:* 10/23/91 |

**TASK: T1023 SOP—Bldg. 51 Hydrauger Treatment System**

LBL will prepare a Standard Operating Procedure, including an operating log, for the Building 51 Hydrauger Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 08/19/91 |
| *SOP prepared* | *Done:* 02/01/92 |
| *SOP approved* | *Done:* 05/01/92 |
| *Facility operators trained on SOP* | *Done:* 06/08/92 |
| *SOP made accessible in facility* | *Due:* 11/15/92 |

**TASK: T1024 SOP—Building 76 Paint Spray Treatment System** *Complete:* 11/27/91

LBL will prepare a Standard Operating Procedure, including an operating log, for the Building 76 Paint Spray Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 07/01/91 |
| *SOP prepared* | *Done:* 08/01/91 |
| *Facility operators trained on SOP* | *Done:* 11/21/91 |
| *SOP approved* | *Done:* 11/25/91 |
| *SOP made accessible in facility* | *Done:* 11/27/91 |

**TASK: T1025 SOP—Building 76 Parts Cleaner Tank**

LBL will prepare a Standard Operating Procedure, including operating log, for the Building 76 Parts Cleaner Tank.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 09/01/91 |
| *SOP prepared* | *Done:* 11/01/91 |
| *SOP approved* | *Done:* 12/01/91 |
| *SOP made accessible in facility* | *Done:* 03/20/92 |
| *Facility operators trained on SOP* | *Due:* 11/01/92 |

**TASK: T1026 SOP—Building 77 Wastewater Treatment System** *Complete:* 03/14/92

LBL will prepare a Standard Operating Procedure (SOP), including an operating log, for the Building 77 Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 02/14/92 |
| *SOP prepared* | *Done:* 03/14/92 |
| *SOP reviewed and approved* | *Done:* 03/14/92 |
| *Facility operators trained on SOP* | *Done:* 03/14/92 |
| *SOP made accessible in facility* | *Done:* 03/14/92 |

**TASK: T1027 SOP—Bldg. 2 Acid Neutralization System** *Complete:* 05/01/92

LBL will revise the Standard Operating Procedure (SOP), including operating log, for the Building 2 Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 12/12/91 |
| *SOP prepared* | *Done:* 03/01/92 |
| *SOP approved* | *Done:* 05/01/92 |
| *SOP made accessible in facility* | *Done:* 05/01/92 |
| *Facility operators trained on SOP* | *Done:* 05/01/92 |

**TASK: T1028 SOP—Bldg. 70A Acid Neutralization System**

LBL will revise the Standard Operating Procedure, including an operating log, for the Building 70A Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Due:* 05/01/91 |
| *SOP prepared* | *Due:* 09/01/91 |
| *SOP approved* | *Due:* 02/28/92 |
| *Facility operators trained on SOP* | *Due:* 03/31/92 |
| *SOP made accessible in facility* | *Due:* 03/31/92 |

**TASK: T1029 SOP—Building 76 Oil/Water Separator** *Complete:* 02/15/92

LBL will revise the Standard Operating Procedure, including an operating log, for the Building 77 Wastewater Treatment System.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for SOP reviewed* | *Done:* 09/01/91 |
| *SOP prepared* | *Done:* 10/01/91 |
| *SOP approved* | *Done:* 11/01/91 |
| *SOP made accessible in facility* | *Done:* 12/15/91 |
| *Facility operators trained on SOP* | *Done:* 02/15/92 |

**TASK: T1030 Perform Floodplain Assessments** *Complete:* 04/30/92

LBL will determine sites that require floodplain assessments and have not had a floodplain assessment and will perform floodplain assessments where necessary.

| Milestones: | *Schedule* |
|---|---|
| *Sites requiring floodplain assessments defined* | *Done:* 01/31/92 |
| *Floodplain assessments performed* | *Done:* 04/30/92 |

**TASK: T1031 Develop Floodplain Assessment Procedures** *Complete:* 03/24/92

LBL will develop procedures to perform floodplain assessments on all proposed Federal actions and incorporate these into the NEPA program.

| Milestones: | *Schedule* |
|---|---|
| *Floodplain assessment procedures developed* | *Done:* 01/31/92 |
| *Submitted for incorp. in LBL NEPA Guidance Manual* | *Done:* 03/24/92 |

**TASK: T1033 Install Backflow Prevention Devices**

Antisiphon devices will be installed on faucets where the potential of backsiphoning of hazardous materials exists.

| Milestones: | *Schedule* |
|---|---|
| *Requirements reviewed* | *Done:* 12/01/91 |
| *Antisiphon devices installed* | *Due:* 07/15/92 |
| *Employee awareness program developed* | *Due:* 11/01/92 |
| *Employee awareness program approved* | *Due:* 12/01/92 |
| *Implement employee awareness program* | *Due:* 02/01/93 |

**TASK: T1038 Determine applicability of NPDES requirements** *Complete:* 09/30/92

LBL will determine the applicability of the NPDES requirements to the Hazardous Waste Handling Facility and the rest of the LBL site by reviewing the relevant EPA regulations and by consulting with the CA Regional Water Quality Control Board. If necessary, LBL will submit a NPDES permit application or Notice of Intent by November 18, 1991.

| Milestones: | *Schedule* |
|---|---|
| *Stormwater NPDES permit regulations reviewed* | *Done:* 07/01/91 |
| *Hazardous Waste Handling Fac. operations reviewed* | *Done:* 08/01/91 |
| *Applicability of NPDES permit regs. determined* | *Done:* 09/01/91 |
| *Complete NPDES stormwater plans* | *Done:* 09/30/92 |

**TASK: T1040 Environmental Protection Plan Update** *Complete:* 10/01/92

LBL will update the 1989 Environmental Protection Implementation Plan which is due at DOE/SF on 11/09/91.

| Milestones: | *Schedule* |
|---|---|
| *Existing plan reviewed* | *Done:* 10/15/91 |
| *Requirements in DOE Order 5400.1 reviewed* | *Done:* 10/15/91 |
| *Environmental Protection Plan revised* | *Done:* 12/01/91 |
| *Environmental Protection Plan approved* | *Done:* 09/30/92 |
| *Environmental Protection Plan implemented* | *Done:* 10/01/92 |

**TASK: T1041 Long Range Environmental Plan Preparation/Update** *Complete:* 06/08/92

LBL will prepare a Long Range Environmental Protection Plan (LREPP), due at DOE/SF on 01/01/92.

| Milestones: | *Schedule* |
|---|---|
| *Requirements in DOE Order 5400.1 reviewed* | *Done:* 12/15/91 |
| *Plan prepared* | *Done:* 03/13/92 |
| *LREPP reviewed* | *Done:* 04/01/92 |
| *LREPP revised* | *Done:* 05/15/92 |
| *LREPP implemented* | *Done:* 06/08/92 |
| *LREPP approved* | *Done:* 06/08/92 |

**TASK: T1044 Pollution Awareness Plan Preparation/Update** *Complete:* 12/01/91

LBL will prepare a Pollution Prevention Awareness Program Plan (PPAPP).

| Milestones: | *Schedule* |
|---|---|
| *Requirements in DOE Order 5400.1 reviewed* | *Done:* 07/01/91 |
| *PPAPP prepared* | *Done:* 09/01/91 |
| *PPAPP reviewed* | *Done:* 09/15/91 |
| *PPAPP revised* | *Done:* 09/23/91 |
| *PPAPP approved* | *Done:* 09/26/91 |
| *PPAPP implemented* | *Done:* 12/01/91 |

**TASK: T1052 Issue and Implement DOE/SF ERWM QA Plan** *Complete:* 03/25/92

The DOE/SF ERWM QA Program (draft) will be reviewed by personnel or designates. Comments will be resolved. All required personnel will sign the cover sheet. Controlled copies of the Program will be distributed to ERWM personnel.

| Milestones: | *Schedule* |
|---|---|
| *Draft plan issued* | *Done:* 02/18/92 |
| *Comments received* | *Done:* 02/18/92 |
| *Final draft issued* | *Done:* 03/25/92 |
| *Plan issued and implemented* | *Done:* 03/25/92 |

**TASK: T1071 Correct Specific Report Deficiencies** *Complete:* 04/10/91

The specific deficiencies identified will be corrected in the findings related to: lack of NEPA tracking system; status of environmental survey findings; language in Sections 3.1, 3.3, and 4.0.

| Milestones: | *Schedule* |
|---|---|
| *Deficiencies corrected* | *Done:* 04/10/91 |

**TASK: T1072 Incorporate All Identified Compliance Issues** *Complete:* 04/10/91

Prepare updated listings of all environmental compliance findings, their source, and status. Listing will be prepared and incorporated in the quarterly report.

| Milestones: | *Schedule* |
|---|---|
| *Listings prepared and incorporated* | *Done:* 04/10/91 |

**TASK: T1073 Provide Guidance on SEN-7A Report Input** *Complete:* 10/17/91

DOE/SF will provide guidance to its contractors regarding both specific expectations for SEN-7A report data and required submittal dates.

| Milestones: | *Schedule* |
|---|---|
| *Guidance issued* | *Done:* 10/17/91 |

**TASK: T1074 Update Corrective Action Plan for 1988 Survey** *Complete:* 09/21/92

Remaining open findings from the 1988 Environmental Survey will be reevaluated in conjunction with preparation of the Tiger Team Corrective Action Plan. Revisions to actions and schedules will be proposed consistent with the overall scope and prioritization of all outstanding actions.

| Milestones: | *Schedule* |
|---|---|
| *1988 Environmental Survey updated* | *Done:* 10/25/91 |
| *Survey with Tiger Team reviewed & cross referenced* | *Done:* 09/21/92 |

**TASK: T1104 Develop Radiation Inst. Calibration Procedures** *Complete:* 04/24/92

LBL will develop an approved radiation instrumentation calibration, documentation, and quality assurance procedure for fixed and portable radiation survey instruments for all of LBL facilities and site, per ANSI N323 and N43.1.

| Milestones: | *Schedule* |
|---|---|
| *Requirements reviewed* | *Done:* 12/01/90 |
| *Checklist for instrument calibration completed* | *Done:* 05/01/91 |
| *EH&S and EE calibration assessment completed* | *Done:* 12/19/91 |
| *Calibration procedures approved & inst. upgraded* | *Done:* 03/13/92 |
| *EH&S calibration responsibility designated* | *Done:* 04/24/92 |

**TASK: T1122 Resource Analysis** *Complete:* 04/10/92

ER, NE, ERWM, and DP line program with support from the Environment and Safety Support Division will complete an analysis to determine the resources necessary to implement the identification of potential emission sources requiring waste-water discharge or air permits, review and signing of all permit applications, communication with regulatory agencies, and review of monitoring reports. The analysis will also identify available resources.

| Milestones: | *Schedule* |
|---|---|
| *NE line program resource analysis completed* | *Done:* 04/10/92 |
| *DP line program resource analysis completed* | *Done:* 04/10/92 |
| *ERWM line program resource analysis completed* | *Done:* 04/10/92 |
| *ER line program resource analysis completed* | *Done:* 04/10/92 |

**TASK: T1124 Develop Oversight Plan and Operations Protocols**

A Site Management Plan (SMP) defining all aspects of DOE oversight activities will be prepared. The SMP will incorporate the Laboratory Appraisal Plan, define performance indicators, and establish the bases for the frequency and level of physical oversight. One element of the SMP will be Operations Protocols.

| Milestones: | *Schedule* |
|---|---|
| *Interim protocols issued* | *Due:* 11/06/92 |
| *Interim SMP implemented* | *Due:* 11/06/92 |
| *Draft SMP issued* | *Due:* 11/06/92 |
| *Draft protocols to LBL* | *Due:* 11/06/92 |
| *Protocols finalized* | *Due:* 12/31/92 |
| *SMP finalized* | *Due:* 12/31/92 |

**TASK: T2027 Provide Secondary Containment—HWHF** *Complete:* 07/01/91

To comply with Federal and state regulations concerning the temporary staging of drums containing liquid hazardous waste at permitted sites, LBL will procure approved secondary containment pallets for all drums to be staged at this facility.

| Milestones: | *Schedule* |
|---|---|
| *Secondary containment pallets obtained* | *Done:* 03/01/91 |
| *DOE notified of compliance* | *Done:* 07/01/91 |

**TASK: T2028 Provide Secondary Containment for ASTs**

To fully comply with 40 CFR 112, LBL must supply appropriate secondary containment for all ASTs containing petroleum products. First, LBL will carry out a preliminary engineering assessment of each of the noncompliant ASTs. When appropriate actions are identified, secondary containment will be provided for all remaining noncompliant ASTs at LBL.

| Milestones: | *Schedule* |
|---|---|
| *Interim spill measures implemented* | *Done:* 02/28/92 |
| *40 CFR 112 reviewed* | *Done:* 06/30/92 |
| *Preliminary engineering assessment—ASTs performed* | *Done:* 09/30/92 |
| *Secondary containment for ASTs installed* | *Due:* 04/01/94 |

**TASK: T2029 Relocate Noncompliant Drums** *Complete:* 06/07/91

Several temporary or permanent bulk storage areas at LBL were found to be out of compliance with 40 CFR 112 because petroleum products or potentially hazardous materials were stored without adequate secondary containment. In cases involving temporary storage of drum quantities of petroleum products or potentially hazardous chemicals, all such drums have been relocated to storage areas with adequate secondary containment provisions.

| Milestones: | *Schedule* |
|---|---|
| *Drums moved to compliant areas* | *Done:* 03/15/91 |
| *DOE informed of compliance* | *Done:* 06/07/91 |

**TASK: T2031 Complete Funded Chemical Storage Project**

The remaining examples of noncompliance cited in the finding will be alleviated through the completion of a funded project to remove or replace all horizontal chemical drum racks at the site with approved vertical rack storage and to upgrade the Building 77 dry chemical storage area with a new, approved chemical storage shed.

| Milestones: | *Schedule* |
|---|---|
| *Dry chemical storage upgraded* | *Due:* 12/01/92 |
| *Horizontal drum racks removed/replaced* | *Due:* 10/01/94 |

**TASK: T2032 Develop Formal Asbestos Management Program**

LBL's asbestos management program is currently carried out by several groups, without sufficient formality or coordination to ensure full ongoing compliance with local (Bay Area Air Quality Management District, Regulation 11, Rule 2), state (California Environmental Health Code, Section 66508), and Federal (40 CFR Part 61, Subpart M) 29 CFR 19100 and 29 CFR 1926.58 regulations. To correct this deficiency, LBL will develop and implement a formal, approved Asbestos Management Program and will train all appropriate personnel to ensure effective implementation.

| Milestones: | *Schedule* |
|---|---|
| *Asbestos issues addressed in MOU revision* | *Done:* 04/15/92 |
| *Procedures for Asbestos Management drafted* | *Done:* 10/05/92 |
| *Procedures for Asbestos Management reviewed* | *Due:* 10/30/92 |
| *Procedures for Asbestos Management revised* | *Due:* 11/30/92 |
| *Procedures for Asbestos Management approved* | *Due:* 01/01/93 |
| *Personnel Trained* | *Due:* 02/01/93 |

**TASK: T2036 Develop Procedures for PCB Management**

LBL will develop formal procedures for PCB Management at LBL and will draft the procedures for subsequent review, revision, approval, and distribution.

| Milestones: | *Schedule* |
|---|---|
| *Procedures for PCB management prepared* | *Due:* 02/01/93 |
| *Procedures for PCB management reviewed* | *Due:* 03/01/93 |
| *Procedures for PCB management revised* | *Due:* 04/01/93 |
| *Procedures for PCB management approved* | *Due:* 05/01/93 |
| *Procedures for PCB management implemented* | *Due:* 06/01/93 |

**TASK: T2037 Revise Warehoused Materials Procedures** *Complete:* 04/01/91

LBL staff will revise the tagging/chain-of-custody procedures for LBL's Emeryville Warehouse Facility (Building 901).

| Milestones: | *Schedule* |
|---|---|
| *Emeryville warehouse procedures revised* | *Done:* 03/01/91 |
| *New procedures implemented* | *Done:* 04/01/91 |

**TASK: T2038 Chain-of-Custody for Possible Hazardous Materials** *Complete:* 09/01/92

The practice of leaving potentially hazardous materials temporarily unattended in unsecured space prior to transportation pickup at LBL's Bldg. 69 receiving facilities has been cited as a Best Management Practices Finding. To preclude possible acquisition of potentially hazardous materials by persons other than those for whom the materials are intended, such materials are now continuously retained in a secured area until they are picked up for transportation. In addition, the Materiel Management Department will develop formal, approved procedures for chain of custody of all potentially hazardous materials received by that Department.

| Milestones: | *Schedule* |
|---|---|
| *Chain-of-custody procedures prepared* | *Done:* 03/30/92 |
| *Chain-of-custody procedures reviewed* | *Done:* 06/15/92 |
| *Chain-of-custody procedures revised* | *Done:* 08/01/92 |
| *Chain-of-custody procedures approved* | *Done:* 08/31/92 |
| *Chain-of-custody procedures implemented* | *Done:* 09/01/92 |

**TASK: T2039 Barriers—Bldg. 77 Wastewater Treatment Facility**

LBL recognizes the operational and engineering deficiencies of the wastewater delivery system of the Wastewater Treatment Facility (WTF) at Building 77 (Self-Assessment Finding LBL-SW.3-3). Under a project already funded through MEL-FS, LBL will develop and implement a combination of procedural and engineering barriers to comply with design criteria given in 40 CFR 264.193 and other regulatory orders for the operation of such facilities. By putting these barriers in place and completing the construction of this enclosed waste treatment unit, LBL will reduce the probability of releases of hazardous materials to the environment.

| Milestones: | *Schedule* |
|---|---|
| *Engineering of Bldg. 77 WTF completed* | *Due:* 10/01/94 |
| *Construction of Bldg. 77 WTF completed* | *Due:* 08/01/95 |
| *Review Bldg 77 WTF Operational Procedures* | *Due:* 10/01/95 |
| *Revise Bldg. 77 WTF Operational Procedures* | *Due:* 10/01/95 |

**TASK: T2051 Implement an ES&H Review for FTP and WFO**

The Laboratory will develop an ES&H compliance review for new research programs and projects when they are being developed as Field Task Proposals (FTPs) or Work for Others (WFO) proposals. WFO proposals are already subject to a summary review that must be intensified. The FY1993 DOE budget submission guidance required an early review of LBL FTPs for NEPA compliance. In the future, an expanded process will be developed that addresses both FTPs and WFO proposals. The guidance will address the responsibilities of the Administration and EH&S Divisions and the approvals required for the review.

| Milestones: | *Schedule* |
|---|---|
| *ES&H issues identified* | *Done:* 06/11/91 |
| *Guidance for FY 1994 budget submission issued* | *Done:* 02/29/92 |
| *Guidance for WFO ES&H review process prepared* | *Due:* 12/15/92 |

**TASK: T2057 LBL Institutional Self-Assessment Program** *Complete:* 06/09/92

The LBL Institutional Self-Assessment Program (LISA) will establish the self-assessment policy of the Laboratory and the organizational responsibilities for implementing it. The LISA will be included as part of the LBL Self-Assessment Manual (SAM), providing the following features: a) The SAM will describe the multi-level review process and the responsibilities of the line divisions, the EH&S Division, the Safety Review Committee, and the Independent Review and Assurance Department. It will also provide a model for the development and approval of divisional self-assessment implementation plans. b) It will establish the broad performance objectives consistent with DOE guidance that the organizations of the Laboratory are expected to meet and it will describe the process by which performance objectives are to be tailored into specific objectives that meet the needs of each division. In particular, it will address the interrelationships between checklists and performance criteria embodied in the Project, Facility, and Function Notebooks. c) It will describe the Corrective Action Management System (CAMS). It will establish criteria for reports from the line organizations to the central system both with respect to level of deficiencies that must be reported and the frequency of reports. It will establish expectations for closeout of corrective actions. d) It will describe the methodology for prioritizing corrective actions. e) It will establish expectations for sharing lessons learned within the line organizations of the Laboratory and it will set forth criteria for communicating information related to lessons learned and experience training reports within the Laboratory as a whole. f) The SAM will also provide guidance for implementing Standard Review Guidelines, Self-Assessment training, conducting root cause analysis and reports, and preparing for independent verification and validation reviews.

| Milestones: | *Schedule* |
|---|---|
| *Draft SAPIP completed* | *Done:* 01/17/92 |
| *Interim SAPIP utilizing checklist* | *Done:* 04/10/92 |
| *Review Draft SAPIP* | *Done:* 02/14/92 |
| *Final SAPIP Approval* | *Done:* 06/09/92 |

**TASK: T2058 LBL Institutional Self-Assessment Program (LISA)**

Implementation of the SAPIP, the Self-Assessment Manual (SAM) and Divisions Self-Assessement Program Implementation Plan (DSAPIP) will begin with training for self assessment required for senior managers and designated supervisors and staff. In addition, the Laboratory will develop standard review procedures (SRP) and train designated supervisors and staff. Draft SAPIPs will be used as the basis to pilot the program. Independent function reviews will be conducted prior to issuing final procedures. (Costs for the on-going implementation of the LBL Self-Assessment Program are included in this task.)

| Milestones: | *Schedule* |
|---|---|
| *Draft DSAIPs reviewed for pilot implementation* | *Done:* 07/22/92 |
| *Pilot functional reviews* | *Done:* 07/21/92 |
| *Initial training for pilot implementation* | *Done:* 07/22/92 |
| *Training for implementation of the LBL SAM* | *Done:* 10/15/92 |
| *Laboratory-wide implementation of DSAPIPs begins* | *Due:* 11/15/92 |
| *Final DSAPIPs approved* | *Due:* 11/15/92 |

**TASK: T2072 QA for Environmental Monitoring Program**

Other findings have identified the lack of a comprehensive environmental monitoring program at the Laboratory. The development of QA for appropriate segments of the monitoring program, including the Environmental Monitoring Laboratory, is an integral part of implementing such a program. Needed QA procedures will be implemented on a timely schedule for later inclusion in Notebooks.

| Milestones: | *Schedule* |
|---|---|
| *Function/facilities requiring Notebooks identified* | *Done:* 11/18/91 |
| *Notebooks approved* | *Due:* 08/01/92 |
| *Function/facility Notebooks implemented* | *Due:* 09/01/92 |
| *Division self-assessment completed* | *Due:* 09/30/92 |
| *QA procedures implemented* | *Due:* 12/01/92 |

**TASK: T2073 QA for Site Restoration Program** *Complete:* 09/30/92

The Laboratory has received funding for initial site characterization. In FY 90 the Laboratory performed preliminary testing and analysis without a formal QA plan. The Laboratory's compliance with RCRA and possibly CERCLA depends on carrying out this project and subsequent remediation with careful attention to QA. The regulatory and financial implications of the Site Restoration Program could be significant for the Laboratory. A determination must be made as to whether the project should be subject to a more rigorous consideration of the NQA-1 guidance and Conduct of Operations as discussed in MF-22. It would then require a QA/Conduct of Operations Plan. If it is not, a Project Notebook would be the appropriate document. In either case, these documents would address the requirements for contractors developed in response to QA/CF-3. Until full implementation of the Notebook documents is in place, the Project will develop needed QA procedures to permit it to go forward with confidence that its data will comply with regulatory requirements.

| Milestones: | *Schedule* |
|---|---|
| *Project QA requirements determined* | *Done:* 04/01/91 |
| *Interim contract for analytical services* | *Done:* 09/25/91 |
| *Approved drilling/sampling/anal. QA prog. devel.* | *Done:* 08/16/91 |
| *QA procedures for sampling implemented* | *Done:* 08/16/91 |
| *QA/CO document approved* | *Done:* 08/16/91 |
| *QA/CO document implemented* | *Done:* 08/16/91 |
| *Division self-assessment for QA completed* | *Done:* 09/30/92 |

**TASK: T2074 QA for Present Hazardous Waste Handling Facility** *Complete:* 09/24/92

The Laboratory's present Hazardous Waste Handling Facility (HWHF) has had serious noncompliance issues within its present RCRA Part B Permit. An element in obtaining compliant operation will be an effective QA plan. It is expected that the HWHF will be a facility with major adverse consequences for the Laboratory if it were to fail. Thus, it will require a higher level QA/Conduct of Operations (QA/CO) Plan. Since the HWHF will also make significant use of contractors to provide T/S/D services, its QA/CO Plan will emphasize contractor QA, as discussed for QA/CF-3. Another significant milestone in establishing an effective QA program for the HWHF will be approval of its QA plan for low-level radioactive waste (LLW) acceptance. Until the Laboratory can fully implement its planned QA program, the HWHF will operate under the QA plan and procedures included in its RCRA Part B Permit application under consideration by the California Department of Health Services.

| Milestones: | *Schedule* |
|---|---|
| *Contractor procedures approved* | *Done:* 06/07/91 |
| *Westinghouse approved LLW acceptance QA plan* | *Done:* 04/15/92 |
| *HWHF QA/CO Plan implemented* | *Done:* 07/22/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *HWHF QA/CO Plan approved* | *Done:* 09/24/92 |
| *QA Plan and procedures for HWHF implemented* | *Done:* 09/24/92 |

**TASK: T2076 QA Guidance for Hazardous Waste Generators** *Complete:* 09/24/92

Hazardous waste generators will address their QA requirements for hazardous waste handling in the context of either Facility or Project Notebooks, which will require approval and self-assessment by line divisions. In order to accomplish this effectively, uniform guidance and training is required.

| Milestones: | *Schedule* |
|---|---|
| *Acceptance criteria for haz. waste generators dev.* | *Done:* 07/15/91 |
| *Division implementation* | *Done:* 04/15/92 |
| *Hazardous waste generators trained* | *Done:* 07/13/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
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| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |
| *Division self-assessment for QA* | *Done:* 09/24/92 |

**TASK: T2083 Earth Sciences Division Facility and Project Books** *Complete:* 03/01/92

The EH&S Division and the Earth Sciences Division will formally determine whether the Earth Sciences Division analytical laboratories will obtain the certifications necessary to perform analytical services for the Laboratory's Site Restoration Program. The Earth Sciences Division will examine its activities and facilities and prepare the appropriate documents. If a positive decision is made, the Facility Notebooks for these laboratories will include the QA required to maintain certification. These QA plans and procedures will be implemented as required and included later in the notebooks when full implementation of the Laboratory's program takes place.

| Milestones: | *Schedule* |
|---|---|
| *Necessary QA plans and procedures implemented* | *Done:* 08/16/91 |
| *Role of Earth Sciences Division determined* | *Done:* 03/01/92 |

**TASK: T2084 Policy for ES&H Subcontractor QA/QC Programs** *Complete:* 03/31/92

The Purchasing Department will prepare a written policy requiring that contractors performing ES&H services have approved QA/QC programs and appropriate certifications.

| Milestones: | *Schedule* |
|---|---|
| *Contractor QA policy prepared* | *Done:* 03/31/92 |

**TASK: T2085 Standard QA/QC Requirements for ES&H Subcontractor** *Complete:* 07/10/92

The EH&S Division will provide to the Procurement Department a set of standard QA/QC provisions to be included in contracts for EH&S-related services.

| Milestones: | *Schedule* |
|---|---|
| *QA/QC provisions provided* | *Done:* 07/10/92 |

**TASK: T2086 Procedure to Verify Contractor QA/QC Programs** *Complete:* 05/29/92

The Purchasing Department and the EH&S Division will develop a written, documented procedure to verify certifications and QA/QC programs for ES&H contractors.

| Milestones: | *Schedule* |
|---|---|
| *QA/QC verification procedure prepared* | *Done:* 05/29/92 |

**TASK: T2087 QA for Purchasing Department**

The Purchasing Department will implement its Function Notebook, which will include the contractor QA verification procedure.

| Milestones: | *Schedule* |
|---|---|
| *Purchasing Function Notebook approved* | *Due:* 02/01/93 |
| *Division self-assessment/QA* | *Due:* 03/01/93 |
| *Purchasing Function Notebook implemented* | *Due:* 03/01/93 |

**TASK: T2090 Selected Environmental QA Programs Audited**

Independent audits will be carried out of selected QA activities for environmentally related functions.

| Milestones: | *Schedule* |
|---|---|
| *Criteria for independent review established in SAM* | *Done:* 09/01/92 |
| *Detailed checklist of env. QA audit criteria estab* | *Due:* 11/30/92 |
| *Independent reviews performed* | *Due:* 12/30/92 |

**TASK: T3020 Hazard Communication Training Program**

The EH&S Division will develop additional training programs to meet the requirements in 29 CFR 1910.1200, Hazard Communication (HAZCOM), and 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories. Such training programs will include chemical safety for shop areas and laboratory safety for research labs.

| Milestones: | *Schedule* |
|---|---|
| *HAZCOM training requirements reviewed* | *Done:* 06/30/91 |
| *HAZCOM training program developed* | *Done:* 07/31/92 |
| *Chemical safety training program developed* | *Done:* 07/30/92 |
| *HAZCOM training program implemented* | *Due:* 09/30/92 |
| *Chemical safety training program implemented* | *Due:* 09/30/92 |

**TASK: T4014 AIRDOS-PC Procedures** *Complete:* 05/17/92

LBL will verify the need for and verify the performance of the EPA-supplied DOSE Assessment Program AIRDOS-PC.

| Milestones: | *Schedule* |
|---|---|
| *AIRDOS-PC validation needs verified* | *Done:* 10/01/91 |
| *Baseline data set obtained* | *Done:* 03/17/92 |
| *Validation and verification performed* | *Done:* 05/17/92 |

**TASK: T4015 Environmental Management Report** *Complete:* 10/13/92

A formal documented program for Environment Radiological DOSE Assessment will be developed in compliance with DOE Order 5400.5 and DOE Draft Order 5400.xy.

| Milestones: | *Schedule* |
|---|---|
| *DOE Orders reviewed* | *Done:* 12/17/91 |
| *Program and procedures reviewed* | *Done:* 02/03/92 |
| *Program and procedures revised* | *Done:* 09/22/92 |
| *Program and procedures approved* | *Done:* 09/25/92 |
| *Environmental DOSE Assessment Program implemented* | *Done:* 10/13/92 |

**TASK: T4016 Environmental ALARA Policy**

As part of the Environment Program revision and plan development, LBL will develop an environmental ALARA policy .

| Milestones: | *Schedule* |
|---|---|
| *ALARA Requirements of DOE Order 5400.5 reviewed* | *Done:* 12/17/91 |
| *Radiological release reporting/tracking reviewed* | *Done:* 02/28/92 |
| *Procedures revised* | *Done:* 09/25/92 |
| *ALARA Program approved* | *Done:* 10/09/92 |
| *ALARA Program implemented* | *Due:* 09/30/92 |

**TASK: T4020 Calibration Area Radiation Monitors** *Complete:* 09/15/92

LBL will calibrate neutron-detection system and the environmental air-sampling system annually.

| Milestones: | *Schedule* |
|---|---|
| *Environmental air-sampling system calibrated* | *Done:* 09/15/92 |
| *Neutron-detection system calibrated.* | *Done:* 09/15/92 |

**TASK: T4027 Calibration of Workplace Air Samplers** *Complete:* 09/15/92

LBL will revise the air-sampler calibration procedure, develop forms, and train calibration personnel.

| Milestones: | *Schedule* |
|---|---|
| *Procedures revised* | *Done:* 08/01/92 |
| *Procedures were reviewed and approved* | *Done:* 09/01/92 |
| *Calibrator technician trained* | *Done:* 09/15/92 |

**TASK: T4028 Refine Workplace Air Sampler Placement Criteria**

The Laboratory will refine criteria for indoor air sampler placement and revise procedure manuals and PUB-3000 to reflect the changes.

| Milestones: | *Schedule* |
|---|---|
| *Procedures revised* | *Done:* 08/01/92 |
| *Procedures reviewed and approved* | *Due:* 08/01/92 |
| *Air sampler placement procedures implemented* | *Due:* 08/15/92 |

**TASK: T4046 Air Sample Handling** *Complete:* 09/15/92

LBL will revise the sample changing and handling and field data entry procedures for the environmental monitoring program to include acceptable practice guidelines found in draft DOE Order 5400.xy. Revisions will be incorporated into the Environmental Protection Department Procedures Manual, and Department personnel will be appropriately trained.

| Milestones: | *Schedule* |
|---|---|
| *Draft DOE Order 5400.xy reviewed* | *Done:* 02/20/92 |
| *Air sample handling procedures approved* | *Done:* 07/01/92 |
| *Air sample handling training program established.* | *Done:* 09/10/92 |
| *Sample change/handling procedure revised* | *Done:* 09/10/92 |
| *Air sample handling training provided* | *Done:* 09/15/92 |

**TASK: T4047 NESHAPS (Subpart H: Radionuclides) Compliance Plan** *Complete:* 02/13/92

The Laboratory will evaluate the radiological protection requirements of the National Emissions Standards for Hazardous Pollutants, 40 CFR 61, subpart H (NESHAPS/subpart H) and develop a program for compliance, including identification and evaluation of airborne radionuclide sources and development of recommendations for stack monitoring methods.

| Milestones: | *Schedule* |
|---|---|
| *Review of NESHAPS regulations completed* | *Done:* 05/15/91 |
| *Airborne radionuclide source identification compl.* | *Done:* 10/01/91 |
| *Airborne radionuclide sources evaluated* | *Done:* 12/01/91 |
| *Recommended stack monitoring methods submitted* | *Done:* 02/13/92 |

**TASK: T4048 Stack Sampling Upgrade**

LBL must replace existing stack air sampling devices. These will comply with DOE 5400.xy, EPA regulations and the monitoring requirements of NESHAPS (40 CFR 61 subpart H).

| Milestones: | *Schedule* |
|---|---|
| *Preliminary engineering completed* | *Due:* 11/15/92 |
| *Air samplers installed* | *Due:* 12/12/93 |

**TASK: T4049 Air Toxics Source Supervision**

LBL will hire a contractor in FY91 and an air quality professional in FY 92 who will develop an Air Toxics Program Plan to assure LBL's compliance with BAAQMD regulations concerning identification, characterization, permitting, and inspection of potential or actual air pollution sources. The plan will detail all applicable documentation, record keeping maintenance, and reporting requirements of the new program.

| Milestones: | *Schedule* |
|---|---|
| *Air toxics professional hired* | *Done:* 10/01/91 |
| *Air toxics supervision plan developed* | *Done:* 06/30/92 |
| *Air pollution sources inspected/permitted* | *Done:* 09/01/92 |
| *DOE/SF informed of permit applications* | *Done:* 09/01/92 |
| *Source operators trained* | *Due:* 03/01/93 |
| *Emission inventory re-evaluated* | *Due:* 09/30/93 |

**TASK: T4050 Asbestos Removal Oversight**

With regard to the removal of asbestos, the air toxics professional (see response to concern A/CF-3) will be responsible for 1) review of BAAQMD Reg. 11 and 40 CFR 61 Subpart M, applicable occupational and environmental laws and regulations; 2) review of existing LBL procedures; 3) revision of existing procedures which will detail the worker certification process, assure compliance with workplace and ambient air emission standards and record keeping, and notification requirements, including annual removal quantity tracking. The plan will provide provisions for tracking disposed materials, distinguishing between friable and nonfriable waste, and verifying that subcontractors are filing the required notifications.

| Milestones: | *Schedule* |
|---|---|
| *Asbestos removal regulations reviewed* | *Done:* 11/22/91 |
| *Asbestos removal procedures drafted* | *Done:* 04/13/92 |
| *Plan approved and implemented* | *Due:* 10/15/92 |

**TASK: T4051 Environmental Monitoring Parameter Review Plan**

LBL will develop and implement an environmental parameter review plan that will include (1) relevant sections of the applicable laws and regulations; (2) parameters to be evaluated for monitoring; (3) siting criteria; (4) sampling frequency criteria; (5) minimum detection limits; (6) quality assurance criteria; (7) responsibility, documentation, and reporting requirements. In addition, the plan will detail maintenance tasks and preventative maintenance intervals for all monitoring equipment, as well as training requirements for field personnel. The plan will address release source terms, site meteorology, topography, and nearest neighbors. This plan will be appended to the Environmental Monitoring Plan (EMP) which must be prepared by November 15, 1991 (per DOE Order 5400.1). The preparation of the EMP is discussed in the response to finding EM/BMPF-1.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 02/21/92 |
| *EMPR plan prepared* | *Done:* 07/01/92 |
| *EMPR plan written* | *Done:* 07/15/92 |
| *EMPR plan reviewed and revised* | *Due:* 09/01/92 |
| *EMPR plan approved* | *Due:* 09/01/92 |

**TASK: T4052 HEPA Filter Program**

LBL will develop a HEPA filter management program that will establish criteria for installation, testing, inspecting, certifying, changing, inventorying, and disposing of HEPA filters.

| Milestones: | *Schedule* |
|---|---|
| *HEPA filter regulations reviewed* | *Done:* 04/10/92 |
| *HEPA Filter Program Plan prepared* | *Due:* 04/01/93 |
| *HEPA filter Plan reviewed* | *Due:* 05/01/93 |
| *HEPA filter plan revised* | *Due:* 06/01/93 |
| *HEPA filter plan approved* | *Due:* 07/01/93 |
| *HEPA Filter Management Program implemented* | *Due:* 08/01/93 |

**TASK: T4053 Meteorological Program**

LBL will employ a certified consulting meteorologist to 1) establish required site-specific location(s); 2) establish meteorological data to be taken; 3) establish tower height(s); 4) assist with meteorological data validation, acquisition, instrument calibration, and quality assurance activities; and 5) assist in writing an appropriate site-specific Meteorological Monitoring Program Plan.

| Milestones: | *Schedule* |
|---|---|
| *Consulting meteorologist selected* | *Done:* 09/01/91 |
| *Plan and siting criteria developed* | *Done:* 10/28/91 |
| *Equipment procured and installed* | *Due:* 09/01/93 |

**TASK: T4054 Procedure Deficiencies**

LBL will review the relevant DOE Orders (5400.1, 5400.5, and Draft 5400.xy) as well as applicable Federal (40 CFR sections), state (Titles 17 & 22 of the California administrative code), and local (BAAQMD) laws and regulations. LBL will then update the existing environmental monitoring section procedures and write additional procedures to detail a documented monitoring program that will satisfy applicable guidelines.

| Milestones: | *Schedule* |
|---|---|
| *Procedure list developed* | *Done:* 06/15/92 |
| *Procedures reviewed* | *Done:* 09/01/92 |
| *Procedures prepared* | *Done:* 09/07/92 |
| *Procedures approved* | *Done:* 09/15/92 |
| *Procedures implementation* | *Due:* 10/15/92 |

**TASK: T4055 Environmental Report** *Complete:* 06/01/91

LBL will ensure that the 1990 annual Environmental Monitoring Report meets all the requirements of DOE Orders 5484.1 and 5400.1 applicable to LBL and is produced on schedule.

| Milestones: | *Schedule* |
|---|---|
| *First draft sent to DOE/SF* | *Done:* 04/15/91 |
| *Final document sent to DOE/SF* | *Done:* 05/22/91 |
| *Final documents sent to DOE/HQ* | *Done:* 06/01/91 |

**TASK: T4057 Develop MOUs Between DOE/SF Organizations**

Develop MOUs between DOE/SF organizations.

| Milestones: | *Schedule* |
|---|---|
| *Draft MOU designed* | *Done:* 10/02/92 |
| *MOU issued for comment* | *Done:* 10/09/92 |
| *MOU approved and issued* | *Due:* 12/01/92 |

**TASK: T4059 Develop Verification and Closure Procedures**

Develop formal verification and closure procedures.

| Milestones: | *Schedule* |
|---|---|
| *DOE/SF Work Group to Develop Procedures Assembled* | *Done:* 09/15/91 |
| *Input from DOE/SF, OER, and Ops.Offices solicited* | *Done:* 02/07/92 |
| *Procedures issued for review and comment* | *Done:* 09/30/92 |
| *Procedures issued* | *Due:* 11/20/92 |
| *Procedure Implementation Train. Sessions Conducted* | *Due:* 12/04/92 |

**TASK: T4060 Develop & Implement Appraisal/Inspection Tracking**

Develop and implement an appraisal/inspection tracking system.

| Milestones: | *Schedule* |
|---|---|
| *System design content determined* | *Done:* 04/30/92 |
| *LBL-SO System Selection and Procurement* | *Done:* 04/30/92 |
| *Staff training on system utilization completed* | *Due:* 05/30/92 |
| *Data Entry completed /Data Base established* | *Done:* 06/30/92 |

**TASK: T4063 Issue Procedures for Processing NEPA Actions**

EM/HQ completes and issues procedures for processing NEPA actions.

| Milestones: | *Schedule* |
|---|---|
| *Issue Guidance* | *Due:* 06/01/92 |

**TASK: T4064 Issue Mitigation Action Plan Guidance**

EH issues guidance to PSOs and Operations Offices on Mitigation Action Plans.

| Milestones: | *Schedule* |
|---|---|
| *Issue Guidance by EH/QH* | *Due:* 00/00/00 |

**TASK: T4065 Issue Guidance and Procedures** *Complete:* 03/01/91

ER issued guidance to compliance officers. Compliance Officer sends memo to Site Office. Site Office will transmit to LBL.

| Milestones: | *Schedule* |
|---|---|
| *ER Issue Guidance* | *Done:* 02/04/91 |
| *Send Guidance to LBL* | *Done:* 03/01/91 |

**TASK: T4066 Develop and Furnish Local Procedures for NEPA**

Develop local procedures for LBL including designation of points of contact, procedures for developing NEPA status reports for the internal budget review, schedules, and record retention.

| Milestones: | *Schedule* |
|---|---|
| *Site Office furnished with guidance* | *Done:* 06/28/91 |
| *Procedures developed by the Site Office* | *Done:* 06/12/92 |
| *DOE/SF procedures issued* | *Due:* 11/30/92 |

**TASK: T4067 Update and Reissue Guidance** *Complete:* 08/01/91

Correct title of "Interim Procedures for Proposed Categorical Exclusions" under Section D and reissue. Incorporate MD, make corrections and reissue as interim guidance pending final publication, and finalize MD.

| Milestones: | *Schedule* |
|---|---|
| *Correct Deficiencies in MD* | *Done:* 02/01/91 |
| *Retitle Interim Procedures* | *Done:* 02/01/91 |
| *Issue Interim Guidance* | *Done:* 02/04/91 |
| *MD 5440.1C Issued* | *Done:* 08/01/91 |

**TASK: T4068 NEPA Training** *Complete:* 10/01/91

Provide NEPA training for DOE/SF and LBL on preparing, reviewing and processing NEPA documentation.

| Milestones: | *Schedule* |
|---|---|
| *Conduct Training Class* | *Done:* 06/01/91 |
| *Seminar on NEPA Processing* | *Done:* 10/01/91 |

**TASK: T4071 DOE/SF to Access LBL's NEPA Files for Oversight**

DOE/SF will have access to LBL's NEPA Tracking System to perform oversight of LBL record keeping, as required by DOE Order 5440.1C.

| Milestones: | *Schedule* |
|---|---|
| *LBL NEPA tracking system training obtained* | *Due:* 04/30/92 |
| *Procedures for utilizing tracking system developed* | *Due:* 05/31/92 |
| *DOE/SF to assess LBL NEPA tracking effectiveness* | *Due:* 07/31/92 |

**TASK: T4072 Establish LBL Site Office NEPA Procedures** *Complete:* 04/27/92

The SF-Energy Research Division will develop NEPA procedures for internal use and for tracking NEPA documents within the DOE office. The procedures will include the documented requirements for files and the process for distributing and controlling NEPA documents for which SF-ER is responsible.

| Milestones: | *Schedule* |
|---|---|
| *LBL-SO Tracking Sys. for NEPA process established* | *Done:* 11/25/91 |
| *NEPA process for DOE/SF/ER documented* | *Done:* 04/27/92 |

**TASK: T4079 Revise Draft NEPA Guidance Manual**

The LBL Draft NEP/CEQA Guidance Manual will be revised to reflect the DOE NEPA Final Rule and DOE guidance for implementation. This will be the basis for a separate task for NEPA/CEQA training to ensure full compliance with applicable DOE regulations, orders and guidelines.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 06/30/91 |
| *Guidance manual revised* | *Done:* 08/30/91 |
| *Guidance manual reviewed* | *Done:* 09/30/91 |
| *Guidance manual revised based on new rule* | *Due:* 10/23/92 |
| *Guidance manual reviewed* | *Due:* 11/23/92 |
| *Guidance manual approved* | *Due:* 12/23/92 |

**TASK: T4080 Train Personnel in NEPA Systems**

LBL will train personnel in Program Divisions, Plant Engineering Department, Budget Office, Office of Sponsored Research Administration, and the Independent Review and Assurance Department in DOE requirements and LBL systems.

| Milestones: | *Schedule* |
|---|---|
| *Curricula developed* | *Due:* 01/23/93 |
| *NEPA/CEQA training for support functions conducted* | *Due:* 02/07/93 |
| *NEPA/CEQA training for program staff conducted* | *Due:* 02/15/93 |

**TASK: T4121 Waste Management Training** *Complete:* 11/01/91

LBL will develop a formalized training program including an LBL Guide to Waste Generators with a system for testing proficiency annually. The training program and Guide will cover at least the following issues: (1) RCRA and Title 22 required training requirements; (2) maintenance of WAAs and SAAs, including inspection requirements and proper segregation of waste; (3) waste tracking procedures for generators; (4) waste labeling procedures; (5) emergency response procedures; (6) waste minimization guides for the generator; (7) guides for generator certification of waste; (8) specific disposal procedures for hazardous waste, mixed waste, radioactive waste (LLW and TRU), infectious waste, oil and solvent contaminated rags and gloves, and carcinogens; (9) enforcement policies; (10) 24 hour SARA OSHA training for hazardous waste workers.

| Milestones: | *Schedule* |
|---|---|
| *Consulting team selected* | *Done:* 03/01/91 |
| *Course outline & support material developed* | *Done:* 09/01/91 |
| *Generator training program established* | *Done:* 10/01/91 |
| *Training and proficiency of generators tested* | *Done:* 11/01/91 |

**TASK: T4125 Develop Computerized Waste Tracking System**

LBL will develop a computerized waste tracking system for hazardous, radioactive, and mixed wastes. The system will be capable of tracking a specific waste from the generator to the Hazardous Waste Handling Facility to an off-site disposal site and will follow the record-keeping instructions in 40 CFR Part 264 Appendix I.

| Milestones: | *Schedule* |
|---|---|
| *Consultants, hardware/software, and staff selected* | *Done:* 03/01/91 |
| *Waste tracking software developed* | *Done:* 10/01/91 |
| *Appropriate data entered into computer database* | *Done:* 12/16/91 |
| *Guide developed* | *Done:* 10/30/91 |
| *Generator and HWHF databases linked* | *Done:* 05/15/92 |
| *Waste tracking system fully implemented* | *Due:* 07/01/92 |

**TASK: T4127 Develop New Waste Labeling System** *Complete:* 07/02/91

A new waste labeling system has been established with distinctly different tags for hazardous (RCRA), mixed (radioactive plus RCRA), and radioactive waste.

| Milestones: | *Schedule* |
|---|---|
| *New tags developed and distributed* | *Done:* 06/07/91 |
| *Policy & procedure statement finalized* | *Done:* 06/15/91 |
| *Existing tags destroyed* | *Done:* 07/02/91 |

**TASK: T4129 Policy and Procedures for WAAs and SAAs** *Complete:* 08/14/92

LBL will develop WAA and SAA policies and procedures to comply with applicable waste management regulations and will train designated staff in new procedures.

| Milestones: | *Schedule* |
|---|---|
| *Need for WAAs designated* | *Done:* 03/01/91 |
| *Oversight staff designated* | *Done:* 03/15/91 |
| *Policies and procedures developed* | *Done:* 06/07/91 |
| *Policies and procedures approved* | *Done:* 07/01/91 |
| *Policies and procedures distributed* | *Done:* 12/15/91 |
| *Waste generator documentation included* | *Done:* 12/15/91 |
| *Train EH&S staff to enforce policies/procedures* | *Done:* 08/14/92 |

**TASK: T8603 Formalize Strategy for Regulatory Compliance** *Complete:* 12/06/91

DOE/SF will work with LBL to develop and implement a strategy for timely regulatory agency interactions. The strategy will become formalized once it has been reviewed and approved by appropriate individuals at DOE/SF and LBL.

| Milestones: | *Schedule* |
|---|---|
| *DOE/SF & LBL developed reg. compliance strategy* | *Done:* 12/06/91 |
| *Comments received* | *Done:* 10/01/91 |
| *DOE/SF & LBL approved reg. compliance strategy* | *Done:* 12/06/91 |

**TASK: T8604 Identify Resource Requirements and Procure** *Complete:* 12/31/91

DOE/SF will assess resource requirements to identify an appropriate level of resources to assure that applicable regulatory requirements are being met. Added resources will be requested as required.

| Milestones: | *Schedule* |
|---|---|
| *Resources assessed by DOE/SF* | *Done:* 06/12/91 |
| *Resources procured* | *Done:* 12/31/91 |

**TASK: T8605 DOE/SF Agreement Memorandum**

DOE/SF will define for itself and for LBL the roles and responsibilities of DOE/SF personnel at LBL.

| Milestones: | *Schedule* |
|---|---|
| *Draft DOE/SF Agreement Memorandum* | *Done:* 03/01/92 |
| *Approve DOE/SF Agreement Memorandum* | *Due:* 05/01/92 |
| *Distribute SF Agreement Memorandum* | *Due:* 06/01/92 |

**TASK: T8606 Formally document DOE/SF guidance to LBL** *Complete:* 04/15/91

DOE/SF/ERWM will provide written timely guidance to LBL on regulatory requirements related to environmental restoration projects.

| Milestones: | *Schedule* |
|---|---|
| *Ensure guidance is provided in writing* | *Done:* 04/15/91 |

**TASK: T8607 Inform Natural Resource Co-Trustees**

DOE/SF will identify the appropriate natural resource co-trustee and will communicate and coordinate with them as required by CERCLA Section 104(b)(2) and NCP Section 300.135(j).

| Milestones: | *Schedule* |
|---|---|
| *Natural resource co-trustee identified* | *Done:* 03/11/92 |
| *Co-trustees contacted* | *Done:* 03/20/92 |
| *Interaction plan with co-trustees established* | *Due:* 12/01/92 |

**TASK: T8628 Policies and Procedures for Autoclave Operation**

LBL will develop and implement an Infectious Waste Management Program. The policy and procedures will be included in the WMPP. Develop and disseminate policies and procedures assuring proper operation of autoclaves including provisions and funding for preventive maintenance.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Due:* 10/15/92 |
| *Autoclave program prepared* | *Due:* 02/01/93 |
| *Autoclave program reviewed* | *Due:* 05/01/93 |
| *Autoclave program revised* | *Due:* 06/01/93 |
| *Autoclave program approved* | *Due:* 06/15/93 |
| *Autoclave program implemented* | *Due:* 07/15/93 |

**TASK: T8631 Develop Laboratory Closeout Policy and Procedures**

Laboratory closeout policies and procedures will be developed.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 04/15/91 |
| *Policy and procedures developed* | *Done:* 09/01/91 |
| *Policy and procedures reviewed* | *Done:* 11/11/91 |
| *Policy and procedures revised* | *Done:* 12/01/91 |
| *Policy and procedures implemented* | *Due:* 10/15/92 |
| *Policy and procedures approved* | *Due:* 10/15/92 |

**TASK: T8681 Contingency Plan for WAAs/SAAs** *Complete:* 04/01/92

LBL will develop contingency plans for WAAs and SAAs and include them in the Waste Management Program.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 05/15/91 |
| *Contingency plans prepared* | *Done:* 06/21/91 |
| *Contingency plans reviewed* | *Done:* 08/01/91 |
| *LBL staff trained on plans* | *Done:* 12/01/91 |
| *Contingency plans revised* | *Done:* 01/03/92 |
| *Contingency plans approved* | *Done:* 04/01/92 |
| *Contingency plans implemented* | *Done:* 04/01/92 |

**TASK: T8682 Land Disposal Restriction Notification** *Complete:* 02/18/92

LBL will develop a program to comply with Federal and state Land Disposal Restriction requirements. The program will include notification procedures and EH&S personnel training. Oversight procedures for outside contractors will be included.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 04/18/91 |
| *Notification program prepared* | *Done:* 04/30/91 |
| *Land Disposal Restriction program reviewed* | *Done:* 05/18/91 |
| *Land Disposal Restriction program revised* | *Done:* 06/21/91 |
| *Program approved* | *Done:* 01/19/92 |
| *Land Disposal Restriction program implemented* | *Done:* 02/18/92 |

**TASK: T8686 Characterize Drums of Mixed Waste** *Complete:* 09/17/92

LBL will characterize drums of mixed wastes currently in storage and prepare inventory that identifies dates of storage and known contents, as per applicable Federal and state regulations, and arrange for off-site disposal.

| Milestones: | *Schedule* |
|---|---|
| *Drums labeled* | *Done:* 06/15/91 |
| *Mixed waste containers inventoried* | *Done:* 06/15/91 |
| *Drums in storage characterized* | *Done:* 07/15/92 |
| *Drum storage coordinated with Hanford Site* | *Done:* 09/17/92 |

**TASK: T8687 Oversight of Commercial Treatment/Storage/Disp** *Complete:* 09/01/91

LBL will develop policies and documentation procedures to verify oversight of commercial Treatment, Storage, and Disposal Facilities (TSDFs) and include these in the Waste Management Program Plan (WMPP).

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 04/01/91 |
| *Policies and documentation procedures developed* | *Done:* 05/15/91 |
| *Policies and procedures reviewed* | *Done:* 06/01/91 |
| *Policies and procedures revised* | *Done:* 07/07/91 |
| *Policies and procedures approved* | *Done:* 08/01/91 |
| *Policies and procedures implemented* | *Done:* 09/01/91 |

## TASK: T8729 Prepare Underground Storage Tank Response Plan

LBL will prepare an Underground Storage Tank (UST) Response Plan.

| Milestones: | *Schedule* |
|---|---|
| *California UST regulations reviewed* | *Done:* 02/24/92 |
| *Applicability determined* | *Done:* 02/24/92 |
| *UST Response Plan prepared* | *Done:* 09/01/92 |
| *UST Response Plan reviewed* | *Done:* 10/01/92 |
| *UST Response Plan revised* | *Due:* 11/15/92 |
| *UST Response Plan approved* | *Due:* 12/01/92 |
| *UST Response Plan implemented* | *Due:* 12/15/92 |

## TASK: T8733 Hazardous Material Bulk Storage Plan

To comply with provisions of DOE Order 6430, General Design Criteria, Uniform Building Code, LBL will develop and implement a "best management practice" plan concerning bulk storage of hazardous materials. This plan will be similar to the Spill Prevention, Control, and Countermeasures Plan (SPCC), but will address bulk storage provisions for hazardous materials other than petroleum products.

| Milestones: | *Schedule* |
|---|---|
| *Regulatory documents reviewed* | *Done:* 06/01/92 |
| *Haz. Materials Bulk Storage Plan (HMPSP) prepared* | *Done:* 09/09/92 |
| *Haz. Materials Bulk Storage Plan (HMBSP) Reviewed* | *Due:* 11/01/92 |
| *Haz. Materials Bulk Storage Plan (HMBSP) Revised* | *Due:* 11/15/92 |
| *Hazardous Materials Bulk Storage Plan Approved* | *Due:* 12/01/92 |
| *Hazardous Materials Bulk Storage Plan Implemented* | *Due:* 12/30/92 |

## TASK: T8740 Comply with DOE 5500.3 for Emergency Response

The LBL emergency response program will be reviewed, and necessary changes will be implemented to comply with the requirements of DOE Order 5500.3

| Milestones: | *Schedule* |
|---|---|
| *Review DOE Order 5500.3* | *Done:* 03/13/92 |
| *Review existing program* | *Done:* 07/15/92 |
| *Identify personnel required* | *Due:* 01/31/93 |
| *Recruit and add required staff* | *Due:* 06/01/93 |
| *Revise emergency response plan* | *Due:* 09/01/93 |
| *Approve emergency response program* | *Due:* 12/01/93 |
| *Revise emergency response training criteria* | *Due:* 12/01/93 |
| *Implement emergency response program* | *Due:* 05/01/94 |

**TASK: T8742 Environmental Monitoring Plan** *Complete:* 10/01/92

An environmental monitoring plan outlining all required environmental surveillance and efficient monitoring will be prepared for LBL. The plan will include sections on surveilliance of air-surface, ground and wastewater, penetrating radiation, soil, sediment, biota, meteorology, and quality assurance. The plan will include implementation procedures, surveilliance siting criteria, extent and frequency of all monitoring activities, sampling and analysis methodologies, and reporting requirements. The plan will be developed in conformance with DOE Orders 5400.1, 5400.5, and DOE Draft Order 5400.xy. The plan will provide a program that will ensure compliance with all applicable environmental laws and regulations. The plan must be in place by November 15, 1991.

| Milestones: | *Schedule* |
|---|---|
| *Review DOE, Federal, State, & Local Regs. & Laws* | *Done:* 12/01/90 |
| *Monitoring Plan outlined* | *Done:* 12/31/90 |
| *Plan outline approved* | *Done:* 01/31/91 |
| *Environmental Monitoring Plan prepared* | *Done:* 09/01/91 |
| *Environmental Monitoring Plan reviewed* | *Done:* 10/15/91 |
| *Environmental Monitoring Plan revised* | *Done:* 01/30/92 |
| *Environmental Monitoring Plan approved* | *Done:* 05/19/92 |
| *Environmental Monitoring Plan implemented* | *Done:* 10/01/92 |

**TASK: T8751 Site Restor. & Grdwater Monitoring Prog. Mgmt.** *Complete:* 09/30/92

To promote compliance with all regulations associated with RCRA/CERCLA activities on the site, LBL will reorganize the management of the Site Restoration and Groundwater Management Program (SRGMP).

| Milestones: | *Schedule* |
|---|---|
| *Scope of SRGMP defined* | *Done:* 04/01/91 |
| *SRGMP A/E selection completed* | *Done:* 04/16/91 |
| *SRGMP Management Plan prepared* | *Done:* 05/03/91 |
| *SRGMP manager and staff specialists hired* | *Done:* 07/22/91 |
| *RCRA Facility Assessment prepared* | *Done:* 05/18/92 |
| *Planning Documents Prepared* | *Done:* 09/30/92 |

**TASK: T8755 Develop Well-Management Plan** *Complete:* 09/30/92

LBL has not complied with state regulations regarding the maintenance and/or abandonment of existing wells and boreholes on the LBL site. To comply with these regulations, LBL will locate, label, inventory, and evaluate all existing wells, slope indicators, hydraugers, boreholes, and monitoring wells on the site. To close this finding, LBL will declare its intent to use or abandon all such wells and boreholes on the site.

| Milestones: | *Schedule* |
|---|---|
| *Well-management regulations reviewed* | *Done:* 06/15/91 |
| *Well-management program plan prepared* | *Done:* 08/06/91 |
| *Well-management program plan reviewed* | *Done:* 09/17/91 |
| *Wells were located, labeled, and inventoried* | *Done:* 11/01/91 |
| *Well-management program plan revised* | *Done:* 12/01/91 |
| *All wells evaluated* | *Done:* 01/15/92 |
| *Well-management program plan approved* | *Done:* 08/28/92 |
| *Declared intent to use or abandon all wells* | *Done:* 09/30/92 |

**TASK: T8756 Health/Safety Plan for Site Restoration Program** *Complete:* 08/21/91

LBL has not developed and approved Health and Safety Plan for RCRA/CERCLA activities on the site and is out of compliance with DOE Order 5400.1. To comply with this and other Federal, state, and local regulations regarding RCRA/CERCLA activities, LBL will develop an approved Health and Safety Plan for the Site Restoration Program.

| Milestones: | *Schedule* |
|---|---|
| *Health and Safety Plan regulations reviewed* | *Done:* 03/01/91 |
| *Health and Safety Plan prepared* | *Done:* 06/17/91 |
| *Health and Safety Plan reviewed* | *Done:* 08/21/91 |
| *Health and Safety Plan revised* | *Done:* 08/14/91 |
| *Health and Safety Plan approved* | *Done:* 08/20/91 |

**TASK: T8759 Prepare Contaminated-Soils Plan** *Complete:* 08/28/92

LBL has not developed an approved plan governing policies concerning physical disturbances of possibly contaminated soils on the site. To comply with DOE Order 5400.1 and other Federal, state, and local regulations regarding RCRA/CERCLA activities, LBL will develop a Site Restoration and Groundwater Management Program (SRGMP) Plan that includes a Contaminated-Soils Plan, as well as all other required plans related to site characterization and groundwater management.

| Milestones: | *Schedule* |
|---|---|
| *Contaminated-Soils regulations reviewed* | *Done:* 11/01/91 |
| *Contaminated-Soils Program Plan prepared* | *Done:* 03/18/92 |
| *Contaminated-Soils Program Plan reviewed* | *Done:* 06/30/92 |
| *Contaminated-Soils Program Plan revised* | *Done:* 08/14/92 |
| *Contaminated-Soils Program Plan approved* | *Done:* 08/28/92 |

**TASK: T8761 Develop Groundwater-Protection Management Plan** *Complete:* 01/28/92

LBL has not developed an approved plan governing groundwater protection activities on the site. To comply with DOE Order 5400.1 and other Federal, state, and local regulations regarding RCRA/CERCLA activities, LBL will develop a Site Restoration and Groundwater Management Program (SRGMP) Plan that includes a Groundwater Protection Management Plan, as well as all other required plans related to site characterization and groundwater management.

| Milestones: | *Schedule* |
|---|---|
| *Groundwater-Protection regulations reviewed* | *Done:* 03/01/91 |
| *Groundwater-Protection Management Plan prepared* | *Done:* 03/07/91 |
| *Groundwater-Protection Management Plan reviewed* | *Done:* 04/05/91 |
| *Groundwater-Protection Management Plan revised* | *Done:* 05/01/91 |
| *Groundwater-Protection Management Plan approved* | *Done:* 01/28/92 |

**TASK: T8763 Develop Sewer-Assessment/Upgrade Plan** *Complete:* 09/30/91

LBL has not developed an approved Sewer-Assessment/Upgrade Plan for the site. To comply with Federal, state, and local regulations regarding sewer-assessment activities, LBL will develop an approved and comprehensive Site Restoration and Groundwater Management Program (SRGMP) Plan that includes a Sewer-Assessment/Upgrade Plan, as well as all other required plans related to RCRA/CERCLA, site restoration, and groundwater management activities.

| Milestones: | *Schedule* |
|---|---|
| *Sewer-Assessment/Upgrade Plan prepared* | *Done:* 03/01/91 |
| *Sewer-Assessment/Upgrade Plan reviewed* | *Done:* 03/15/91 |
| *Sewer-Assessment/Upgrade Plan revised* | *Done:* 03/22/91 |
| *Sewer-Assessment/Upgrade Plan approved* | *Done:* 05/01/91 |
| *Sewer video camera survey performed* | *Done:* 09/30/91 |

**TASK: T9012 Document Groundwater Regime and Contamination**

LBL will carry out a comprehensive program to document the groundwater regime and to identify areas of contamination through the implementation of the Site Restoration and Groundwater Management Program. The groundwater regime will be documented through the construction of hydrogeologic maps/cross sections and the performance of aquifer tests. Geologic and structural maps/cross sections will be further developed to provide a firm geologic basis for the hydrogeologic interpretations. Areas of contamination will be identified and characterized, and isopleth plume maps will be constructed for each contaminated area. This action will culminate in the preparation of a Remedial Investigation to close all of the groundwater compliance findings. The Site Restoration Program will, of course, continue with possible remediation under RCRA and/or CERCLA programs.

| Milestones: | *Schedule* |
|---|---|
| *Areas of contamination identified & evaluated* | *Done:* 05/18/92 |
| *Geologic maps/X-sections constructed* | *Done:* 02/29/92 |
| *Hydrogeologic maps/X-sections prepared* | *Due:* 10/01/92 |
| *Structural maps/X-sections constructed* | *Due:* 10/01/92 |
| *Aquifer tests (direction/velocity) conducted* | *Due:* 07/01/93 |
| *Isopleth plume map of contaminants constructed* | *Due:* 09/01/93 |
| *RCRA Facility Investigation (RFI) prepared* | *Due:* 09/30/94 |

**TASK: T9040 Develop Procedures to Identify/Permit Emissions** *Complete:* 11/01/91

The Environment and Safety Support Division, in conjunction with line programs, will develop implementing procedures for identifying potential emission sources requiring waste water discharge or air permits, reviewing and signing all permit applications, communicating with regulatory agencies, and reviewing monitoring reports.

| Milestones: | *Schedule* |
|---|---|
| *Complete Implementing Procedures* | *Done:* 11/01/91 |

**TASK: T9065 Prepare Certification Plan for Low-level Waste** *Complete:* 07/22/92

LBL will review and revise, if necessary, its existing certification plan for low-level radioactive waste.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 06/01/91 |
| *Certification plan revised* | *Done:* 09/18/91 |
| *Plan approved* | *Done:* 10/15/91 |
| *Plan approved at Hanford* | *Done:* 07/22/92 |
| *Plan implemented* | *Done:* 07/22/92 |

**TASK: T9066 Certification Plan Preparedness with Hanford** *Complete:* 12/15/91

LBL will establish a schedule for submittal of LBL Certification Plans for Mixed and TRU wastes with Hanford Site.

| Milestones: | *Schedule* |
|---|---|
| *Coordination initiated* | *Done:* 08/23/91 |
| *Coordination confirmed* | *Done:* 12/15/91 |

**TASK: T9068 Solvent/oil-contaminated Rag Management Program** *Complete:* 10/15/91

LBL will develop and implement a program to properly manage solvent/oil-contaminated rags.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 03/15/91 |
| *Contaminated rag program prepared* | *Done:* 06/07/91 |
| *Contaminated rag program reviewed* | *Done:* 07/07/91 |
| *Contaminated rag program revised* | *Done:* 07/07/91 |
| *Contaminated rag program approved* | *Done:* 07/07/91 |
| *Contaminated rag program implemented* | *Done:* 10/15/91 |

**TASK: T9069 Internal Appraisal Prog. of Waste Mgmt Activities** *Complete:* 08/18/91

LBL will develop an Internal Appraisal program for waste management activities at LBL.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 05/18/91 |
| *Internal appraisal program prepared* | *Done:* 07/07/91 |
| *Internal appraisal program reviewed* | *Done:* 07/16/91 |
| *Internal appraisal program revised* | *Done:* 07/20/91 |
| *Internal appraisal program approved* | *Done:* 08/01/91 |
| *Internal appraisal program implemented* | *Done:* 08/18/91 |

**TASK: T9106 Update Implementation Plan** *Complete:* 09/14/92

LBL will update the existing implementation plan as required by DOE Order 5820.2A.

| Milestones: | *Schedule* |
|---|---|
| *Regulations reviewed* | *Done:* 07/15/91 |
| *Existing implementation plan reviewed* | *Done:* 08/01/91 |
| *Implementation plan revised* | *Done:* 03/15/92 |
| *Implementation plan approved* | *Done:* 07/01/92 |
| *LBL personnel informed* | *Done:* 09/14/92 |

**TASK: T9111 Develop Lab-wide NEPA/CEQA Tracking System** *Complete:* 04/28/92

A Laboratory-wide NEPA/CEQA tracking system will be developed based on the existing Plant Engineering NEPA/CEQA construction activities tracking system. The LBL NEPA/CEQA system will be compatible with the DOE/SF system (see T4072).

| Milestones: | *Schedule* |
|---|---|
| *Design/implementation* | *Done:* 03/31/92 |
| *NEPA/CEQA tracking system revised* | *Done:* 04/28/92 |
| *NEPA/CEQA manual reviewed for tracking requirement* | *Done:* 01/15/92 |
| *Systems analysis* | *Done:* 01/15/92 |

**TASK: T9112 Revise NEPA/CEQA Training Plan**

LBL will revise the NEPA/CEQA training plan to be consistent with the LBL NEPA/CEQA Guidance Manual.

| Milestones: | *Schedule* |
|---|---|
| *NEPA/CEQA training plan reviewed* | *Due:* 11/23/92 |
| *NEPA/CEQA training plan revised* | *Due:* 12/23/92 |
| *NEPA/CEQA training plan approved by ALD-OPD* | *Due:* 01/23/93 |

**TASK: T9124 Review SARA Title III Section 313 Requirements** *Complete:* 06/19/92

LBL will review SARA Title III, Section 3004H reporting requirements for applicability to LBL.

| Milestones: | *Schedule* |
|---|---|
| *Chemical inventory analyzed* | *Done:* 12/18/91 |
| *Waste minimization opportunities ascertained* | *Done:* 11/15/91 |
| *SIC classification reviewed* | *Done:* 08/01/91 |
| *Reassessed SARA Title III applicability* | *Done:* 06/19/92 |
| *Reported, if required under SARA Title III* | *Done:* 06/19/92 |

**TASK: T9149 Train HEPA Filter Test Technician** *Complete:* 06/12/92

Train HEPA filter test technician for testing procedure developed in T5023.

| Milestones: | *Schedule* |
|---|---|
| *HEPA technician training completed* | *Done:* 06/12/92 |

**TASK: T9191 Issue and Implement DOE/SF Env. Protection QA Plan**

| Milestones: | *Schedule* |
|---|---|
| *Draft plan issued* | *Done:* 09/30/92 |
| *Comments received* | *Due:* 10/21/92 |
| *Final draft issued* | *Due:* 11/15/92 |
| *Plans issued and implemented* | *Due:* 12/01/92 |

**TASK: T9193 Develop & Implement Waste Gen. Oversight Procedure**

Procedures will be developed for conducting oversight of waste generator operators, including documentation of requirements. The procedures will be an appendix to the Operations Oversight Plan.

| Milestones: | *Schedule* |
|---|---|
| *Requirements defined* | *Due:* 09/15/92 |
| *Draft procedures issued* | *Due:* 10/15/92 |
| *Final procedures issued and implemented* | *Due:* 11/15/92 |

# Section 2. Safety and Health

*Concern* **OA.1-1/T90**

**The responsibilities and authorities of management, supervisory, and professional position not uniquely defined and made available to the staff at large. Consequently interfaces are not clearly defined.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* Industry Best Management Practice; TSA Criteria

*Response* Management should organize the site programs to emphasize and consistently implement ES&H programs. However, management responsibilities are not adequately defined at LBL, and there is no coordinated set of charters. Content, format, and distribution of information on responsibilities varies widely, and there is no compilation of uniquely defining responsibilities that is available to those who need to know. The primary root cause is informal culture. The tasks involved in LBL's overall approach to ES&H roles, responsibilities, authorities, and charters are summarized in the corrective action response to Finding MF-3. Tasks T1049 and T9131 described below were developed to address that Finding as well as OA.1-1/T90 and other concern.

*Related Concerns* MF-3 MF-4 MF-5 OA.6-1

*Tasks* T1049 (Completed)

T9131

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*Concern* **OA.1-2/T90**

**In some cases staffing and resources are not adequate to ensure prevention or identification and timely correction of safety deficiencies.**

*Hazard/ Compliance Levels* H2/C3

*Category* III

*Response* Resources, including staffing, facilities, and equipment, are inadequate for the prevention, identification, and timely correction of safety deficiencies, including those in industrial hygiene, radiation protection, occupational safety, quality verification, and maintenance. The root cause is inadequate management commitment to ES&H. The tasks involved in LBL's overall approach to increasing ES&H resources are summarized in the corrective action response to Finding MF-2. Tasks T9195, T2051, and T2049 described below were developed to address that Finding as well as OA.1-2/T90 and other concerns.

*Related Concerns* MF-1 MF-2 OA.2-3 RP.1-1

*Tasks* T2049 (Completed)

T2051 T9195

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*Concern* **OA.1-3**

**The Environmental Protection, Health and Safety Division is not presently organized to support the necessary integration of safety and health programs into the activities of the site.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The organization chart for ESHC confuses organizational units and functional responsibilities. Overlap of responsibilities leads to inconsistencies and confusion. Examples of inconsistencies and confusion occur between the Operations Group and the Environmental Monitoring Group, as well as with units outside ESHC. Important root causes are informality and lack of appreciation for centralized resources. The Laboratory will address this concern through clearly defining organizational charters and reorganizing departments and the EH&S Division to support the integration of ES&H activities with site programs. The task involved in LBL's approach to developing divisional charters is summarized in the corrective action response to Finding MF-3. Task T9131 was developed to address that Finding as well as OA.1-3 and other concerns, and is described under OA.1-1/T90. The task directed towards integrating ES&H expertise from EH&S Division into the line divisions is summarized in the corrective action response to Finding MF-4. Task T4045 described below was developed to address that Finding as well as OA.1-3 and other concerns. Specific tasks developed for OA.1-3 to address the internal organization of the ESHC Department, and the organization of that Department with the EH&S Division, are summarized below.

*Related Concerns* MF-3 MF-4 OA.1-1/T90

*Tasks* T4041 (Completed) T4042 (Completed) T4045 (Completed)

T9131

*Concern* **OA.1-4**

**Lawrence Berkeley Laboratory has not implemented a consistent sitewide environment, safety, and health program.**

*Hazard/ Compliance Levels* H1/C2

*Category* III

*Response* LBL's self-assessment program has not been fully developed or approved. A sitewide ES&H program has not been implemented, and division safety plans are not uniform. Resources are inadequate. The tasks involved in LBL's overall approach to self-assessment are summarized in the corrective action response to Finding MF-15. Tasks T2057, T2058, T9166, T9167, T9168, and T9169 described below were developed to address that Finding as well as OA.1-4 and other concerns. The tasks involved in LBL's overall strategy for including ES&H in Laboratory programs are summarized in the corrective action response to Finding MF-1. Task T2048 described below was developed to address that Finding as well as OA.1-4 and other concerns. The task involved in LBL's approach to developing divisional charters which will include more uniform safety plans is summarized in the corrective action response to Finding MF-3. T9131 was developed to address that Finding as well as OA.1-4 and other concerns, and is described under OA.1-1/T90. The tasks involved in LBL's overall approach to increasing ES&H resources are summarized in the corrective action response to Finding MF-2. Task T9195, T2051, and T2049 were developed to address that Finding as well as OA.1-4 and other concerns, and are described under OA.1-2/T90.

*Related Concerns* MF-1 MF-15 MF-2 MF-3 OA.1-1/T90 OA.1-2/T90 OA.2-3 OA.5-1/T90 OA.5-2 SA-1

*Tasks* T2049 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2051 T2058 T9131 T9168 T9169 T9195

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*Concern* **OA.1-5**

**The San Francisco Operations Office has not consistently performed its oversight role of the Lawrence Berkeley Laboratory in many safety- and health-related areas.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Response* The DOE/SF office has been inconsistent in the extent and effectiveness of its oversight of LBL's ES&H programs. SF will address this concern by utilizing the revised LBL appraisal plan to establish ES&H oversight requirements, develop an oversight plan, and improve its organizational oversight framework.

*Related Concerns* FP.7-11 QV.1-4 QV.13 RP.2-3 WM/CF-16

*Tasks* T4056 (Completed) T4058 (Completed)

T1124 T4057 T4059 T4060

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*Concern* **OA.2-1/T90 (COMPLETE)**

**The present LBL UOR system does not ensure reporting of all events specified in DOE 5000.3 and DOE 5484.1, nor does it provide for adequate internal distribution.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* LBL's UOR program has not been coordinated with all the divisions and lacks consistency. Distribution of UORs is inadequate, as those that can benefit do not receive them. The Health and Safety manual descriptions are inadequate. Note: the unusual occurrence reporting system has been replaced by the occurrence reporting system, following the 1989 TSA.

*Tasks* T8684 (Completed)

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*Concern* **OA.2-2/T90**

**The systems and practices of procedural control and use in the lower tiers of the LBL organization are inconsistent, incomplete, unreliable, and not clearly defined.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Policies and procedures at LBL in a number of instances may not be followed, or are unavailable or nonexistent. Examples occur in the inadequate Operational Safety Procedures, Packaging and Transportation Procedures, Industrial Hygiene Procedures, and Occupational Safety Procedures. The tasks involved in LBL's overall approach to ES&H policies and procedures and document control are summarized in the corrective action response to Finding MF-11. Tasks T2047 and T3026 described below were developed to address that Finding as well as OA.2-2/T90 and other concerns. The tasks involved in LBL's approach to procedures at the "working level" are summarized in the corrective action response to Finding MF-22 on Quality Assurance. Tasks T2022, T2023, and T2024 described below were developed to address that Finding as well as OA.2-2/T90 and other concerns.

*Related Concerns* MF-11 MF-22 OA.3-1

*Tasks* T2022 T2023 T2024 T2047 T3026

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*Concern* **OA.2-3**

**The resources applied to critical safety and health functions are not sufficient to support the safety needs of the Lawrence Berkeley Laboratory site.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Resources, including staffing, facilities, and equipment, are inadequate for the prevention, identification, and timely correction of safety deficiencies, including those in industrial hygiene, radiation protection, occupational safety, quality verification, and maintenance. The tasks involved in LBL's overall approach to increasing ES&H resources are summarized in the corrective action response to Finding MF-2. Task T2052, T2051, and T2049 were developed to address that Finding as well as OA.2-3 and other concerns, and are described under OA.1-2/T90.

*Related Concerns* MF-1 MF-2 OA.1-2 RP.1-1

*Tasks* T2049 (Completed)

T2051 T9195

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*Concern* **OA.3-1/T90**

**The enforcement of approved work practices and procedures is deficient, indicating inadequate management attention.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Site management shall ensure commitment to safe operations, including enforcement of approved work practices. The enforcement of approved work practices is deficient, including inadequate authority to enforce fire protection codes, OSHA standards and appropriate practices, implementation of OSPs, and the development of procedures for the Medical Services Department, and in radiation protection and technical support. The primary root cause is informality. LBL is further directing resources, organization, procedures and authorities to correct these deficiencies. The tasks involved in LBL's overall approach to ES&H authorities are summarized in the corrective action response to Finding MF-11. Task T1049 was developed to address that Finding as well as OA.3-1/T90 and other concerns, and is described under OA.1-3/T90. The tasks involved in LBL's approach to the development of procedures at the "working level" are summarized in the corrective action response to Finding MF-22 on Quality Assurance. Tasks T2022, T2023, and T2024 were developed to address that Finding as well as OA.3-1/T90 and other concerns, and are described under OA.2-2/T90.

*Related Concerns* FP.1-6 MF-11 MF-22 MF-5 MS.2-1 OA.3-1 RP.3-8 TS.4-3

*Tasks* T2022 T2023 T2024

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*Concern* **OA.3-2 (COMPLETE)**

**Management has not established and communicated annual quantified safety and health goals for the Lawrence Berkeley Laboratory organization.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Performance expectations have been developed for all LBL personnel and are published in the Health and Safety Manual, but statements are not developed on an annual basis. Annual quantified ES&H goals established by supervisors or management do not exist. The tasks involved in LBL's approach to developing ES&H performance objectives at the Laboratory and division levels are summarized in the corrective action response to Finding MF-15. Tasks T2057 and T9167 were developed to address that Finding as well as OA.3-2 and other concerns, and are described under OA.1-4. The tasks involved in LBL's overall approach to addressing ES&H expectations at the level of the individual employee are summarized in the corrective action response to Finding MF-5. Tasks T2 and T3 described below were developed to address that Finding as well as OA.3-2 and other concerns.

*Related Concerns* MF-15 MF-5 OA.1-1 OA.1-4 OA.5-2 OA.6-1

*Tasks* T2 (Completed) T2057 (Completed) T3 (Completed) T9167 (Completed)

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*Concern* **OA.4-1/T90**

**The UC Health and Safety Policy statement does not demonstrate a strong commitment to safety.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Corporate interest and support for safe operation should be evident. The terms "reasonably safe" and "when appropriate" in the UC policy on ES&H were judged by the TSA team to weaken the University's commitment to safety. The Laboratory has addressed their concern with the Health and Safety and Environment Advisory Committee and with the Office of the President, and the University is taking new organizational steps to address this issue.

*Related Concerns* MF-19

*Tasks* T2067

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*Concern* **OA.5-1/T90**

**Line management oversight and enforcement does not ensure consistent conformance with safety and health policies, practices and procedures.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Management and supervisors should monitor site activities to improve performance. However, LBL does not adequately monitor and assess its operations. There is no centralized system for tracking actions and closing out deficiencies. Management awareness is insufficient to ensure identification of concerns by the line and to comply with safety practices. Root causes for the concern include informality and lack of commitment. LBL is addressing this concern through a framework of improved line management practices and a self assessment program. The tasks involved in LBL's overall approach to tracking actions and closing out deficiencies are summarized in the corrective action response to Finding MF-13. Tasks T2053 and T2054 described below were developed to address that Finding as well as OA.5-1/T90 and other concerns. The tasks involved in LBL's overall approach to monitoring and assessing its operations were developed to address that Finding as well as OA.5-1/T90 and other concerns, and are described under OA.1-4.

*Related Concerns* MF-13 MF-15 OA.1-4 OA.5-2 SA-1

*Tasks* T2053 (Completed) T2054 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2058 T9168 T9169

*Concern* **OA.5-2**

**Lawrence Berkeley Laboratory has not implemented mechanisms to assess site safety and health programs.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Management should monitor and assess facility activities to improve ES&H performance. Internal independent assessment of site ES&H programs is the responsibility of IRAD. IRAD's charter is not well defined, including it relationship with the SRC. Many assessments to be performed by IRAD remain to be developed. The LBL Corrective Action program has not been fully developed and integrated. LBL lacks performance indicators. The root causes are informality and lack of commitment to ES&H. LBL will address this concern by developing performance indicators, clarifying the roles for independent verification and developing self assessment programs. The tasks involved in LBL's overall approach to Corrective Actions are summarized in the corrective action response to Finding MF-13. Tasks T2053 and T2054 were developed to address that Finding as well as OA.5-2 and other concerns, and are described under OA.5-1/T90. The tasks involved in LBL's overall approach to establishing performance indicators, delineating the roles of the SRC and IRAD, and undertaking independent assessments are summarized in the corrective action response to Finding MF-15. Tasks T2057, T2058, T9166, T9167, T9168, and T9169 were developed to address that Finding as well as OA.5-2 and other concerns, and are described under OA.1-4. Task T2056 described below was developed to address that Finding as well as OA.5-2 and other concerns.

*Related Concerns* OP.5-2 SA-1

*Tasks* T2053 (Completed) T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2058 T9168 T9169

*Concern* **OA.6-1 (COMPLETE)**

**Specific safety responsibilities are not included as a required element in the annual performance appraisals of all employee groups.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Personnel programs should ensure that appropriate job qualification requirements or position description are established for positions that effect ES&H. However, safety responsibilities at LBL are only referred to in general terms on appraisal forms. The root cause is informality and lack of commitment. LBL will address this concern by improving the specificity of safety responsibilities in job descriptions and by improving performance appraisals. The tasks involved in LBL's overall approach to including ES&H in job descriptions for an evaluations of individual employees is summarized in the corrective action response to Finding MF-5. Tasks T2 and T3 were developed to address that Finding as well as OA.6-1 and other concerns, and are described under OA.3-2.

*Related Concerns* MF-5 OA.3-2

*Tasks* T2 (Completed) T3 (Completed)

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*Concern* **OA.7-1/T90**

**There is no control system that ensures current, appropriate documents are in the possession of LBL staff members, having a need for them.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Response* Document control systems should provide correct, readily accessible information to support operations. However, document control procedures at LBL vary among originating divisions and departments. There is no feedback to assure that changes have been made. There is no controlled distribution of Building Emergency Plans, and numerous manuals and documents are not under a document control system. LBL will address this deficiency with a document control system. The task involved in LBL's overall approach to document control is summarized in the corrective action response to Finding MF-11. Task T2047 was developed to address that Finding as well as OA.7-1/T90 and other concerns, and is described under OA.2-2/T90.

*Related Concerns* MF-11 OA.2-2/T90 TS.2-3

*Tasks* T2047

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*Concern* **OA.7-2/T90**

**There is no system that ensures documents such as procedures, records of analyses, test results records, etc. are maintained and retrievable.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* To support site operations LBL does not have a consistent system that ensures that documents are maintained and retrievable. The root cause is informality. The task involved in LBL's overall approach to document control is summarized in the corrective action response to Finding MF-11. Task T2047 was developed to address that Finding as well as OA.7-2/T90 and other concerns, and is described under OA.2-2/T90. However, the document control system developed under that task will cover only certain Laboratory- and Division-level documents (e.g., the RPM) and thus will not cover all of the types of documents mentioned in this concern. The tasks involved in LBL's approach to the maintenance and retrievability of procedures, records, and the like at the "working level" are summarized in the corrective action response to Finding MF-22 on Quality Assurance. Tasks T2022, T2023, and T2024 were developed to address that Finding as well as OA.7-2/T90 and other concerns, and are described under OA.2-2/T90.

*Related Concerns* MF-11 MF-22 OA.2-2/T90 OA.7-1/T90

*Tasks* T2022 T2023 T2024 T2047

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*Concern* **OA.7-3 (COMPLETE)**

**Storage of records should meet DOE and ANSI standards to ensure records availability. However, storage of dosimetry and exposure records, less than 2 years old, does not meet the requirements of DOE 1324.2A, and DOE 5500.7A, and ANSI/ASME NQA-1 in that they are not provided adequate protection in their present location.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* ANSI/ASME NQA-1; DOE 1324.2A; DOE 5500.7A

*Response* Dosimetry and other exposure records less than two years old are stored in Building 75 in regular office files. These conditions do not provide adequate protection.

*Related Concerns* RP.10-2 RP.12-1

*Tasks* T2045 (Completed)

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*Concern* **OA.8-1/T90 (COMPLETE)**

**There is no clear policy that explicitly addresses fitness-for-duty of visitors, guests or subcontractors.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* This Concern has been recommended for closure by the 1991 Tiger Team Assessment.

*Related Concerns* MF-10

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **OA.8-2 (COMPLETE)**

**Lawrence Berkeley Laboratory has not implemented a supervisory training program directed at the detection and handling of employees suspected of substance abuse and has not adopted a policy requiring this training.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* A Fitness for Duty program should be capable of identifying and removing staff who are unfit for substance abuse or other reason, pending rehabilitation or other remedial action. The LBL Substance Abuse Policy does not require training of supervisors in handling employees suspected of substance abuse. A supervisor training program will be developed. This program will proceed on its own schedule, but will eventually be incorporated into the overall training program developed in response to Finding MF-9 and described in Task T2009.

*Related Concerns* MF-10 MF-9 TC.1-4

*Tasks* T8691 (Completed)

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*Concern* **QV.1-1/T90**

**The IQAPP and QAPPs do not include independent verification of quality attainment and the selective application of the elements of recognized QA standards for safety and other activities as required by DOE 5700.6B.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* ANSI/ASME NQA-1; DOE 5700.6B

*Response* Administrative programs and controls should be in place to ensure policies concerning quality are administered for each facility throughout the site. The LBL QA documentation in place representing the Laboratory QA policy is inadequate. An institutional policy based on selective applicability of NQA-1 to research and operational activities does not exist. Institutional policies do not exist for independent verification. No guidance document exists for establishing the level of QA needed for projects. Audits and training programs on group and divisional levels are inadequate. The root cause for these deficiencies is informality of management style in conduct of operations.
To ensure that the proper policies concerning quality are in place, the Laboratory is addressing this issue by redesigning the entire structure of its QA fabric. The proposed program will emplace a new IQAP which will address the independent verification issue, and also will set forth policies for the graded approach to NQA-1 in Laboratory activities. Attention will be given to audits and training programs. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to Finding MF-22. Tasks T2021 and T8671 described below were developed to address that Finding as well as QV.1-1/T90 and other concerns.

*Related Concerns* MF-22

*Tasks* T2021 T2022 T2023 T2024 T8671

*Concern* **QV.1-2**

**Many of the quality assurance requirements specified in the Institutional Quality Assurance Program Plan and divisional Quality Assurance Program Plans have not been implemented as required by DOE 5700.6B. (Also see Concern RP.7-3.)**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5700.6B

*Response* Administrative programs and controls should be in place to ensure policies concerning quality are administered for each facility throughout the site. Significant lapses were found in the implementation of QA plans, both institutionally and within divisions. Deficiencies exist in guidance for appropriate application of QA in projects, as well as in oversight, control, and documentation of QA programs that have been implemented. Deficiencies also exist in oversight of subcontractor QA programs. The root cause for these deficiencies is informality of management style in conduct of operations. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to Finding MF-22. Task T2021 and T8671 were developed to address that Finding as well as QV.1-2 and other concerns, and are described under QV.1-1/T90. Tasks T2022, T2023 and T2024 described below were developed for QV.1-2 and other concerns as interim measures for radiation protection are summarized below. These tasks will proceed in their own schedules, but eventually be incorporated into the overall LBL IQAP described in T2021.

*Related Concerns* MF-22 RP.7-3

*Tasks* T1100 (Completed)

T1101 T2021 T2022 T2023 T2024 T8671

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*Concern* **QV.1-3**

**Quality Assurance oversight of Lawrence Berkeley Laboratory activities by the San Francisco Operations Office is infrequent and unscheduled. (Also see Concern OA.1-5.)**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* SF will prepare a Site Management Plan which will establish the basis for and frequency of physical oversight. A resource requirement evaluation will be conducted and appropriate actions initiated. A comprehensive data base will be developed to assist in tracking findings and corrective actions.

*Related Concerns* MF-21 OA.1-5 QA/CF-5

*Tasks* T9190 (Completed)

T1124 T4059 T4060

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*Concern* **QV.1-4**

**Direction given to Lawrence Berkeley Laboratory concerning quality assurance requirements by the San Francisco Operations Office is incomplete and inconsistent with DOE 5700.6B.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5700.6B

*Response* SF will reevaluate its overall QA program and update processes to include the latest QA Guidelines, Conduct of Operations requirements, and the formality of operations directives. The system will include processes for direction to the SF contractors through the SF site offices.

*Related Concerns* MF-23 OA.1-5 QV.1-3

*Tasks* T1124 T4069

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*Concern* **QV.2-1 (COMPLETE)**

**With the exception of store-stock items, the basis for the qualification of suppliers is often not documented, and defective, low-cost items that are important to safety or mission success may be purchased from unqualified suppliers.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Provisions should be established for the control of purchased material, equipment, and services; for selection and control of suppliers; and for assessing the adequacy of procurement activities. Inadequate control over the requisition-writing and purchasing functions of the Laboratory has led to acquisition of inferior or inadequate components. To ensure proper control of purchased material, the Purchasing Department will develop a Function Notebook which includes purchasing process with particular emphasis on qualification of suppliers. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to the above-mentioned Finding MF-22. Task T2021, T2024, and T8671 were developed to address that Finding as well as QV.2-1 and other concerns, and are described under QV.1-1/T90 and QV.1-2. Specific tasks developed for QV.2-1/T90 and other purchasing- related concerns as an interim measure is summarized below. This tasks will proceed on its own schedule, but eventually be incorporated into the overall LBL IQAP described in T2021.

*Related Concerns* MF-22

*Tasks* T8744 (Completed) T8747 (Completed)

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*Concern* **QV.2-2 (COMPLETE)**

**There are no policies and procedures established to ensure that suspect/counterfeit items are not purchased, installed, or used.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Adequate control measures need to be established to ensure that counterfeit parts are not acquired. This requires identification of suppliers of these parts, training and dissemination of information to identify counterfeit parts, and verification of certification data supplied with delivered parts. To ensure that policies and procedures are established and implemented to prevent counterfeit items from being purchased, installed, or used, the Project Notebooks and Function Notebooks of the program divisions and Purchasing Department shall include appropriate QA procedures. The self-assessment program shall assess, periodically, that these policies are being followed. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to the above-mentioned Finding MF-22. Task T2021, T2023, T2024 and T8671 were developed to address that Finding as well as QV.2-2 and other concerns, and are described under QV.1-1/T90 and QV.1-2. Specific tasks developed for QV.2-2 and other purchasing-related concerns as an interim measure is summarized below. This tasks will proceed on its own schedule, but eventually be incorporated into the overall LBL IQAP described in T2021.

*Related Concerns* MF-22

*Tasks* T8747 (Completed) T9061 (Completed)

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*Concern* **QV.3-1/T90 (COMPLETE)**

**Requirements for material storage, metal certifications, and retention of certifications are not formalized.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **QV.3-2**

**Defective items may be accepted because inspection practices are often informal and undocumented.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Provisions should be established for the inspection of purchased material, equipment, and services in accordance with documented procedures by trained personnel. Appropriate definition and formalization of an acceptance/inspection program will be ensured with the new QA procedures outlined in MF-22. This will include guidance as to the when and how of inspections, as well as training and certification for the inspection role. To ensure that inspection practices are formalized division shall include appropriate acceptance/inspection programs. The self-assessment program shall assess, periodically, that the policies are being followed. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to the above-mentioned Finding MF-22. Task T2021, T2022, and T8671 were developed to address that Finding as well as QV.3-2 and other concerns, and are described under QV.1-1/T90 and QV.1-2. Specific task developed for QV.3-2 and other purchasing-related concerns as an interim measure is summarized below. This task will proceed on its own schedule, but eventually be incorporated into the overall LBL IQAP described in T2021.

*Related Concerns* MF-22

*Tasks* T8747 (Completed) T9061 (Completed)

T8745

*Concern* **QV.4-1/T90**

**There is no LBL calibration policy for measuring and test equipment that applies to all divisions.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Provisions should be made to insure that tools, gauges, instruments, and other measuring and testing devices are properly identified, controlled, calibrated, and adjusted at specific intervals. It is recognized that at present no institution-wide program exists for instrument calibration. This includes tracking of instruments needing periodic calibration, and verification of measurements made with instruments which were later found to be out of calibration. The formalization of a Laboratory-wide Instrument Calibration Program is being addressed within the new Laboratory QA framework identified in the response to Concern MF-22. The calibration facilities within the Engineering Division shall be brought into compliance with DOE 5700.6B and divisions shall establish their calibration requirements and procedures in their Facility Notebooks. This self-assessment program shall periodically assess adherence to these procedures. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to the above-mentioned Finding MF-22. Task T2021, T2022, and T8671 were developed to address that Finding as well as QV.4-2 and other concerns, and are described under QV.1-1/T90 and QV.1-2. Specific task developed for QV.4-1/T90 and other calibration- related concerns as an interim measure is summarized below. This tasks will proceed on its own schedule, but eventually be incorporated into the overall LBL IQAP described in T2021.

*Related Concerns* MF-22

*Tasks* T8748 T9062

*Concern* **QV.4-2**

**Inaccurate measuring and testing equipment may invalidate inspection, test, and research data at the Lawrence Berkeley Laboratory.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Lack of properly calibrated instruments can compromise quality and safety of Laboratory operations. Informality and lack of an institutionally-supported program for instrument calibration makes this a real possibility. Procedures in the calibration shop will be worked out to facilitate, rather than hinder, customer acceptance of the calibration process. The general issues will be addressed in the overall QA Plan being developed as outlined in the response to Concern MF-22. Divisions will include their calibration requirements and procedures in their Facility Notebooks. The self-assessment program should periodically assess adherence to these procedure. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to the above-mentioned Finding MF-22. Task T2021, T2022, and T8671 were developed to address that Finding as well as QV.4-2 and other concerns, and are described under QV.1-1/T90 and QV.1-2. A specific task developed for QV.4-2 and other calibration-related concerns as an interim measure is summarized below. This task will proceed on its own schedule, but eventually be incorporated into the overall LBL IQAP described in T2021.

*Related Concerns* MF-22

*Tasks* T8748

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*Concern* **QV.5-1**

**With few exceptions, practices to identify and control hardware, materials, parts, and other items are not documented or consistently applied; therefore, these items may be inadvertently used in applications for which they do not meet the specifications.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Provisions should be established to identify and control the use of disposition of hardware, materials, parts, and components as well as ensure that incorrect/defective items are not used. Better procedures are needed for control of acquisition, testing, and inspection of all parts used at the Laboratory to ensure that non-conforming items are not used. The new framework outlined in the response to Concern MF-22, through the Project/Function Notebooks, details procedures for requirements for proper handling of materials. The self-assessment program will periodically assess adherence to these procedures. The tasks involved in LBL's overall approach to quality assurance are summarized in the corrective action response to the above-mentioned Finding MF-22. Task T2021, T2023, T2024 and T8671 were developed to address that Finding as well as QV.5-1 and other concerns, and are described under QV.1-1/T90 and QV.1-2.

*Related Concerns* MF-22

*Tasks* T2021 T2023 T2024 T8671

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*Concern* **OP.2-1/T90**

**Established and documented performance requirements for logbooks and other operating records, including the responsibilities of those who must read and initial them, do not exist.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Operational activities should be conducted in a manner that achieves safe and reliable operation. The technical quality of entries in logbooks at facilities is not consistent. Many books do not indicate who made the entries, many books used only initials to indicate who made entries without an attached sheet to indicate the identity of the initials, and most books did not indicate peer or management reviews of entries that were made as would be documented by sign-offs. This indicates a lack of consistent guidance. Good conduct of operations must be implemented to ensure that records contributing to safe and reliable operation is of sufficient quality. This concern will be addressed by the implementation of DOE 5480.19, Conduct of Operations, through a graded approach. This implementation is described fully in OP.2-2. A major element of that program is the implementation of the Facility Notebook which would address the need for operating records at specific laboratory facilities.

*Related Concerns* MF-22 OP.10-1 OP.2-2 OP.2-3 OP.2-4 OP.2-5 OP.5-1/T90

*Tasks* T2022

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*Concern* **OP.2-2**

**Lawrence Berkeley Laboratory has not implemented DOE 5480.19 on conduct of operations.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* DOE 5480.19

*Response* Operational activities should be conducted in a manner that achieves safe and reliable operation. In mid-November 1990, a task force of designated persons, one in each division, was formed to do self-assessments of their division with the graded approach to determine chapter-by-chapter applicability of DOE Order 5480.19, Conduct of Operations, requirements. During the TT appraisal period, discussion with DOE/SF staff and LBL relative to development of implementation documents was held. It was agreed that the graded approach would incorporate over-all hazard levels for which differing criteria would be applied. The categories were: critical, general research, and administrative. This concern is addressed by the development of an Institutional Conduct of Operations Implementation Plan and the full set of tasks developed for MF-22 which present the Laboratory's approach to QA and Conduct of Operations.

*Related Concerns* MF-22 OP.10-1 OP.2-1/T90 OP.2-3 OP.2-4 OP.5-1/T90

*Tasks* T8674 (Completed)

T2021 T2022 T2023 T2024 T8671 T8672 T8673 T9103 T9110

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*Concern* **OP.2-3**

**Guidance has not been supplied to Lawrence Berkeley Laboratory or to the San Francisco Operations Office by the Department of Energy Program Office (Energy Research) on a timely basis for implementation of DOE 5480.19.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* DOE 5480.19

*Response* The management system used by SF to transmit directives will be reviewed and revised to ensure prompt delivery of directives to the construction OER in developing specific guidance on conduct of operations.

*Related Concerns* MF-12

*Tasks* T4117 (Completed)

T9080

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*Concern* **OP.2-4**

**Planned reviews and approval processes for acceptance of the graded approach assessment to comply with DOE 5480.19 and for the Facility Notebooks have not been established by Lawrence Berkeley Laboratory.**

*Hazard/ Compliance Levels* H2/C3

*Category* III

*Compliance Protocol* DOE 5480.19

*Response* The graded approach to DOE Order 5480.19, Conduct of Operations, through the use of Facility Notebooks did not include a formal review and approved assessment of compliance to DOE Order 5480.19. This concern is fully addressed by MF-22.

*Related Concerns* MF-22 OP.10-1/T9 OP.2-1/T90 OP.2-2 OP.2-3 OP.2-5 OP.5-1

*Tasks* T9103 T9110

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*Concern* **OP.2-5**

**User groups conducting experiments at major Lawrence Berkeley Laboratory facilities are not required to conduct their operations in accordance with facility Conduct of Operation guides.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.19

*Response* The Conduct of Operation guides developed for the major national user facilities do not address outside user group requirements. Improper conduct of operations have resulted at several facilities by user groups as a result of this omission. Implementation of the Conduct of Operations program will directly address this concern. Proper management control over user facilities will be ensured by including the requirement that users conduct their operations in accordance with the facility Conduct of Operations guidelines and policies contained in the Facilities Notebooks. Full implementation of tasks in MF-22 and OP.2-2 will satisfy this concern.

*Tasks* T2022

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*Concern* **OP.3-1/T90**

**A policy and implementing procedure covering the posting of operating aids in control rooms and adjacent to equipment does not exist.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Approved written procedures, including posted operator aids, should provide effective guidance for normal and abnormal operations of each function. Supplemental operating information and special instructions were posted in all of the operating facility control rooms. This information is not formally authorized, dated, or otherwise controlled. The Facility Notebooks will contain specific instructions for approving and controlling posted operator aids. Full implementation of the tasks included in MF-22 and OP.2-2 will meet this concern.

*Tasks* T2022

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*Concern* **OP.5-1/T90**

**Because of the informal nature of the dissemination of information, essential pieces of information may not get communicated to those who need to know.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Persons conducting experiments in or with a facility on the site should have their relationship to the operating group clearly defined and experiments performed should not present undue risk or significantly increase the risk previously evaluated for the site. For those facets of each facility where there are potential hazards, some introduction to these hazards is given. Since there are no formal checkoff lists which include all important safety concerns at each facility, some essential safety information may not be disseminated to each new experimenter at a given facility. The formal recognition of lines of responsibility between operators and experimenters is lacking at some facilities. Conduct of operations is informal at most facilities. These deficiencies are fully addressed by the Facility Notebooks being implemented as a part of the corrective action to MF-22.

*Related Concerns* MF-22 OP.10-1/T9 OP.2-1/T90 OP.2-2 OP.2-3 OP.2-4 OP.2-5

*Tasks* T2022

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*Concern* **OP.5-2 (COMPLETE)**

**Lawrence Berkeley Laboratory has no system to track identified, needed safety improvements.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Operation stations and facility equipment should effectively support facility operation. In many facilities, safety related equipment repairs and maintenance had been requested for some time without action. A person at the 88-Inch Cyclotron was only recently assigned to resolve concerns from the 1989 TSA. The operational staff at that facility were not aware of the findings for their facility from the TSA. The self-assessment program being established in response to SA-1 and the corrective action management system for MF-13 will address tracking, correcting, and follow-up of safety issues.

*Related Concerns* MF-13 SA-1

*Tasks* T2054 (Completed) T9166 (Completed)

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*Concern* **OP.7-1/T90**

**Studies of the possibility of oxygen deficiency have not been kept up-to-date to reflect the increasing use of liquid nitrogen and/or other asphyxiants in confined spaces near the accelerators.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* A program for identifying, posting, and adopting appropriate safety and mitigating measures for confined-space hazards around the Laboratory was initiated last year. The program was found to be insufficient and the implementation was far from complete. These facts are clearly recognized as problems, and are being addressed in great detail in the response to Concern IH.2-2. Policies are being developed to implement a fully compliant ODH program, and facilities throughout the Laboratory are being sensitized as to their role through inclusion in the Facilities Notebook of guidelines for identifying and properly dealing with confined-space hazards in their areas. Actions will include identification, signing, instrumentation with appropriate sensors, placing administrative and physical controls, and training of personnel.

*Related Concerns* IH.2-2

*Tasks* T4003 (Completed)

T2022

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*Concern* **OP.7-2/T90 (COMPLETE)**

**The OSP for the 2-MeV Van de Graff generator does not address the problem of possible neutron production in an unshielded area.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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|---|---|
| *Concern* | **OP.10-1/T90** |
| | **Requirements for shift turnover for operating facilities have not been established and documented.** |
| *Hazard/ Compliance Levels* | H3/C2 |
| *Category* | III |
| *Response* | Informality of operations is a well-recognized problem within LBL, lack of well-defined shift-turnover procedures is only one manifestation of this. Although a substantial initial effort has taken place to implement the DOE Conduct of Operations Order 5480.19, more work is necessary to achieve the goal of appropriate compliance with the graded approach of this Order. The structure outlined in the Action Plan for MF-22, OP.2-2, calling for Facility, Project and Function Notebooks to collect all relevant information pertinent to each Group's operations, is expected to introduce the necessary amount of formality into the Laboratory culture. Conduct of Operations issues are specifically addressed in the Facility Notebook. Tasks have been written for the development (T2022) and implementation (T8672) of the Facility Notebook. Shift-turnover policies are specifically addressed in the Facility Notebook, with adequate guidance provided to ensure proper exchange of information between outgoing and oncoming shifts in all relevant areas of operation. |
| *Tasks* | T2022 |

*Concern* **MA.1-1/T90**

**A maintenance management program complying with DOE Order 4330.4 has not been implemented at LBL.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 4330.4

*Response* LBL organization and administration should ensure effective implementation and control of maintenance activities. At LBL, a schedule establishing the frequency of inspection of all real property has not been established, and where schedules do exist they are at much lower frequencies than required by DOE Order 4330.4. Maintenance management systems and maintenance program indicators have not been developed and used to monitor maintenance effectiveness and manage the maintenance backlog. There are no procedures establishing the criteria, frequencies and uses of periodic reviews and analysis of predictive, preventive, and corrective maintenance activities. LBL has no institution policy setting Laboratory-wide standards for maintenance nor any centralized oversight contributing to consistency. Conflicting priorities and limited resources have resulted in inadequate allocation of resources to the maintenance function. This action plan will lead to more effective implementation and control of maintenance of facilities, apparatus, and equipment which contain or control a significant hazard to ES&H, where reliable function is important to research objectives and/or where protection of significant value is important.

*Tasks* T9055 (Completed)

T2147 T2150 T9049 T9056 T9057 T9058

*Concern* **MA.1-2**

**Coordination among Laboratory divisions and with local utility companies does not ensure effective maintenance and control of systems important to safety. (Also see Section 4.5.6, AX.6; Concern MA.8-2, and TS.3-2; and Concern OA.1-1, Technical Safety Appraisal of the Lawrence Berkeley Laboratory (DOE/EH-0096, 2/90).)**

*Hazard/ Compliance Levels* H1/C2

*Category* III

*Compliance Protocol* DOE 4330.XXX; DOE 4700.1; DOE 6430.1A

*Response* Specific policies and procedures relating to maintenance and control of systems important to safety, need to be developed and implemented. Maintenance personnel understand the responsibilities and authorities to coordinate safety related maintenance and work control activities with personnel in other divisions and local utility companies. The Laboratory does not have in place formal policies and procedures setting forth safe control change systems for maintenance activities. Laboratory reliance on informal mechanisms is the cause for these deficiencies. Systems related to safety include: 1) the 12 kV power distribution 2) low voltage power distribution 3) standby power engine-generators 4) hillwide and local building PA systems 5) the fire alarm system 6) the Integrated Communications System (ICS) 6) the fire water sprinkler system 7) radio communication system 8) card key and controlled access/intrusion systems. This response also addresses Section 4.5.6, AX.6. (This task includes the implementation and ongoing costs for increasing staff to implement increased levels of maintenance in support of higher levels of ES&H activities.)

*Related Concerns* AX.6 MA.8-2 OA.1-1 TS.3-2

*Tasks* T2150 T8694 T8696 T9088 T9093 T9094

*Concern* **MA.2-1/T90**

**The material condition of some real property, not directly associated with program activities, is significantly deteriorated and continues to deteriorate.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 4330.4A; Draft DOE (CAMP); Draft DOE 4330.xx

*Response* The material condition of components and equipment should be maintained to support safe and effective operations of all facilities on site. The appearance of physical plant exterior facilities, utilities, buildings, and building equipment indicates a full complement of regular maintenance activities is not accomplished. A backlog of less than desirable conditions is evident. Adequate caretaking resources have not been allocated. This action plan will achieve improvements in the material condition of the physical plant. See MA.1-1 and MF-2 (Resources). Completion of action plan tasks and milestones for MA.1-1 and MF-2 Resources will correct these findings and concern..

*Related Concerns* MA.1-1/T90 MA.4-1/T90 MA.5-1 MA.6-1/T90 MA.8-1/T90 OA.1-1/T90

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*Concern* **MA.2-2**

**System configuration control, administrative procedures, training, and support facilities do not provide for comprehensive control of maintenance and modification activities at the Lawrence Berkeley Laboratory. (Also see Concern TC.1-4; Section 4.5.5, TC.5; and Concerns TC.3-1 and TC.3-2, Technical Safety Appraisal of the Lawrence Berkeley Laboratory (DOE/EH-0096, 2/90).)**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Maintenance should be conducted in a safe and effective manner to support each facility condition and operation on the site. The conduct of maintenance 1989 TSA concern has not been implemented in a uniform manner across divisions, and does not integrate the graded performance requirements of DOE orders in a workable manner. Root cause for deficiency is informality of management and insufficient resource allocation. This action plan will correct that situation, providing comprehensive control of maintenance and modification activities at LBL. Such control will lead to safe and effective conduct of maintenance operations at the Laboratory.

*Tasks* T2108 T2109 T2110 T2111 T2112 T2150

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*Concern* **MA.3-1/T90 (COMPLETE)**

**The housekeeping in many laboratories, offices, and facilities is inadequate, is not in accordance with the requirements of the H&SM, and is inconsistent with 29 CFR 1910.22 and generally accepted industrial practices.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* 29 CFR 1910.22

*Response* Improved housekeeping is the responsibility of the Associate Laboratory Director for Administration, and Division directors. Management will review the policy and the inspection program and strengthen these as appropriate to address the concern and to comply appropriately with 29 CFR 1910.22. OHD will develop a section on housekeeping for the LBL Health and Safety Manual that adequately conveys the intent and detail of CFR 29 1910.22. Appropriate dissemination of information will follow.

*Related Concerns* FP.7-3 TT 0S.2

*Tasks* T2159 (Completed)

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*Concern* **MA.3-2**

**Facilities, equipment, and material needed to support safe maintenance are not provided and maintained in all Lawrence Berkeley Laboratory shops.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Facilities, equipment, and material should effectively support the performance of maintenance activities. No established Laboratory guidelines exist to assure that proper and adequate storage facilities are provided for tools, equipment, and supplies. Some shops have limited storage space and are not storing materials and equipment well enough. The vehicle maintenance shop has limited functional work space and lifts. This corrective action plan will supply the facilities, equipment, and material needed for the effective support of maintenance activities at the Laboratory.

*Tasks* T2115 (Completed)

T2114 T2116

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*Concern* **MA.4-1/T90**

**A preventive maintenance program complying with the requirements of DOE 4330.4 has not been implemented.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 4330.4; Draft DOE (CAMP); Draft DOE 4330.XX

*Response* Preventive maintenance should contribute to optimum performance and reliability of systems and equipment important to operations. Current LBL staffing resources are not adequate to fully implement a preventive maintenance program. The frequencies of preventive maintenance activities that are being carried out are considerably below those specified in DOE Order 4330.4. Predictive maintenance techniques are being developed but are not implemented for all equipment. The Engineering Division has not implemented risk-related preventive maintenance for its significant physical assets. Preventive and corrective maintenance not immediately critical to operations is subjugated to the operation schedules/requirements of program facilities/equipment. The Maintenance Upgrade Program will result in improvements in the contribution that preventive maintenance makes to optimize performance and reliability of systems and equipment important to operations. See MA.1-1 and MF-2 Resources. Completion of the tasks associated with Concerns MA.1-1 and MF-2 (Resources) will satisfy/close out this concern.

*Related Concerns* MA.1-1/T90 OA.1-2/T90

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*Concern* **MA.4-2**

**Work control systems and control of modifications of plant support systems do not place priority on safety.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 4330.XXX

*Response* The planning, scheduling, and control of work should ensure that identified maintenance actions are properly completed in a safe, timely, and effective manner. The program for the planning, scheduling and carrying out of maintenance activities must be adequately documented to assure safety is given the required priority. The Maintenance Manual will specify work control systems throughout the Laboratory as well as improvements in safe practices. This action plan will include a training program so that identified maintenance actions are properly completed in a safe, timely, and effective manner.

*Related Concerns* MA.6-1 TS.3-2

*Tasks* T2117 (Completed) T2118 (Completed)

T2119 T2120 T2150

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|---|---|
| *Concern* | **MA.6-1/T90** |
| | **Work control is not in accordance with DOE 4330.3 and generally accepted industrial practices.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 4330.xxx |
| *Response* | LBL has a work control system in place using job orders but its usage is not uniform across the laboratory and does not fully incorporate safety and environmental protection into work packages. The corrective action plan for the 89 TSA concern is amended to align it with the concerns reported in the 1990 Tiger Team report. |
| *Related Concerns* | MA.4-2 |
| *Tasks* | T8609 |

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|---|---|
| *Concern* | **MA.7-1/T90** |
| | **Technical information and procedures for maintenance activities are not controlled by a system in accordance with DOE 1324.2A..** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 1324.3A |
| *Response* | Technical information and procedures for maintenance should be controlled. An action plan to put a compliant system in place is being implemented. This is to be amended as shown in the associated tasks. |
| *Tasks* | T2154 (Completed) T2155 (Completed) T2156 (Completed)<br>T2157 T2158 |

*Concern* **MA.7-2**

**A predictive maintenance program has not been fully implemented or systematically addressed and planned at the Lawrence Berkeley Laboratory.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* DOE 4330.xxx

*Response* A predictive maintenance program should be an important component in a maintenance program. Predictive maintenance techniques are being developed but are not used on all appropriate equipment. The maintenance upgrade program will maximize the contribution that predictive maintenance makes to the reliable, safe, and environmentally safe operation of equipment and systems at LBL.

*Tasks* T2150

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*Concern* **MA.8-1/T90**

**A machinery history program consistent with prudent industrial practices has not been implemented and maintained at LBL.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Maintenance service/repair history should be used to support maintenance activities and to optimize performance. A policy and procedure governing machine service/repair history is not in place. Maintenance history system was not adequately maintained due to budgetary constraints. Information is incomplete and trending not performed. This action plan will result in improvements in the use of maintenance service/repair history records to set maintenance levels and optimize equipment performance. See MA.1-1. The completion of tasks associated with MA.1-1 and closeout of that concern will satisfy/closeout this concern.

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*Concern* **MA.8-2**

**Records and activities for operations, modifications, and maintenance are not coordinated at the Lawrence Berkeley Laboratory. (Also see Concern MA.1-2 and Concern OP.2-1, Technical Safety Appraisal of the Lawrence Berkeley Laboratory (DOE/EH-0096, 2/90).)**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* DOE 1324.2A

*Response* Maintenance procedures and related documents should provide appropriate directions and guidance for work and should be used to ensure that maintenance is performed safely and effectively. Response to the 1989 TSA concern OP.2-1 was intended to be effective in establishing documentation of operations and maintenance conduct, but was not designed to be effective in addressing the current concern. The following action plan is designed to supplement the action plan for TSA OP.2-1 and assure that maintenance procedures and related documents provide coordinated directions and guidance for work and will be used to ensure that maintenance is performed safely and effectively.

*Related Concerns* MA.4-1/T90

*Tasks* T2121 (Completed)

T2124 T2150 T8694 T8696

*Concern* **TC.1-1/T90**

**Complete records of each individual's safety training participation are not maintained in an auditable manner.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The training organization at LBL should ensure effective implementation and control of training activities. However, there is no site-wide training coordination, required lists of on-the-job training are not prepared, and tracking is poorly documented. There is inadequate basis to assure that personnel have been instructed on the safe use of equipment. Several training databases are in use at LBL, with the EPSH division's being the main one for safety. Initially, responsibility and authority for development, implementation, and maintenance are not identified. A training database should be able to access training records easily. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Tasks T2007, T2008, and T2009 described below were developed to address that Finding as well as TC.1-1/T90 and other concerns.

*Related Concerns* MF-9 TC.1-4

*Tasks* T2007 T2008 T2009

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*Concern* **TC.1-2/T90**

**There is no requirement at LBL that training be provided in a timely manner for procedural changes or system modifications**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* LBL's tracking program should ensure effective and timely training. LBL's documentation and tracking is incomplete, and it cannot be documented that training prior to significant procedure changes or system modifications has been given. The root cause for this inadequacy is informality. A formal, timely training system with adequate documentation is necessary to address this concern. See TC.1-4. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.1-2/T90 and other concerns, and is described under TC.1-1/T90.

*Related Concerns* MF-9 TC.1-1/T90 TC.1-4

*Tasks* T2009

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| *Concern* | **TC.1-3** |
| | **Neither the effectiveness of training nor the trainees understanding of material presented is routinely assessed.** |
| *Hazard/ Compliance Levels* | H3/C2 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.11 |
| *Response* | In many cases, training class attendees are not tested for understanding of the material, and the effectiveness of LBL training courses is generally not evaluated by formally soliciting feedback from attendees. However, the understanding of the material in radiation safety training is routinely tested but material in other safety training courses is not tested for understanding. The Laboratory will develop effective means to evaluate trainees and course programs for understanding of safety training material and implement a testing system, and will regularly test the effectiveness of such evaluation through the self-assessment process. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.1-3/T90 and other concerns, and is described under TC.1-1/T90. Specific tasks developed for TC.1-3 as interim measures are summarized below. These tasks will proceed on their own schedules, but will eventually be incorporated into the overall LBL Training Program described in T2009. |
| *Related Concerns* | MF-9 TC.2-1/T90 TC.3-2/T90 TC.9-2 |
| *Tasks* | T2058 T3015 |

*Concern* **TC.1-4**

**The Lawrence Berkeley Laboratory has not formally identified or established requirements for initial and continuing training.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* All regs. with training requirements

*Response* LBL does not have a comprehensive safety training program. The development of a Laboratory-wide safety training program that includes the identification of requirements and written policies is a major undertaking and a real challenge in a research environment. Efforts have already begun, however, with the use of checklists in several research divisions. We can build on this effort with the addition of targeted job task analysis and formal policies until we have a comprehensive safety training program in place. The training organization will ensure effective implementation of all safety training activities. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.1-4 and other concerns, and is described under TC.1-1/T90.

*Related Concerns* FP.6-2 MA.2-2 MF-10 MF.9 OP.6 PT.2-1 TC.1-1/T90 TC.1-2/T90 TC.10 TC.2-1/T90 TC.3-1/T90 TC.5

*Tasks* T2009

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*Concern* **TC.2-1/T90**

**There is no requirement at LBL that safety training not performed by EH&S be reviewed and audited for adequacy and appropriateness.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Employee training should ensure the understanding and the ability to implement personnel protection practices. However, safety training given by line management has not been evaluated for compliance and effectiveness. Hazard communication is not reviewed or audited by higher supervisor, EH&S or Safety Committees. Division Safety Committees have not reviewed training. Training in UOR procedures was not conducted. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Tasks T2007, T2008, and T2009 were developed to address that Finding as well as TC.2-1/T90 and other concerns, and is described under TC.1-1/T90. The tasks involved in LBL's overall approach to evaluating compliance and effectiveness are summarized in the corrective action response to Finding MF-15. Tasks T2057, T2058, and T9166, T9167, and T9168 described below were developed to address that Finding as well as TC.2-1/T90 and other concerns.

*Related Concerns* MF-9 MF.3 TC.1-3 TC.1-4 TC.3-2/T90

*Tasks* T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2007 T2008 T2009 T2058 T9168

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| *Concern* | **TC.3-1/T90** |
| | **On-the-job training requirements are not well identified, completed, and documented prior to assignment to tasks for independent performance.** |
| *Hazard/ Compliance Levels* | H2/C2 |
| *Category* | III |
| *Response* | This concern specifically relates to maintenance personnel. Maintenance personnel training qualification program should improve the skills necessary to perform assigned functions. However, on the job training was often found to be informal, without checklists. Records of on the job training were not maintained. The Laboratory will take steps to document training effectiveness, define qualifications and skills for jobs and conduct performance reviews with enhancement and training for ES&H skills. The tasks involved in LBL's overall approach to ES&H performance for individuals are summarized in Finding MF-5. Tasks T2 and T3 described below were developed to address that Finding as well as TC.3-1/T90 and other concerns. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Tasks T2008 and T2009 were developed to address that Finding as well as TC.1-3/T90 and other concerns, and are described under TC.1-1/T90. The specific task developed for TC.3-1/T90 and other maintenance-related concerns as an interim measure is summarized below. This tasks will proceed on its own schedules, but will eventually be incorporated into the overall LBL Training Program described in T2009. |
| *Related Concerns* | MF-5 MF-9 TC.1-4 TC.5 |
| *Tasks* | T2 (Completed) T3 (Completed) |
| | T2110 |

*Concern* **TC.3-2/T90**

**Qualification standards and evaluation methods to measure training were not established in some of the departments.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* This concern specifically relates to maintenance personnel. The maintenance personnel training qualification programs should develop and improve the knowledge and skills necessary to perform assigned job functions. In many cases LBL's maintenance training was informal and not defined. LBL will specifically address this issue with a maintenance training improvement program and a sitewide training program. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.3-2/T90 and other concerns, and is described under TC.1-1/T90. The specific tasks developed for TC.3-2/T90 and other maintenance-related concerns as interim measures are summarized below. These tasks will proceed on their own schedules, but will eventually be incorporated into the overall LBL Training Program described in T2009.

*Related Concerns* MA.2-2 MF-9 TC.1-3/T90 TC.1-4/T90 TC.5/T90

*Tasks* T2110 T2111

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*Concern* **TC.4-1**

**Lawrence Berkeley Laboratory is not in compliance with all of the requirements for hazard communication training as specified in 29 CFR 1910.1200.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.1200; 29 CFR 1910.1450

*Response* The majority of LBL staff have had basic hazard communication training. However LBL does not comply with the requirement specified in 29 CFR 1910.1200, for training on specific chemicals or classes of chemicals (e.g. flammables) to personnel who work with such substances. Such training programs will be developed for laboratory and shop areas. Some training will be given by EH&S while other training will be given by line management. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.4-1 and other concerns, and is described under TC.1-1/T90. The specific task developed for TC.4 as an interim measure is summarized below. This task will proceed on its own schedule, but eventually will be incorporated into the overall LBL Training Program described in T2009.

*Related Concerns* IH.6-1/T90 MF-9 TC.1-1/T90 TC.1-4 TC.10 WS.6-1

*Tasks* T3020

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*Concern* **TC.5-1/T90 (COMPLETE)**

**Personnel performing radiological protection functions who are not assigned to EH&S are not provided continuing training necessary to perform their assigned job function.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* Because of the shortage of EH&S monitors, radiological facilities have been providing their own day-to-day monitoring. These personnel have not received the required training for radiation protection technicians. The radiological protection personnel training program should improve the skills to perform job functions. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.5-1/T90 and other concerns, and is described under TC.1-1/T90. The specific task developed for TC.5-1/T90 and other radiation-related concerns as an interim measure is summarized below. This task will proceed on its own schedule, but eventually will be incorporated into the overall LBL Training Program described in T2009.

*Related Concerns* MF-9 RP.3-8 TC.9-2

*Tasks* T3023 (Completed)

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*Concern* **TC.8-1**

**Lawrence Berkeley Laboratory has no formal program for certification of Nondestructive Examination Technicians.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* LBL has no quality control inspectors and one NDE technician. Because LBL has no formal program for certifying NDE technicians, the EH&S Division will evaluate QC/NDE needs and develop any necessary programs. Quality Control (QC) inspectors and non-destructive evaluation (NDE) technician and qualification programs should improve the knowledge and skills for their job functions. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.8-1 and other concerns, and is described under TC.1-1/T90. The specific task developed for TC.8-1 as an interim measure is summarized below. This task will proceed on its own schedule, but eventually will be incorporated into the overall LBL Training Program described in T2009.

*Related Concerns* MF-9 OS.2-2 QV.7 WS.4

*Tasks* T3019

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*Concern* **TC.9-1 (COMPLETE)**

**Training materials which illustrate unsafe work practices, without being identified as such, are in use at Lawrence Berkeley Laboratory.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* Radiological protection training should improve knowledge and skills. However, the EH&S training video "Radiation Safety at Accelerators" contains several scenes where workers are not following good safety practices. LBL staff have identified the problems and will now implement actions to correct the errors. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.9-1 and other concerns, and is described under TC.1-1/T90. The specific task developed for TC.9-1 and other radiation-related concerns as an interim measure is summarized below. This task will proceed on its own schedule, but eventually will be incorporated into the overall LBL Training Program described in T2009.

*Related Concerns* MF-9 TC.9-2

*Tasks* T3023 (Completed)

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*Concern* **TC.9-2**

**Lawrence Berkeley Laboratory radiation protection training does not communicate the contamination control requirements required by DOE 5480.11.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* The radioisotope training course did not address learning objectives, or provide hands on demonstrations. The instructor did not explain the requirement for an egress survey. Personnel working with radioisotopes were unaware of contamination limits. LBL will address this deficiency by improving the content of radiation training and assessing its effectiveness. The tasks involved in LBL's overall approach to training are summarized in the corrective action response to Finding MF-9. Task T2009 was developed to address that Finding as well as TC.9-1 and other concerns, and is described under TC.1-1/T90. The specific task developed for TC.9-2 and other concerns as interim measures are summarized below. These tasks will proceed on their own schedule, but eventually will be incorporated into the overall LBL Training Program described in T2009.

*Related Concerns* MF-9 TC.1-3 TC.5-1/T90 TC.9-1

*Tasks* T3023 (Completed)

T3015

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| *Concern* | **TC.10-1** |
| | **The San Francisco Operations Office has not formally established requirements or implemented a program for initial and continuing training for their onsite personnel.** |
| *Hazard/ Compliance Levels* | H3/C2 |
| *Category* | III |
| *Response* | The DOE Field Office, San Francisco has designed the Technical Competence Program which consists of a systematic approach to identify training needs through documented job/task analyses. The major tasks of a job are linked to requisite knowledge, skills, and abilities (KSAs). In turn, specific training which will equip the employee with the requisite KSAs are identified. This highly tailored approach to linking training to KSAs serves to specifically address technical requirements (including ES&H) of a position within an organizational component. |
| *Tasks* | T4070 |

*Concern* **AX.3-1**

**Solid hazardous waste control requirements contained in Laboratory safety documents are not implemented. (Also see Concern OA.1-4.)**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Solid hazardous wastes (including radioactive wastes) should be controlled to minimize the volume generated and handled in a manner that provides safe storage and transportation. The inventory requirements of solid hazardous wastes required by the LBL "Research Medicine and Radiation Biophysics Division Safety Document," dated November 26, 1990, were not implemented. A review of this incident revealed a misunderstanding of existing LBL policy in that RMRB set requirements above and beyond Laboratory policy governing waste management. This concern will be addressed through the Facility Notebook system, which will generally replace or incorporate various safety documents. All facility supervisors of facilities generating hazardous wastes will include their site-specific waste handling procedures in Section 6, Materials and Waste Management, of their Facility Notebooks. The new Laboratory Self-Assessment Program will ensure that these Facility Notebook procedures are correct and are being implemented.

*Related Concerns* OA.1-4 WM/BMPF-3 WM/CF-1 WM/CF-10 WM/CF-12 WM/CF-2

*Tasks* T2022 T2058

*Concern* **AX.5-1 (COMPLETE)**

**Laboratory mechanical safety expertise is not applied to nonexperimental equipment such as ventilation systems. (Also see Concerns TS.6-1 and TS.6-2, Technical Safety Appraisal of the Lawrence Berkeley Laboratory, DOE/EH-0096, 2/90.)**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Ventilation systems should reliably direct all airborne effluent from contaminated zones or potentially contaminated zones through cleanup systems to ensure that the effluent reaching the environment is below the maximum permissible concentration and is ALARA. To ensure that this performance objective is met, these systems and their designs should be reviewed by experts. The Tiger Team appraisal cited the following findings to support their concern that this expertise is not applied:

- High-efficiency particulate-air-filter testing and ventilation sampling issues have not been assessed by the Mechanical Safety Subcommittee.
- The Mechanical Safety Subcommittee (MSS) responsibilities as summarized in the Health and Safety Manual (PUB-3000) are restricted to reviews of research-related equipment, so plant equipment requiring mechanical expertise is not addressed by the MSS. The Electrical Safety Subcommittee, in contrast, has Laboratory-wide responsibilities.

These findings imply that the proper expertise should reside in the MSS. Because that committee is structured to review research apparatus, it does not, in general, contain the right expertise among its membership to review ventilation systems. On the other hand, the Plant Engineering Department is staffed with HVAC experts and in fact has strengthened its design review capability and procedures to provide this type of expertise. This concern is addressed though new design review and inspection procedures in the Plant Engineering Department. In special cases, the Plant Engineering Department may call on the expertise within the MSS to assist with design reviews. This is not outside the existing charter of the MSS. In addition the MSS charter will be revised to include facilities expertise for ventilation and other support systems. The proper expertise will be added to the MSS.

*Related Concerns* TS.6-1 TS.6-2/790

*Tasks* T2139 (Completed) T9144 (Completed) T9199 (Completed)

*Concern* **EP.1-1**

**The Lawrence Berkeley Laboratory has not developed an effective management and response organization that can detect, react to, and mitigate protracted emergency situations as required by Draft DOE 5500.3A.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* Draft DOE 5500.3A

*Response* The emergency preparedness organization and administration should ensure effective planning for, and implementation and control of, site emergency response. LBL has a 24-hour, 7 day a week Emergency Response structure in place, but the command and control structure and management and support staff responsibilities for a major or protracted incident are poorly defined in the Master Emergency Plan and supporting implementing procedures. A job task analysis for each member of the Emergency Management Organization, support staff, and specialized support teams has not been developed nor their emergency responsibilities defined. The existing on-scene control is managed by the affected Building Manager during normal work hours; during off hours this responsibility falls to Protective Services, fire protection personnel, and shift Construction and Maintenance employee. This 24-hour on-scene command structure is not clearly addressed on the Master Emergency Plan. The Emergency Management Organization must be strengthened, roles and responsibilities of each member clearly defined, and the Master Emergency Plan updated to reflect these changes. To ensure an effective emergency response organization, the Master Emergency Plan will be revised to be fully responsive to Draft DOE 5500.3A. In addition the LBL Building Manager roles and responsibilities will be better defined (the Building Manager system is the subject of MF-7; completion of the corrective action plan tasks for that concern fully addresses the Building Manager concern raised here).

*Related Concerns* EP.1-2 EP.1-3 EP.1-4 EP.2-3 EP.3-1/T90 EP.6-1 EP.6-2 EP.7-1 MF-7

*Tasks* T8637 (Completed)

T4084 T4086 T4094 T8635 T8636

*Concern* **EP.1-2**

**The Building Manager Program has not been formalized through written appointments for the Deputy and Assistant Building Managers in accordance with DOE 5500.1A.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5500.1A

*Response* At present Building Managers are the only members of the Building Emergency Teams formally appointed. Deputies and Assistant Managers have not been formally appointed. As of 12/90, mandatory training consisted of Building Managers' Orientation. Since then, First Aid, CPR, Use of Fire Extinguishers and Hoses, Hazardous Communication for Supervisors and Facility Specific training have been added to the requirements. At present, Earthquake Response and Evacuation Drills are conducted in all buildings annually, however Multi-Casualty and Hazmat Drills and Exercises to test Building Emergency Team capability have been conducted in only two or three buildings each year. The Emergency Command Center Team had not been exercised since the 1989 TSA. Compliance with DOE Order 5500.1A and other related DOE 5500 series orders requires formal appointment of all Building Emergency Team Members, hazard or facility specific training of team members and annual exercises to test the capability of all Emergency Response Teams. To ensure that full compliance is obtained a drill/exercise program will be developed and all members of the building emergency teams will be formally appointed and trained as required.

*Related Concerns* EP.1-1 EP.3-2 EP.4-1/T90 EP.4-2 EP.4-3 MF-7

*Tasks* T4089 (Completed) T8637 (Completed)

T4084 T4086 T4094 T8635 T8636

*Concern* **EP.1-3**

**Lawrence Berkeley Laboratory has not developed an independent, in-house emergency preparedness appraisal capability and action tracking system to ensure compliance with DOE 5500.1A and Draft DOE 5500.3A.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5500.1A; Draft DOE 5500.3A

*Response* The emergency preparedness program should be organized and administrated to ensure effective implementation. LBL has not developed an in-house, totally independent, emergency preparedness appraisal for evaluation of readiness capabilities, training programs, and on-site and off-site response programs. In addition a timely and effective action plan to track, correct, and ensure adequate resolution of identified deficiencies has not been developed. The Safety Review Committee has instituted an in-house independent review process for appraising Division Safety Programs and Lab-wide Programs such as Emergency Preparedness. This program would include the appraisal of the parent Environmental Protection, Health and Safety Division. In addition, the revised MEP (Concern EP.1-1) will include the provision for outside consultant reviews of the EP program and exercises. Finally, the IRAD will have an independent assurance role as part of the new Laboratory Self-Assessment Program. The deficiency tracking program being set up to track the Tiger Team CAP and ongoing self-assessment should ensure timely action to correct deficiencies and ensure compliance with applicable DOE orders.

*Related Concerns* EP.1-1 MF-13 SA-1

*Tasks* T2054 (Completed) T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2058 T4084 T9168 T9169

*Concern* **EP.1-4**

**The existing Lawrence Berkeley Laboratory Emergency Preparedness Program has not been established in accordance with DOE 5500.1A and Draft DOE 5500.3A.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5500.1A; Draft DOE 5500.3A

*Response* Decision making and protective action procedures have not been provided for emergency management to cover all operational emergencies and emergencies involving both security and operations as well as shifting from one type of emergency to another. Responsibility and authority of each member of the Emergency Response Organization have not been defined in the LBL MEP and EPIPs. The existing Emergency Preparedness Office does not have adequate manpower or resources to implement its assigned mission. The LBL MEP is being completely revised to ensure compliance with all applicable DOE 5500 series orders. This revision is addressed by the CAP for Concern EP.1-1 and includes emergency management and roles and responsibilities of the organization to respond to all type of emergency situations. Concern EP.2-2 deals with EPIPs and their revision to be in compliance. Finally, manpower requirements are being addressed by Management Finding, MF-2. The specific requirements for the Emergency Preparedness Office will be developed in this corrective action plan and imported into the overall ES&H staffing plan.

*Related Concerns* EP.1-1 EP.2-2 MF-2

*Tasks* T4135 (Completed)

T4081 T4084

*Concern* **EP.2-1**

**The existing Lawrence Berkeley Laboratory Master Emergency Plan is not in compliance with the DOE 5500 series, the DOE 5480 series and DOE 5000.3A in many areas.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* The emergency plan, the emergency plan implementing procedures, and their supporting documentation should provide for effective response to operational emergencies. The Master Emergency Plan and implementing procedures do not consider unusual initiating events and multiple emergencies. Nor does it define in detail the Emergency Response Organization or Emergency Action Levels for specific incident conditions. It does not address protective actions for personnel nor has it been formally coordinated with state and local emergency response agencies, and it does not define emergency services expected of off-site agencies with which LBL has Agreements or Memoranda of Understanding. Our maximum credible emergency is defined as an earthquake, and state and local response agencies have told us that LBL will be on its own for 48-72 hours following a quake. Our planning premise has been based on this fact and explains why we have not formally coordinated our plans with these agencies. However, two or three days is a short time following a severe quake, and outside agencies could provide valuable assistance downstream in the restoration and recovery period. Therefore, LBL will coordinate planning with outside response agencies and include unusual initiating events, multiple emergencies, specifications of Emergency Action Levels and the definition of emergency services expected of mutual aid organizations in the Master Emergency Plan. DOE/SF does not consider LBL a "nuclear" facility; therefore, LBL should not be required to comply with DOE Order 5500.3 for Reactor and Non-Reactor Nuclear Facilities. However, LBL does feel that the same spirit and intent is included in Draft DOE Order 5500.3A, "Emergency Planning for Operational Emergencies" with which LBL does intend to comply. Therefore, LBL has changed references to DOE Order 5500.3 to read "DOE DRAFT Order 5500.3A." The LBL Master Emergency Plan is being revised to be responsive to all the deficiencies of this concern. The task involved in revising the MEP is detailed in the CAP for Concern EP.1-1. EP implementing procedures for the revised plan are developed in the CAP for Concern EP.2-2.

*Related Concerns* EP.1-1 EP.2-2

*Tasks* T4081 T4084

*Concern* **EP.2-2**

**The Lawrence Berkeley Laboratory emergency plan implementing procedures are not in compliance with the DOE 5500 series and do not address individual emergency position responsibilities in sufficient detail. (Also see Concern OA.1-1, Technical Safety Appraisal of the Lawrence Berkeley Laboratory (DOE/EH-0096, 2/90).**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5500.3A

*Response* The existing emergency plan implementing procedures (EPIPs) do not address the following activities in sufficient details: emergency assessment, emergency action levels, classification of emergency, special instructions for field monitoring and sampling teams, notification requirements, protective actions for on-site and off-site personnel, safe shutdown of equipment, dose assessment functions, personnel evacuation and assembly, and recovery and re-entry procedures. EPIPs do not specify or assign individual responsibilities to ensure specific actions assigned to individual members of the Emergency Response Organization. EPIPs did not have a cover sheet attached or space provided for the developer/drafter, reviewer, and senior management's approval signature. These EPIPs had not been reviewed annually by the Emergency Preparedness Subcommittee and formal documentation established. Emergency preparedness administration procedures had not been developed to provide special instructions on conducting surveillance of emergency preparedness resources, testing of equipment, and the method of follow-up action to resolve emergency preparedness action items or cited program deficiencies. Checklists had not been developed to support all EPIPs and to ensure all appropriate emergency response actions are taken by the emergency management team and support staff. There is no formalized method established to include feedback from evaluations, appraisals, and simulated drills and exercises to make improvements and revisions MEP and EPIPs. To ensure effective response to operational emergencies, a full set of detailed EPIPs will be developed to support the revised MEP. A formal method of feedback from appraisals, drills and exercises to make improvements in the MEP and EPIPs is included in the drill, exercise task for the CAP of Concern EP.1-2 (Task T4089).

*Related Concerns* EP.1-2 EP.1-4 EP.6-1 EP.6-2 EP.7-1 OA.1-1/T90

*Tasks* T4089 (Completed)

T4081

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| *Concern* | **EP.2-3** |
| | **Lawrence Berkeley Laboratory had not developed a job task analysis study of their Emergency Response Organization to identify assigned emergency responsibilities as directed in Draft DOE 5500.3A.** |
| *Hazard/ Compliance Levels* | H2/C2 |
| *Category* | III |
| *Compliance Protocol* | Draft DOE 5500.3A |
| *Response* | LBL has not developed an emergency preparedness job task analysis study to identify the responsibilities of the Emergency Response Organization (i.e., emergency management, support staff, specialized field teams, and radiation assistance teams). This concern is fully addressed by Task 4086 in the CAP for Concern EP.1-1. |
| *Related Concerns* | EP.1-1 |
| *Tasks* | T4086 |

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| *Concern* | **EP.2-4 (COMPLETE)** |
| | **The Lawrence Berkeley Laboratory Public Affairs Office did not comply with the provisions of DOE 5500.4A with respect to format, content, annual orientations and reporting.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5500.4A |
| *Response* | The LBL Emergency Public Information Plan is not in compliance with DOE 5500.4A. It lacked appropriate reporting criteria and did not contain necessary directions. LBL Public Affairs had not developed preformatted emergency news releases for dissemination to the local news media during emergencies. To ensure compliance with DOE 5500.4A, the EP Public Information Plan will be revised. |
| *Tasks* | T9105 (Completed) |

*Concern* **EP.2-5**

**The San Francisco Operations Office has not developed emergency response plans and emergency plan implementing procedures in accordance with DOE 5500.1A, and Draft DOE 5500.3A.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Response* The findings and concern are an accurate description of current situation. SF is in the process of correcting this deficiency and has already started remedial action. Current plans are outdated, not in compliance, or nonexistent. SF is currently delineating areas of responsibility for Emergency Preparedness. Currently plans call for Energy programs to take responsibility for all sites except LLNL and the SF offices. Plans are already being drafted with this delineation in mind.

*Tasks* T1076

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*Concern* **EP.3-1/T90**

**The Building Manager is a key component in the emergency response plan and may assume those responsibilities without adequate training, such as required for fire extinguishers by 29 CFR 1910.157, or, in some cases, management support.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 1324.2; Draft DOE 5500.3A

*Response* Emergency response training should develop and maintain the knowledge and skills for emergency personnel to respond to and control an emergency effectively. The 1989 TSA addressed inadequacies in the training for Building Managers. This concern extends to the full emergency response team. LBL has not developed a written emergency preparedness training program description as required by DOE Order 5500.3. Initial and annual emergency response training has not been conducted for each member of the emergency management organization, support staff, emergency response teams, and radiation assistance team as required by the DOE 5500 series. Emergency preparedness lesson plans have not been developed. LBL has not developed an annual training schedule for all members of the LBL Emergency Response Organization. LBL has not developed emergency response training documents in accordance with DOE Order 1324.2, Records Disposition. To ensure compliance with the applicable DOE Orders, LBL must develop and implement a complete written emergency preparedness training program description, associated lesson plans and training documentation, including initial and annual retraining, for all members of the Emergency Response Organization.

*Related Concerns* EP.3-2 MF-7

*Tasks* T4094

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| *Concern* | **EP.3-2** |
| | **The Lawrence Berkeley Laboratory emergency planning and training program is not properly documented, evaluated, upgraded, and maintained current as required by Draft DOE 5500.3A.** |
| *Hazard/ Compliance Levels* | H3/C2 |
| *Category* | III |
| *Compliance Protocol* | Draft DOE 5500.3A |
| *Response* | LBL has not conducted regular drills to test the capabilities and training effectiveness of all support staff including specialized teams, off-site response teams, and assessment and damage repair teams. Formal evaluations are not done to make training program improvements. No formal training documents show content of specialized training provided to off-site medical treatment facilities. DOE/SF liaison personnel had not been trained to participate in emergencies prior to the Tiger Team Appraisal. These concerns are fully addressed by Task T4089, Develop an EP Drill/Exercise Program (Concern EP.1-2) and Task T4094, Develop and Document EP Training Program (Concern EP.3-1/T90). |
| *Related Concerns* | EP.1-2 EP.3-1/T90 |
| *Tasks* | T4089 (Completed) |
| | T4094 |

*Concern* **EP.4-1/T90 (COMPLETE)**

**The LBL emergency exercise program does not effectively test all major aspects of the emergency preparedness program or fully explore means for making significant improvements as required by DOE N5500.3.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5500.3; DOE 5500.9; Draft DOE 5500.3A

*Response* Emergency preparedness programs should include provisions for simulated emergency drills and exercises to develop and maintain the knowledge and skills for emergency personnel to respond to and control an emergency effectively. An exercise scenario development committee had not been organized. LBL had not developed an emergency preparedness administrative procedure to address scenario development, format, annual training requirements for controllers and evaluators, development of exercise objectives, and post-exercise activities. LBL had not held frequent drills for small organizational units (i.e., facility maintenance/repairs, radiological, and hazardous materials sampling and monitoring teams) to train personnel and to perfect procedures and communications. These drills should be of sufficient scope and frequency to ensure adequate response capability in all areas applicable to LBL operations. Emergency drills had not been held to simulate emergency situations that could affect the on-site organization and off-site agencies. Documentation that was received indicated that LBL did not perform timely and effective action to resolve all cited improvements and deficiencies following exercises, drills, and appraisals. Quarterly communication drills are not being conducted. LBL drills and exercises had not been conducted in accordance with a master plan schedule such that over a period of time all the procedures, personnel, facilities, and on-site and off-site response groups are involved and tested per the criteria of DOE Order 5500.3 and Draft DOE Order 5500.3A and DOE Order 5500.9. These concerns are resolved by the development of the EP Drill/Exercise Program in the corrective action plan for Concern EP.1-2.

*Related Concerns* EP.1-2 EP.4-2 EP.4-3

*Tasks* T4089 (Completed)

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| *Concern* | **EP.4-2 (COMPLETE)** |
| | **The Lawrence Berkeley Laboratory exercise/drill program is not in compliance with DOE 5500.1A, DOE 5500.3 and Draft DOE 5500.3A.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5500.1A; DOE 5500.3; DOE 5500.3A |
| *Response* | See response to Concern EP.4-1/T90. The drill/exercise program developed for Concern EP.1-2 fully addresses this concern. |
| *Related Concerns* | EP.1-2 EP.4-1/T90 EP.4-3 |
| *Tasks* | T4089 (Completed) |

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| *Concern* | **EP.4-3 (COMPLETE)** |
| | **The Lawrence Berkeley Laboratory is not in compliance with DOE 5500.IA, DOE 5500.2A, Draft DOE 5500.3A and industry good practices in its planning development, conduct, and critique of emergency exercises.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5500.1A; DOE 5500.2A; Draft DOE 5500.3A |
| *Response* | LBL has not had a drill design and critique team and had little experience using controllers and a controller communications network prior to the Tiger Team Exercise. A critique team was used effectively after the Tiger Team Exercise and Emergency Preparedness Coordinator understands how design and controller teams should be used. Future drills will be planned by a design team, controlled by a Controller Team and critiqued by a Critique Team made up of the Group Leaders of the responding groups and the Umpires. General drill ground rules must be publicized to all employees and player information must be communicated to all players. The drill/exercise program developed for Concern EP.1-2 fully addresses this concern. |
| *Related Concerns* | EP.1-2 EP.4-1/T90 EP.4-2 |
| *Tasks* | T4089 (Completed) |

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| *Concern* | **EP.5-1/T90** |
| | **The PA system used to provide emergency information is not tested periodically as required in DOE N5500.3.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Response* | Emergency facilities, equipment, and resources should adequately support site emergency operations. Previous drills held at LBL have indicated that the PA system announcements cannot be clearly heard in some areas. PA coverage outdoors is restricted because of the close proximity of residential areas to LBL. Difficulties with the PA system still remain after approximately one and one-half years. To ensure that the PA system can adequately support site emergency operations an extensive program is planned to review the system, assess its reliability, and correct the deficiencies. |
| *Related Concerns* | EP.6-2 |
| *Tasks* | T9104 (Completed) |
| | T9119 T9122 |

*Concern* **EP.5-2**

**The emergency response facilities at Lawrence Berkeley Laboratory do not contain sufficient resources, equipment and materials and are not in compliance with DOE 5500.1A, and DOE 5500.2A.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* Adequate work space has not been provided in the LBL Emergency Operations Center (EOC). The EOC did not have sufficient documentation available to assist EOC support staff in performing their emergency response function. LBL has not developed surveillance procedure to ensure that all emergency responses facilities, communication systems, and resources are inventoried and tested on a periodic basis per DOE Order 5500.3 and Draft DOE Order 5500.3A. A system has not been developed which could disseminate emergency data, chronological listing of events, off-site notification, and emergency status/classifications to all emergency facilities (i.e. security dispatcher, fire dispatch, maintenance, medical facility, health physics, etc.). LBL has not established emergency control centers (ECC) for their emergency response teams (i.e., radiation/hazardous materials monitoring, medical treatment facility, etc.). These ECCs would be the point-of-contact to dispatch emergency teams and for the EOC support staff to provide directions and instructions to these emergency response teams. LBL existing EOC is being used on a periodical basis as a training center and conference room and is not a dedicated emergency response facility. LBL does not have word processing capability available in the EOC. All messages transmitted by facsimile machine were handwritten. LBL Public Affairs does not have a media briefing center location available or identified as directed in "SAN/LBL Emergency Operating Plan" and DOE Order 5500.4. EOC status boards do not address all information needed to be presented to EOC Incident Commander and support staff. A building addition will provide more ECC Preparedness Office space. A portable word processing PC was available but was not used for some messages. Plans for media briefings are not included in the MEP but LBL would use the Building 50 or Building 66 auditoriums for this purpose. This will be added to the MEP. The use of the existing and new space for the ECC will be reviewed and optimum use will be implemented. A Response Team Dispatch Center will be established.

*Tasks* T4137 (Completed) T4139 (Completed)

T4084 T9172

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| *Concern* | **EP.6-1** |
| | **Lawrence Berkeley Laboratory did not develop emergency action levels and their emergency classification is not in accordance with the definitions in DOE 5500.2A.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5500.2A |
| *Response* | Emergency assessment and notification procedures should enable the emergency response organization to correctly classify emergencies, assess the consequences, notify emergency response personnel, and recommend appropriate actions. LBL had not developed the emergency actions levels (EALS) as required by DOE Order 5500.3 and DOE Order 5500.2A. Classification of emergency events and definitions of emergency classification is not consistent with DOE Order 5500.2A. Terminology and emergency titles are not in compliance with the DOE 5500 series orders as depicted in the Master Emergency Plan (MEP) and emergency plan implementing procedures (EPIPS). The emergency classification system and EALs are not coordinated with the state or local emergency management agencies. The revised MEP (Concern EP.1-1) and supporting EPIPS (Concern EP.2-2) fully address all these concerns. |
| *Related Concerns* | EP.1-1 EP.2-2 |
| *Tasks* | T4081 T4084 |

*Concern* **EP.6-2**

**Lawrence Berkeley Laboratory had not revised the Master Emergency Plan and did not develop emergency plan implementing procedures to address notifications and reporting criteria during emergency situations in accordance with DOE 5500.2A and DOE 5000.3A.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5500.2A; Draft DOE 5500.3A

*Response* Employee notification procedures utilizing the Public Address System are unreliable because: (1) the system does not cover all areas of all buildings and (2) the system does not cover outside areas because of the proximity to residential neighborhoods. System coverage and reliability are addressed by Concern EP.5-1. Building Managers' radios are Motorola units proven to be reliable; however the Bldg. 70A unit did fail during the exercise. Since reliability has not been a problem, this is considered an isolated event. Alternate methods of communications such as telephone or runner must be used in the event of such an unexpected failure. Reentry and Recovery EPIPS and checklists had not been developed; however, a subcommittee is presently working on this with guidance from a Consultant. Protective action guidance and notification and reporting EPIPS have not been developed for the ECC staff. The MEP will be completely revised to be fully responsive to the applicable DOE 5500 series orders; address notification and reporting criteria during emergencies are included in the revision plans (see Concern EP.1-1). The supporting EPIPS will include protective action guidance and notification and reporting (see Concern EP.2-2).

*Related Concerns* EP.1-1 EP.2-2 EP.5-1

*Tasks* T4081 T4084 T9119 T9122

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| *Concern* | **EP.7-1** |
| | **Lawrence Berkeley Laboratory Personnel Protection Program does not provide guidance in making protective action recommendations as required in DOE 5500.1A, DOE 5480.1A, and DOE 5480.10.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.10; DOE 5480.1A; DOE 5500.1A |
| *Response* | LBL does not have exposure EPIPS addressing exposure limits for life saving, decontamination, emergency repairs and protection of vital equipment, nor does it address management authorization to exceed those limits during emergencies. Site evacuation due to hazardous spill has not been formally addressed, as informal facility reviews indicate there is no potential for spills requiring site evacuation. Building managers do not have access to radiological monitoring instruments because most Managers are not trained in their use. This has been re-evaluated and Managers with potential hazards requiring such monitoring equipment will have access to same. Letters of Agreement have not been included in the MEP but will be added. The revised MEP (Concern EP.1-1) and the supporting EPIPS (Concern EP.2-2) address all of these discrepancies except the radiological exposure issues and the site evacuation hazards. Two specific tasks address those issues here. |
| *Related Concerns* | EP.1-1 EP.2-2 |
| *Tasks* | T2183 (Completed) |
| | T2185 T4081 T4084 |

*Concern* **TS.2-1/T90**

**A formal policy governing the format, content, and use of procedures has not been implemented.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5480.1B CHG. 1; PUB-3000, Appendix B; SF MD 5481.1

*Response* Safety analysis reports and Operational Safety Procedures are not available for all facilities or have not been documented adequately. Some procedures and documents are available; however, their use is sporadic and inconsistent. The format and content of procedures on the same subject is not always consistent. Directions or general guidance for the use of procedures has not been implemented. LBL's approach for solving the balance of this 1989 TSA Concern, i.e., informality of conduct of operations, will be the initiative of three Notebooks: the "Facility Notebook," the "Project Notebook," and the "Function Notebook" as required by the new institutional QA plan. These Notebooks are maintained by the facility supervisor, project leader or person responsible for a given function in the laboratory. They contain both a uniform QA/conduct of operations plan as well as implementation instructions. The instructions in the Notebooks are controlled. The consistent application and uniformity of the information in these notebooks will be maintained and assured through the Laboratory self-assessment plan.

*Related Concerns* RP.3-1/T90 SR.2-1/T90

*Tasks* T9166 (Completed)

T2021 T2022 T2023 T2024 T9168

*Concern* **TS.2-2/T90**

**Safety analyses are not being performed and maintained for all facilities/operations in accordance with DOE 5481.1B Chg. 1, SAN MMMDD 5481.1, and LBL H&SM PUB 3000.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5481.17; SF MD 5481.1; PUB-3000

*Response* Technical support procedures and documents should provide appropriate direction, allow for adequate record generation for important activities, and should be properly and effectively used to support safe operation of all facilities at LBL. A complete and current safety analysis for each facility/operation is not available for reference by technical support groups. Availability, format, and content of documents is inconsistent and sporadic. This concern has been addressed by TSA field verification with comments that "Safety Analysis Documents have been issued for two operational facilities. LBL will begin a site-wide review and update of all facilities in FY 1992. This will be a multi-year effort which will produce a safety analysis for activities within each building on the Laboratory site, as well as buildings 1 and 3 on the UC Berkeley campus, and all off-site leased space. LBL will implement SARs for all new construction and research projects. This action plan will put into place procedures and documents that will provide the direction and records needed to support safe operation of LBL facilities. In addition the Laboratory self-assessment plan (discussed in the CAP for Concern TS.2-1/T90) will promote on-going support for safe operations of all LBL facilities.

*Related Concerns* RP.3-1/T90 SR.2-1/T90

*Tasks* T9197

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*Concern* **TS.2-3/T90 (COMPLETE)**

**A document control system does not exist at LBL to ensure that the current revisions of documents and the correct documents are provided to the appropriate LBL staff members.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* This concern transferred to OA.7-1 per recommendation by the Tiger Team.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **TS.2-4**

**Safety Analysis Documents at Lawrence Berkeley Laboratory do not completely cover the safety information required by SAN MD 5481.1A and DOE 5481.1.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5481.1; SF MD 5481.1A

*Response* Technical support procedures and documents should provide appropriate direction, allow for adequate record generation and maintenance for important activities, and should be properly and effectively used to support safe operations of all facilities on the site. An Operational Safety Requirement (OSR) section is to be included as Section 5 of published SADs as specified in SF MD 5481.1A, Chapter II. The requirements that establish and define limits of operation for the facility and its operation are required to be listed in OSRs by SF MD 5481.1A Chapter II. This normally specifies safety equipment that has to be provided, how frequently it has to be tested, limiting conditions of operation (LCOs), and actions to be taken if LCOs are not met. These parameters are not completely covered in the existing SADs. Existing SADs will be revised to contain this information. Implementation of the Laboratory Self-assessment plan (See TS.2-1/T90) will ensure that future SADs are in full compliance with SF MD 5481.1A.

*Related Concerns* TS.2-2/T90

*Tasks* T9197

*Concern* **TS.2-5 (COMPLETE)**

**Operational Safety Procedures are not being kept current.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5481.1B; SF MD 5481.1A

*Response* Technical support procedures and documents should provide appropriate direction, allow for adequate record generation for important activities, and should be properly and effectively used to support safe operation of all facilities at LBL. Operational Safety Procedures (OSPs) as required by PUB-3000 are not adequately controlled, are out of date, and deficient in content. The absence of control results in misinformation and can be a source of disrespect for an important safety information system. The Laboratory has established a policy for review and revision of OSPs in its recent update of the Health and Safety Manual, PUB 3000. This action plan will improve OSP control, review, and update, and will provide for adequate record generation and maintenance for important activities. The Laboratory self-assessment plan (See TS.2-1/T90) will assure that the policy is being consistently followed and that all OSPs are maintained current.

*Related Concerns* OA.7-1/T90 TS.2-3/T90 TS.2-6

*Tasks* T2133 (Completed)

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*Concern* **TS.2-6**

**Hazard analyses for laboratory facilities should be reviewed for consistency with the requirements of DOE 5481.1B and SAN MD 5481.1A.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5481.1B; SF MD 5481.1A

*Response* Technical support procedures and documents should provide appropriate direction, allow for adequate record generation for important activities, and should be properly and effectively used to support safety operation of all facilities at LBL. All facilities at LBL are rated as as "low hazard facilities." The hazards associated with non-accelerator operations appear to have hazard levels that would result in a "moderate" rating defined in DOE 5481.1B and SF MD 5481.1A. A safety analysis conducted in 1986 determined at that time that non-accelerator operations were "low-risk" by DOE order standards. Inasmuch as new facilities have come to the Laboratory since that time the following action plan will determine the level of hazard as defined in DOE 5481.1B and SF MD 5481.1A, and will culminate in support of safe operation of facilities at LBL.

*Related Concerns* TS.2-3/T90

*Tasks* T2137

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| *Concern* | **TS.3-1/T90** |
| | **The control and documentation of design reviews of new facilities, facility modifications and the retention of the associated documents is not being accomplished in accordance with DOE 6430 and generally accepted engineering practices.** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 6430.1A |
| *Response* | Technical support services required by each facility on the site to execute modifications should be carried out in accordance with sound engineering principles which should assure proper design, review, control, implementation, and documentation in a timely manner. Quality assurance, safety analysis and maintainability review must be conducted and documented for new facilities and facility modification work. This includes the retention of project calculations and of design review documents in accordance with DOE orders. Mechanical Engineering has developed a Department Information Manual and Plant Engineering has developed a Design Management Procedures Manual. As a result of this action plan, these procedures will be expanded to include all facility design groups and will be made consistent in assuring that these reviews are taking place and that critical project documents are retained in each organization's central project record retention. |
| *Related Concerns* | MA.7-1/T90 |
| *Tasks* | T2138 (Completed) T2139 (Completed) |
| | T2140 T8707 |

*Concern* **TS.3-2**

**Some modification work that is important to safety is not controlled.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 4330.xx; DOE 5480.19; DOE 5700.6; DOE 6430.1A; NQA-1

*Response* Technical support services required by each facility on the site to execute modifications should be carried out in accordance with sound engineering principles which should assure proper design, review, control, implementation, and documentation in a timely manner. LBL public address system wiring has been changed without authorization, and the potential exists for unauthorized modifications of other critical systems if control of modifications is not effective. A policy will be established for controlling modification work on institutional safety related systems. The implemented Laboratory self-assessment plan will ensure compliance with the policy.

*Related Concerns* MA.1-2 MA.8-2

*Tasks* T8694

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*Concern* **TS.4-1/T90**

**The designation of equipment as significant to safety and program continuity is not adequate to permit the technical support activities to focus on individual pieces of equipment as opposed to classes of equipment.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* Effective equipment performance testing and monitoring should be performed by technical support groups to assure that equipment and system performance is within established safety parameters and limits. A formal program for equipment performance testing, monitoring, and trending is not in place for all systems and equipment warranting such, thus reducing equipment effectiveness. No unique identifiers mark equipment in any facility as being critical in mitigation of potentially hazardous situations. Equipment designation as significant to safety has begun. A designation code for this equipment has been placed in the computer data base. About half of the equipment has been addressed; completion is to be this fiscal year. Remaining work is to provide policy direction as to how to differentiate the maintenance requirements for this equipment versus normal equipment. Also a system must be put into place to identify subsequently installed equipment and ensure that it becomes part of the system.

*Tasks* T2143 T2144 T2146 T9050

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*Concern* **TS.4-2/T90**

**The level of testing afforded equipment considered important to safety or program continuity is not being adequately controlled in accordance with DOE 5480.7 and DOE N5500.3**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5840.7; DOE N5500.3

*Response* Effective equipment performance testing and monitoring should be performed by technical support groups to assure that equipment and system performance is within established safety parameters and limits. Neither line management nor appropriate safety review committees have given formal notification or made formal reviews of changes in frequency of tests of important safety-related equipment. This concern relates primarily to the testing of fume hoods, and is a subset of equipment identified in the CAP to Concern TS.4-1/T90. The corrective action for TS.4-1/T90 plus the Laboratory self-assessment plan (see Concern TS.2-1/T90) completely address this concern.

*Related Concerns* TS.4-3 TS.6-1 TS.6-2/T90

*Tasks* T2058 T2143 T2144 T2146 T9050

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*Concern* **TS.4-3**

**Safety-related equipment has been tested without proper procedures by personnel whose qualifications to perform the tests have not been documented and resultant data have not been reviewed for acceptability by supervision.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 4330.xx; DOE 5480.19; DOE 5480.7; DOE 5500.3; DOE 5700.6; NQA-1

*Response* Effective equipment performance testing and monitoring should be performed by technical support groups to assure that equipment and system performance is within established safety parameters and limits. Although recognized in Section QA.7-1 and TS.4-1 of the 1990 LBL Self-Assessment, neither an action plan nor schedule has been developed. There are no lists of personnel who are qualified to perform tests and monitoring on LBL safety equipment and systems. The action plan for TSA-90 concern TS.4-2 is narrow in focus and has yet to be effective in bringing LBL into compliance with DOE 5480.7 and DOE N500.3. These concerns have now been fully addressed by the CAP for Concern TS.4-1/T90.

*Related Concerns* EP.5-1/T90 FP.7-8/T90

*Tasks* T2143 T2144 T2146 T9050

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*Concern* **TS.6-1/T90 (COMPLETE)**

**On line exhaust stack monitors have not been designed in accordance with generally accepted engineering standards.**

*Hazard/ Compliance Levels* H1/C2

*Category* III

*Compliance Protocol* ANSI N13.10-1974

*Response* The on-line exhaust stack filters at Building 55 have been tagged out and are not in use as the research program requiring this exhaust system has stopped operation and is not expected to restart. Should a programmatic need for the filter system reappear, appropriate stack monitors that are designed in accordance with generally accepted engineering standards, per ANSI N13.10-1974, will be installed and calibrated to meet the standards. The on-line exhaust stack filter monitor for the Building 75 National Tritium Labeling Facility is being addressed in Concern RP.3-1. Completion of Task T4025 will close out this TSA Concern.

*Related Concerns* RP.3-1

*Tasks* T4025 (Completed)

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*Concern* **TS.6-2/T90**

**HEPA filters are not regularly tested in accordance with ANSI N510-1980.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* ANSI N510

*Response* Ventilation systems should reliably direct all airborn effluents from contaminated zones or potentially contaminated zones through cleanup systems to ensure that the effluent reaching the environment is below established limits and meets ALARA program objectives. HEPA filters delivered to LBL are tested prior to shipment by the manufacturer, but have not been tested upon receipt at LBL or upon installation, as ANSI N510-1980 requires. An action plan was developed for this concern that involves the acquisition and appraisal of suitable testing media for the filters, but does not enumerate the actions to be taken following success in establishing the proper testing environment. This new action plan extends LBL's obligation such that it will be in compliance with ANSI N510-1980 and will ensure that the effluent reaching the environment is below established limits and meets ALARA program objectives.

*Related Concerns* TS.4-3

*Tasks* T1110 (Completed) T9149 (Completed)

T5023 T9195

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*Concern* **PT.1-1/T90**

**The Quality Assurance Program is inadequate to assure that hazardous materials transportation and shipping activities are conducted safely as required by DOE 5480.3.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.3; DOE 5700.6B; NQA-1-1989

*Response* The Packaging and Transportation Program has not fully identified, evaluated, minimized, or controlled activities that may have adverse impacts on safety and health of both employees and the public or have potential for accidental loss and damage to government property. The overall concern focused on the inadequacy of the existing Quality Assurance Program (QAP) and the fact that it does not assure compliance with DOE 5480.3. A QAP implementation plan for hazardous materials transportation and shipping was promulgated in February 1990 in response to TSA-1990. This Plan does not meet current institutional guidance on Quality Assurance that would ensure compliance with DOE 5480.3. Additional specific findings from TSA-1990 were lack of documentation of the Motor Pool Wastewater System and the lack of a documented program to verify sub-contractor and vendor compliance with legal and contractual requirements. Documented monthly monitoring of the B76 wastewater treatment unit, development and implementation of a procedures notebook, and a new vendor compliance check will ensure remediation of the specifics in this concern. (See PT.1-3, 2-1, 4-1, 11-1, and 12-1.)

*Related Concerns* PT.4-1

*Tasks* T8797 (Completed) T9016 (Completed)

T2024

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*Concern* **PT.1-2/T90 (COMPLETE)**

**There is no documented program for identification of existing and potential hazards in transportation and packaging.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **PT.1-3**

**Management control over the packaging and transportation activities at Lawrence Berkeley Laboratory as required by DOE 5480.3 is lacking.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.3

*Response* LBL has no central organization, i.e., one responsible party, for packaging and transportation. There is no single procedure or safety manual that provides for consistent application of packaging and transportation of hazardous materials at LBL. These conditions interfere with the Laboratory's ability to provide effective implementation of DOE Order 5480.3 and the environmental, safety, and health aspects of packaging and transportation contained in DOE Orders 1540.1 and 1540.2. An organization that provides management control of packaging and transportation, consistent with DOE Order 5480.3, will be developed and implemented. A P&T Safety Manual will be written, and PUB-3000, the LBL Health and Safety Manual, will be updated, giving regular and casual P&T workers guidance on safety and environmentally sound procedures. A P&T subcommittee of the LBL Safety Review Committee will be appointed to review procedures and provide independent safety oversight of the P&T operations for handling hazardous materials. (See PT.1-1, 4-1, 6-1, 11-1, and 12-1.)

*Related Concerns* PT.11-1 PT.12-1 PT.4-1 PT.6-1

*Tasks* T5004 (Completed) T5005 (Completed) T5006 (Completed)

T9017

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*Concern* **PT.2-1 (COMPLETE)**

**The formal training program for packaging and transportation employees as required by DOE 5480.3 and 49 CFR is not complete.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 49 CFR; DOE 5480.3

*Response* The Laboratory's training program for packaging and transportation is not well documented or complete. This includes deficiencies in the areas of documentation of formal recertification, on-the-job training requirements and documentation, and the lack of a "lessons learned" program. These conditions compromise the Laboratory's ability to demonstrate that packaging and transportation employees are trained, qualified, and certified in hazardous materials as required by DOE 5480.3 and 49 CFR. A formal P&T training program that meets the requirements of DOE 5480.3 and 49 CFR will be developed, and the DOE Occurrence Reporting records will be utilized in a "lessons learned" program.

*Tasks* T5008 (Completed) T8684 (Completed)

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| *Concern* | **PT.3-1/T90 (COMPLETE)**<br><br>**LBL departmental policies, procedures and operating instructions for packaging and transportation safety are lacking in detail and are inadequate per DOE 5480.3.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Response* | The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed. |
| *Tasks* | T9164 (Completed) T9183 (Completed) |

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|---|---|
| *Concern* | **PT.4-1/T90**<br><br>**LBL does not have an effective internal management appraisal program for packaging and transportation activities.** |
| *Hazard/ Compliance Levels* | H2/C2 |
| *Category* | III |
| *Response* | LBL lacks an effective internal management appraisal program for packaging and transportation. Therefore, it is difficult to assure that safety and health requirements are effectively met. Internal Management appraisal of packaging and transportation activities will be advised by: (1) A subcommittee of the LBL Safety Review Committee will be established to provide review and guidance on packaging and transportation safety and health issues, and (2) The LBL self-assessment program will provide for independent oversight on packaging and transportation operations. (See also PT.11-1.) |
| *Related Concerns* | PT.1-1 PT.1-3 PT.11-1 |
| *Tasks* | T2058 T9017 |

*Concern* **PT.4-2 (COMPLETE)**

**There is no system to ensure that all Lawrence Berkeley Laboratory hazardous wastes are being packaged and transported in accordance with State and Federal regulations as required by DOE 5480.3.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 10 CFR; 40 CFR; 49 CFR; California DHS; DOE 5480.3

*Response* LBL hazardous waste packaging and transportation operations will be upgraded to comply with DOE 5480.3. Upgrades will include packaging and transportation checkoff lists, independent reviews, and training as described in T5008, PT.2-1. (See PT.2-1, 6-1, 10-1)

*Tasks* T5008 (Completed) T5011 (Completed) T5013 (Completed)

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*Concern* **PT.5-1/T90 (COMPLETE)**

**LBL is not in compliance with DOE Order 5480 and DOE Order 1540.1, with the result that numerous 49 CFR and California transportation requirements are not being met.**

*Hazard/ Compliance Levels* H1/C1

*Category* II

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **PT.5-2 (COMPLETE)**

**Safety-related information for packaging and transportation was not always retained by Lawrence Berkeley Laboratory.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* DOE 5000.3; DOE 5480.3

*Response* Safety-related information for packaging and transportation has not been uniformly or consistently retained by EH&S and Materiel Management. EH&S has not held regular safety meetings, and neither department has had a formal "lessons learned" program, nor has either department integrated occurrence reporting information into their operating procedures. These deficiencies will be remedied by regular safety meetings at which occurrence reports will be reviewed for "lessons learned" applicability. (See also PT.2-1 and PT.12-1.)

*Tasks* T5014 (Completed) T8684 (Completed)

*Concern* **PT.6-1 (COMPLETE)**

**The operating procedures for packaging and transportation of hazardous materials are not properly implemented and not uniform between organizational units.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* The Material Management Department and EH&S Division both have responsibilities in packaging and transportation. There are some written procedures, which were found to be in conflict between the two groups. These conditions impact the Laboratory's ability to conduct sitewide operations involving packaging and transportation of hazardous materials in a safe, consistent and accountable manner, following approved procedures, in conformance with applicable standards and accepted practices. A Function Notebook will be developed for ensuring consistent handling of hazardous materials, and the LBL Health and Safety Manual will be appropriately updated. (See PT.1-1 and PT.1-3.)

*Related Concerns* PT.1-1 PT.1-3

*Tasks* T5006 (Completed)

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*Concern* **PT.8-1 (COMPLETE)**

**Lawrence Berkeley Laboratory is not in compliance with the proposed Department of Energy policy for onsite transportation.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* Proposed DOE policy for onsite transportation

*Response* The proposed DOE Order is in draft form and has not been promulgated. If it is promulgated, it will require that regulations now applicable for off-site transportation of hazardous materials be followed for on-site transfers. LBL already meets this requirement in some areas, and there are written procedures that describe the process. When the order is promulgated, the Laboratory will comply as appropriate.

*Tasks* T5005 (Completed)

*Concern* **PT.10-1 (COMPLETE)**

**Preparation and maintenance of records for packaging and transportation do not meet the requirements of DOE 5480.3.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.3

*Response* LBL HWHF and EH&S Transportation operations have not kept records of hazardous materials movements, transfers, and shipments that would ensure that the packaging and transportation records comply with the requirements of DOE Order 5480.3 and provide an auditable trail of actions. The Function Notebook being developed for hazardous materials shipping and handling, and specific handling and manifest procedures for hazardous wastes, also under development, will ensure compliance with DOE Order 5480.3. (See also PT.1-1 and 4-2.)

*Related Concerns* PT.1-1 PT.4-2

*Tasks* T1057 (Completed) T5011 (Completed) T5013 (Completed)

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*Concern* **PT.11-1**

**There are no independent internal safety audits of packaging and transportation as required by DOE 5480.3.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* The Laboratory lacks a system of internal safety audits and appraisals of packaging and transportation conducted in accordance with DOE Order 5482.1b. The Laboratory self-assessment program will be initiated, and formation of a new subcommittee of the Laboratory Safety Review Committee, which will review P&T procedures, will satisfy the requirement of DOE Order 5480.3. (See PT.4-1.)

*Related Concerns* PT.1-1 PT.1-3 PT.4-1

*Tasks* T2058 T9017

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| *Concern* | **PT.12-1 (COMPLETE)** |
| | **Packaging and storage procedures do not comply with DOE 5480.3, 49 CFR, and 40 CFR.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | 40 CFR; 49 CFR; DOE 5480.3 |
| *Response* | Not all packaging and transportation procedures comply with DOE Order 5480.3, 49 CFR, and 40 CFR. Radioactive waste containers are not always labeled. Labeling requirements for radioactive waste containers will be updated to compliance levels. Packaging and transportation checklists per PT.4-2, T5013, implementation of the Function Notebook for packaging and transportation, and expanded packaging and transportation specific procedures will bring LBL into compliance with the cited regulations. (See also PT.1-1,1-3.) |
| *Tasks* | T1061 (Completed) T5006 (Completed) |

*Concern* **EA.4-1**

**Documents citing satisfactory completion of safety evaluations of experiment proposals and authorizing conduct of experiments are not issued to the experiment proposers, as required to comply with DOE Order 5482.1B.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* Experiments performed in any facility on the site should not present undue risk or significantly increase the risk previously evaluated for the facility or the site. As part of its system for independent internal appraisal, the Laboratory has a system for reviewing new experiments and proposed changes in experiments and determining the effect of the changes on the hazard level of the experiment. The system rules are described in the LBL Health and Safety Manual, PUB-3000, Chapter 1, Appendix B, and assign responsibility for review of experiments and associated hazards to the host Division Director. There is however, inconsistency with regard to how these reviews are carried out within different Divisions, lack of documentation of the review process, and no formal procedure for independent oversight as to how well Divisions are implementing the review. The corrective action will formalize the review process by Division Directors implementing Laboratory-wide procedures together with periodic independent oversight of the review process. This will be accomplished through the Laboratory-wide ongoing self assessment program.

*Tasks* T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed) T9207 (Completed)

T2058 T9168 T9169

*Concern* **FR.1-1**

**The charter for the Safety Review Committee does not define the relationship between the Safety Review Committee and the Independent Safety Review System of the Laboratory, as required to comply with DOE 5482.1B.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5482.1B.9.d(2)(b)

*Response* The existing charter of the Safety Review Committee (SRC), contained in PUB-3000, was being revised to address specifically the relation of the SRC to the Independent Safety Review System plan being developed by the Office of Planning and Assurance. Neither document was in a form which permitted definitive analysis of compliance with DOE Order 5482.1B. Completion of the new charters consistent with the requirements of DOE 5482.1B will eliminate this concern.

*Related Concerns* OS.1-1

*Tasks* T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T9168 T9169

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*Concern* **FR.2-1**

**The functions essential to the compliance of the internal appraisal system with the requirements of DOE 5482.1B are not stipulated in the Safety Review Committee charter, the "Guidelines for SRC Appraisal of Division Safety Programs," nor elsewhere in published documents on the Independent Safety Review System.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5482.1B

*Response* Recent revisions to the charter of the SRC do not include all of the functions and responsibilities for an internal appraisal system mandated by DOE Order 5482.1B. Specifically, the charter does not establish a mechanism to evaluate safety implications of proposed modifications to plant and equipment, or changes to experiments and experimental procedures; there is no appraisal of the adequacy of staffing of facilities, or the training and certification of operators; there is no system for appraising the unusual occurrence reporting by Divisions. The charter will be revised to be in compliance with 5482.1B.

*Related Concerns* SR.2-1/T90 SR.6-1/T90

*Tasks* T2056 (Completed) T2057 (Completed) T4111 (Completed) T9166 (Completed) T9167 (Completed)

T9168 T9169

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| *Concern* | **FR.3-1** |
| | **The structure and the functional plan for the Lawrence Berkeley Laboratory Independent Safety Review System are not documented (as required to comply with DOE 5482.1B) and are generally not understood.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5482.1B |
| *Response* | The planning document (LBL Self-assessment program) for the Independent Safety Review System (ISRS) is still in the draft stage. There is a lack of understanding of the proposed ISRS system by members of the Safety Review Committee and the Safety Committees in operating divisions, who will be directly impacted by the implementation of the plan. The plan will be modified to be in compliance with DOE Order 5482.1B and communicated to the impacted Committees. |
| *Related Concerns* | FR.1-1 FR.2-1 SR.4-1/T90 |
| *Tasks* | T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed) T2058 T9168 T9169 |

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| *Concern* | **FR.5-1** |
| | **A system for conducting triennial appraisals of the Lawrence Berkeley Laboratory Independent Safety Review System (required by DOE 5482.1B) has not been established.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5482.1B, 9.d. (2)(d) |
| *Response* | The current planning document (LBL Self-assessment program) for the new Independent Safety Review System (ISRS) lacks a specific written plan for organizing and performing the triennial appraisals required by DOE Order 5482.1B. The ISRS plan will be modified to be in compliance with the DOE Order. |
| *Tasks* | T2056 (Completed) T2061 |

*Concern* **SR.2-1/T90**

**There is inadequate line management safety performance to assure that all safety concerns requiring analysis and review are properly identified and evaluated.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Response* This is an open concern from the 1989 TSA that addresses the same issues as Concern FR.2-1. The corrective action plan for FR.2-1 fully addresses this concern as well.

*Related Concerns* FR.2-1

*Tasks* T2056 (Completed) T2057 (Completed) T4111 (Completed) T9164 (Completed) T9166 (Completed) T9167 (Completed) T9183 (Completed)

T9168 T9169

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*Concern* **SR.4-1/T90**

**There is no sitewide guidance for the performance and documentation of experiment safety reviews and approvals.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5482.1B

*Response* This as an open concern from the1989 TSA that addresses the same issues as Concern FR.3-1. The corrective action plan for FR.3-1 fully addresses this concern as well.

*Related Concerns* FR.3-1

*Tasks* T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2058 T9168 T9169

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|---|---|
| *Concern* | **SR.6-1/T90 (COMPLETE)** |
| | **Internal appraisal (internal review) coverage of health, safety and emergency preparedness operations is deficient.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5482.1B |
| *Response* | This is an open concern from the 1989 TSA that addresses the same issues as Concern FR.2-1. The corrective action plan for FR.2-1 fully addresses this concern as well. |
| *Related Concerns* | FR.2-1 |
| *Tasks* | T2056 (Completed) |

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| *Concern* | **SR.6-2/T90** |
| | **There is no objective and independent review program for the ES&H function.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5482.1B |
| *Response* | This an open concern from the1989 TSA that addresses the same issues as Concern FR.5-1. The corrective action plan for FR.5-1 fully addresses this concern as well. |
| *Related Concerns* | FR.5-1 |
| *Tasks* | T2056 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed) T2061 T9168 T9169 |

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| *Concern* | **RP.1-1** |
| | **The resources allocated to the radiation protection program are not sufficient to bring the program into compliance with mandatory standards and industry practices. (Also see Concern OA.2-3.)** |
| *Hazard/ Compliance Levels* | H2/C2 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.11; DOE 5480.18 |
| *Response* | Site/facility organization and administration should ensure effective implementation and control of radiological protection activities and the site/facility. Radiation surveys and internal audits are behind schedule or of inadequate quality, and several operations are shut down awaiting filter changes by health and safety personnel. Workload for the radiation protection staff has increased from past levels and will be further increased by upcoming retirements. The root cause of these findings is LBL's inability to compensate for increasing ES&H requirements, primarily due to inadequate staffing levels. To ensure effective implementation and control of radiological protection activities on the site/facility, resources and staffing for ES&H activities (including the radiological protection staff) will be increased. |
| *Related Concerns* | IH.1-1 OA.2-3 RP.10-3 RP.5-1/T90 |
| *Tasks* | T1062 T1062 |

*Concern* **RP.1-2**

**Action levels and trend analysis are not utilized to assure control of contamination and to promote as low as reasonably achievable goals.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* Site/facility organization and administration should ensure effective implementation and control of radiological protection activities on the site/facility. Radiation and/or contamination surveys are not always done as required by PUB-3000, and results are not compiled to allow trend analysis. No action levels have been defined for survey results, except for the NTLF. The root cause of these findings is LBL's inability to compensate for increasing ES&H requirements, primarily due to inadequate staffing levels. To ensure effective implementation and control of radiological protection activities on the site/facility through determination of action levels and performance of trend analysis for survey results and promotion of as low as reasonably achievable (ALARA) goals, staffing levels will be increased, training materials and courses for radiation safety training will be revised, and trend analysis/action level procedures will be developed and implemented.

*Related Concerns* RP.1-1 RP.10-3

*Tasks* T3023 (Completed) T9098 (Completed)

T1062 T4036 T9195

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*Concern* **RP.2-1**

**Internal Audits in radiation protection have not been done as required by DOE 5480.1B. (Also see Concern RP.1-1.)**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.1B

*Response* The Internal Audit Program for both Routine Operations and Unusual Radiological Occurrences should provide adequate performance assessments. Internal audits of the Radiation Protection Program have not been done in accordance with DOE Orders. The root cause of these findings is LBL's inability to compensate for increasing ES&H requirements, primarily due to inadequate staffing levels. To ensure that the internal audit program for radiation protection complies with DOE Order 5480.1B requirements, staffing resources will be increased and an internal self-assessment program will be implemented.

*Related Concerns* RP.1-1

*Tasks* T2057 (Completed) T9167 (Completed)

T2058 T9195

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| *Concern* | **RP.2-2** |
| | **Employee external radiation exposure (other than whole body) resulting from unusual occurrences have not been properly evaluated and entered into the dosimetry records as required by DOE 5480.11.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5000.3A; DOE 5480.11 |
| *Response* | The Internal Audit Program for both routine operations and for investigating Unusual Radiological Occurrences should provide adequate performance assessments. Radiation extremity doses are not always assigned to a person's dosimetry file, and no guidance is given in official Laboratory publications about recording these doses. The root cause of these noncomformances is informality of operations. To ensure that the internal audit program for employee radiation exposure provides adequate performance assessments through proper evaluation and documentation, radiation exposure investigative limits and exposure documentation requirements will be established and procedurally implemented. |
| *Related Concerns* | RP.2-3 |
| *Tasks* | T1079 (Completed) T1080 (Completed) |
| | T1068 T1069 T1081 |

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| *Concern* | **RP.2-3 (COMPLETE)** |
| | **The San Francisco Operations Office has not provided effective technical oversight to assure that the radiation exposure of employees involved in incidents is documented as required by DOE 5480.11.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.11 |
| *Response* | Although this concern directly relates to failure to follow up on a reported radiation exposure, SF believes that similar failures could have occured under the old occurence reporting system. The mechanism for addressing this concern is in place and established through DOE Order 5000.3A and the newly activated Occurrence Reporting and Processing System (ORPS). |
| *Tasks* | T4074 (Completed) T4075 (Completed) |

*Concern* **RP.3-1/T90**

**The performance and/or documentation of calibrations, design calculations surveys and safety assessments lack conformance to requirements.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* 40 CFR 61 Sub H; DOE 5400.1; DOE 5400.5; DOE 5400.xy

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generating devices should provide for safety operations and for clearly identified areas of potential consequences. According to Field Verification, two issues remain to close out this concern: The Building 55 program is not active so the noble gas effluent monitor is not required at this time. The second issue is the specification and installation of a real time monitor for the NTLF stack. To ensure that the requirements for NESHAPS evaluation will be done and that the need for real time monitor will be evaluated, the following corrective action plan will be implemented.

*Related Concerns* A/CF-2 RP.3-2/T90

*Tasks* T1096 (Completed) T1104 (Completed) T4025 (Completed) T4027 (Completed)

T1097 T9077

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*Concern* **RP.3-2/T90**

**Surveys with the minimum data required by ANSI N43.1 are generally not formally documented.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* ANSI N43.1

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. Radiation surveys have been infrequent and survey results posted at the major accelerators have not contained the minimum data required by ANSI N43.1. Field verification found that surveys and survey documentation have only recently been initiated. The root cause of these nonconformances is informality of operations. To ensure implementation of radiation protection procedures that provide for safe operations and for clearly identified areas of potential consequences through survey and survey result postings, staffing levels will be increased, and survey procedures will be developed or revised as necessary to include documentation and posting requirements.

*Related Concerns* RP.3-1/T90 RP.3-10

*Tasks* T1096 (Completed) T5018 (Completed)

T1062 T9077

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| *Concern* | **RP.3-3/T90** |
| | **LBL is not in conformance with ANSI N43.1 and ANSI N43.2.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Response* | Radiation protection procedures, for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. The internal audit program for both Routine Operations and Unusual Radiological Occurrences should provide adequate performance assessments. Many safety procedures, radiation safety equipment, and controls at accelerators and other radiation generating devices (at LBL this consists of X-ray machines) are not in conformance with ANSI N43.1 and ANSI N43.2 requirements. The root cause of these nonconformances is informality of operations. To ensure that radiation protection procedures provide for safe operations and for clearly identified areas of potential consequences in conformances with applicable ANSI standards, policies and procedures for physical safety systems augmenting access control and for dual interlocks at accelerators will be developed and implemented, guidelines for testing and documentation of X-ray machines will be developed and implemented, and radiation generation device information will be included in the occurrence reporting "Lessons-Learned" program. All X-ray machines are shielded and self-enclosed with integral safety interlock systems, and therefore require no additional access control or interlocking. Guidelines for regular testing of X-ray machines per ANSI N43.2 will be developed and accompanying documentation requirements implemented. |
| *Tasks* | T1083 (Completed) T1085 (Completed) T8684 (Completed) T9117 (Completed)<br>T1084 |

*Concern* **RP.3-4**

**There is no system to assure prior review and approval by health physics professionals of work involving radiation or radioactive materials.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generating devices should provide for safe operations and for clearly identified areas of potential consequences. There is no formal system to ensure prior review and approval by health physics professionals of work involving radiation or radioactive materials. There is no formal documented standard to define controls required for work with radioactive materials. The root cause of these noncompliances is informality of operations. To ensure that a radiation work approval permit system will be implemented, a standard which defines types of controls required for work with radioactive materials will be developed and implemented, and that additional staff requirements to carry out this procedure will be evaluated, the following corrective plan will be implemented.

*Related Concerns* TC.5-1/T90

*Tasks* T1086 (Completed)

T1062 T4026 T9195

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*Concern* **RP.3-5**

**There is no contamination surveillance program for sealed radiation sources less than 20 times the annual limit of intake.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. A swipe program for sealed sources is in effect only for large sources. The root cause of this nonconformance is informality of operations. To ensure that a program to identify and test all radioactive sources will be developed, staffing resources will be increased, a procedure for inventory and leak testing of sealed sources will be developed and implemented and an inventory and initial testing will be performed.

*Related Concerns* RP.3-6

*Tasks* T1090 (Completed) T9079 (Completed)

T1062 T9195

*Concern* **RP.3-6 (COMPLETE)**

**An accurate inventory and periodic leak checks are not performed for all sealed radioactive sources as required by SAN MD 5480.11.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. A swipe program for sealed sources is in effect only for large sources. The root cause of this nonconformance is informality of operations. To ensure that a program to identify and leak check all radioactive sources (as required by SF MD 5480.11) will be developed, staffing resources will be increased, a procedure for inventory and leak testing of sealed sources will be developed and implemented and an inventory and initial testing will be performed.

*Related Concerns* RP.3-1/T90 RP.3-2/T90 RP.3-5

*Tasks* T1090 (Completed) T1096 (Completed) T9079 (Completed)

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*Concern* **RP.3-7**

**Radioisotopes are neither inventoried nor controlled as required by SAN MD 5480.11.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* SF MD 5480.11

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. Radioactive materials are not inventoried in accordance with SF MD 5480.11, laboratories are not labeled with inventory content, and there is no quantitative measure of potential health hazard(s) in laboratories. The root cause of these noncompliances is informality of operations. To ensure that radiation protection procedures for the control and use of radioactive materials and radiation generation devices provide for safe operations and for clearly identified areas of potential consequences through inventory and control of radioisotopes, an annual radioisotope inventory program will be designed, inventories will be posted in laboratories, and a quantitative measure of hazard potential will be developed.

*Related Concerns* RP.1-1

*Tasks* T1094 (Completed)

T1062 T9081

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| *Concern* | **RP.3-8 (COMPLETE)**<br><br>**Radiation protection procedures do not conform with SAN MD 5480.11 in that some are missing and some are not properly documented.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | SF MD 5480.11 |
| *Response* | Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. There are no written and approved procedures for conduct of interlock safety checks and no written and approved procedure for the conduct of area surveys at the various accelerators. Radiation protection procedures are not completely in agreement with SF MD 5480.11. The root cause of these noncompliances is informality of operations. To ensure that radiation protection procedures for the control and use of radioactive materials and radiation generation devices provide for safe operations and for clearly identified areas of potential consequences, new/existing procedures will be developed/revised for full compliance with SF MD 5480.11 requirements. To ensure that procedures will be developed to conduct area surveys, the following corrective action plan will be implemented. (See also RP.3-10) |
| *Related Concerns* | OA.3 RP.3-1/T90 RP.3-3/T90 RP.3-4 RP.3-9 TC.5-1/T90 |
| *Tasks* | T1083 (Completed) T1085 (Completed) T1096 (Completed) |

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| *Concern* | **RP.3-9 (COMPLETE)** |
| | **Tests of fail-safe interlocks at the 88-inch Cyclotron do not verify proper operation of all safety devices as required by DOE 5480.4 and ANSI N43.1.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | ANSI N43.1; DOE 5480.4 |
| *Response* | Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. There are gaps in the shielding of 88" Cyclotron. Radiation protection surveys have not been performed as required by DOE Order 5480.4 and ANSI N43.1. The root cause of these noncompliances is informality of operations. To ensure that radiation protection procedures for the control and use of radioactive materials and radiation generation devices provide for safe operations and for clearly identified areas of potential consequences, new/existing procedures will be developed/revised for full compliance with DOE 5480.4 and ANSI N43.1 requirements and routine radiation surveys for machines will be initiated. To ensure that radiation interlock performance procedures will be developed, reviewed and approved, and that area survey procedures will be developed and implemented, the following corrective action plan will be implemented. |
| *Related Concerns* | RP.3-8 |
| *Tasks* | T1083 (Completed) T1085 (Completed) |

*Concern* **RP.3-10**

**The radiation field around radiation generating devices at Lawrence Berkeley Laboratory has not been characterized (type, energy, and dose range) as required by DOE 5480.4 and ANSI N43.1.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* ANSI N43.1; DOE 5480.4

*Response* Radiation protection procedures for the control and use of radioactive materials and radiation generation devices should provide for safe operations and for clearly identified areas of potential consequences. Radiation fields around radiation generating devices such as accelerators and x-ray units have not been fully characterized and documented. The root cause of these noncompliances is informality of operations. To ensure that radiation protection procedures for the control and use of radioactive materials and radiation generation devices provide for safe operations and for clearly identified areas of potential consequences, new/existing procedures will be developed/ revised for full compliance with DOE 5480.4 and ANSI N43.1 requirements and routine radiation surveys for machines will be initiated.

*Related Concerns* RP.3-1/T90 RP.3-2/T90

*Tasks* T1096 (Completed) T5018 (Completed)

T1062

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*Concern* **RP.4-1/T90**

**LBL's program of badging and access control is not in compliance with generally accepted standards.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* External radiation exposure controls should minimize personnel radiation exposure. A rigorous access control that meets ANSI N43.1 requirements has been instituted at the accelerators. A Controlled Area Policy has been implemented which requires film badges to be in worn in posted areas. The badging and access control concern has been included in the Site Access Review Committee's responsibility. To ensure that the Safety Review Committee's charter is being revised to provide for triennial audits of programs, and that increased staff in EH&S Division will be evaluated, the following corrective action plan will be implemented. (See Concern RP.5-2/T90.)

*Related Concerns* RP.5-2/T90

*Tasks* T2056 (Completed)

T1062

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*Concern* **RP.5-1/T90**

**LBL has not conducted an analysis to determine compliance with required standards for the existing film dosimetry system. LBL lacks an effective implementation plan for achieving DOELAP accreditation by the required date.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* The routine and accident personnel radiation dosimetry programs should ensure that personnel radiation exposures are accurately determined and recorded. For improved dosimetry quality, LBL has begun phasing out use of gamma film dosimeters, replacing them with thermoluminescent detectors (TLDs). Both the gamma film and TLD dosimetry programs must comply with ANSI N13.5-1972, ANSI N319-1976, ANSI N323-1978, and the DOELAP standard. The gamma film program has not yet been fully evaluated for compliance to these requirements, and the TLD program is not yet fully accredited to the DOELAP standard. A variance was obtained from DOE allowing delay to compliance by the gamma film program, but it has expired. The testing process for the accreditation of the TLD program has begun, but is not yet completed; therefore a new variance will be required until accreditation can be obtained. Accelerators at LBL produce high energy neutrons for which no DOELAP dosimetry evaluation procedure exists. LBL will therefore request clarification for DOE of dosimetry requirements for high energy neutrons. To ensure that personnel radiation exposures are accurately determined and recorded, LBL will continue to pursue DOELAP accreditation of its personnel dosimeter program, evaluate the need for additional personnel, provide a closure plan for gamma films, and institute blind quality assurance testing of TLDs. (See RP.5-3)

*Related Concerns* RP.5-3

*Tasks* T5019 (Completed) T5021 (Completed)

T1062 T5020 T5022

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|---|---|
| *Concern* | **RP.5-2/T90** |
| | **Radiation workers do not consistently wear their personnel dosimeters in areas posted as requiring dosimeters.** |
| *Hazard/ Compliance Levels* | H3/C2 |
| *Category* | III |
| *Response* | The routine and accident personnel radiation dosimetry programs should ensure that personnel radiation exposures are accurately determined and recorded. Radiation workers do not consistently wear dosimeters as required or posted. The root cause of this noncompliance is informality of operations. To ensure that personnel radiation exposures are accurately determined and researched, a rigorous access control procedure that meets ANSI N43.1 requirements has been instituted at the accelerators. A Controlled Area policy has been implemented which requires film badges to be worn in posted areas. The badging and access control concern has been included in the Site Access Review Committee's responsibility. The Safety Review Committee's charter is being revised to provide for more internal audits of programs. (See RP.4-1/T90) |
| *Related Concerns* | RP.4-1/T90 |
| *Tasks* | T3023 (Completed) |
| | T1062 |

*Concern* **RP.5-3**

**The film badge dosimeter and thermoluminescent dosimeter programs do not incorporate the requirements of DOE 5480.4 and ANSI N13.7 and N319-1976. Lawrence Berkeley Laboratory has not been able to obtain Department of Energy Laboratory Accreditation as required by DOE 5480.11. (Also see Concern QV.1-2.)**

*Hazard/ Compliance Levels* H2/C1

*Category* II

*Compliance Protocol* ANSI N13.7; ANSI N319-1976; DOE 5480.11; DOE 5480.4; DOELAP

*Response* The routine and accident personnel radiation dosimetry programs should ensure that personnel radiation exposures are accurately determined and recorded. A technical basis document has not been developed for film badge dosimeters and TLD to indicate compliance with required standards. The film badge dosimeter has not been evaluated for performance in the low energy photon, beta, and neutron categories. The DOELAP assessors have not conducted an onsite review. DOELAP certification has not been achieved for film badges or TLDs. Errors in dose measurements from personnel and extremity dosimeters has not been quantified and documented. Blind quality assurance testing has not been developed for TLDs. To ensure that personnel radiation exposures are accurately determined and recorded, DOELAP accreditation of its personnel dosimetry program is pursued, additional personnel needs are evaluated, a closure plan for the gamma films is performed, and that a blind quality assurance testing of TLDs is performed, the following action plan will be implemented.

*Related Concerns* QV.1-2

*Tasks* T5019 (Completed) T5021 (Completed)

T1062 T5020 T5022 T9091 T9195

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*Concern* **RP.6-1**

**High-efficiency particulate air filters on vacuum cleaners have not been inspected or tested on a regular basis.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Internal radiation exposure controls should minimize internal exposures. High efficiency particulate air (HEPA) filters are not tested on vacuum cleaners nor on glove boxes. The root cause of this nonconformance is informality of operations. To ensure that internal radiation exposure controls minimize exposures, a comprehensive filter testing program will be developed and implemented.

*Related Concerns* RP.1-1

*Tasks* T1110 (Completed) T9162 (Completed)

T1062 T4028 T5023

*Concern* **RP.7-1/T90**

**A system is not in place to accurately determine exposures to casual visitors of areas where unsealed radionuclides are handled.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* The internal radiation dosimetry program should insure that personnel radiation exposures are accurately determined and recorded. LBL continues to place individuals on the bioassay program as needed in compliance with DOE Order 5480.11. To ensure that personnel radiation exposures for casual visitors are accurately determined and recorded, radioisotope work areas will be identified which require bioassay monitoring and access control for casual visitors will be established. (See Concerns RP.3-4, RP.4-1/T90, RP.10-4.)

*Related Concerns* RP.1-2 RP.10-4 RP.3-4 RP.4-1/T90

*Tasks* T3023 (Completed) T5024 (Completed)

T1097

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*Concern* **RP.7-2**

**Approved procedures for the in-vivo and in-vitro bioassay programs are not documented and updated periodically in accordance with DOE 5480.11.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* The internal radiation dosimetry program should insure that personal radiation exposures are accurately determined and recorded. Approved written procedures for the bioassay laboratory are needed, including elements ensuring documentation and periodic updates, per DOE Order 5480.11 requirements. The root cause of this noncompliance is informality of operations. To ensure that personal radiation exposures are accurately determined and recorded, compliance procedures for routine counting, data analysis, and for the internal dosimetry program will be identified, prepared, and approved, and a data base for tracking procedures will be developed.

*Related Concerns* OA.1-2/T90 QV.1-2

*Tasks* T1097 T1101 T2021

*Concern* **RP.7-3**

**The quality control program for bioassay is not fully implemented. (Also see Concern QV.1-2.)**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The internal radiation dosimetry program should insure that personnel radiation exposures are accurately determined and recorded. Quality assurance measures have not been completely implemented for good conduct of operations in the bioassay laboratory and the whole body counting program. NIST standards are not always used in the bioassay laboratory. The root cause of these nonconformances is informality of operations. To ensure full implementation of the quality control program for bioassay, the quality assurance plan for the bioassay laboratory will be reviewed for compliance with ANSI N13.30, a total energy linearity check and energy efficiency calibration for the whole body counter will be made, and NIST traceable sources will be purchased. (See Concern QA.1-2)

*Related Concerns* QA.1-2 QV.1-2

*Tasks* T1100 (Completed)

T1097 T2021

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*Concern* **RP.7-4**

**Lawrence Berkeley Laboratory does not assure that personnel submit bioassay samples when requested.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The internal radiation dosimetry program should insure that personnel radiation exposures are accurately determined and recorded. Personnel working with radioactive materials do not always submit bioassay samples as required. PUB-3000 does not address penalties for non-return of samples. The root cause of this noncompliance is informality of operations. To ensure that the internal radiation dosimetry program ensures accurate determination and documentation of personnel radiation exposures, compliance will be enforced for return of samples, regulatory requirements will be reviewed, and that a new bioassay monitoring policy will be drafted and approved.

*Related Concerns* RP.7-2

*Tasks* T1097

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*Concern* **RP.8-1/T90 (COMPLETE)**

**The traceability of the calibrations for portable survey instruments are not consistent with good practice and accepted laboratory protocols.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that results are accurately determined. A NIST traceable calibrator for portable survey instruments has been purchased and is in use. The noble gas meter at Building 55 is not in use and is not expected to be used in the near future (if this program is reactivated, Task T1104, Develop Radiation Instrument Calibration Procedures, will be used prior to startup). To ensure that personal dosimetry and radiological protection instrumentation are calibrated, used and maintained so that results are accurately determined, calibration and quality control procedures for use of portable survey instruments will be drafted and implemented. (See Concern RP.8-3)

*Related Concerns* RP.3-1/T90 RP.8-3

*Tasks* T1104 (Completed)

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*Concern* **RP.8-2/T90 (COMPLETE)**

**The LBL fixed active area monitoring program does not meet requirements of ANSI N43.1 and ANSI N323.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* ANSI N323; ANSI N43.1

*Response* Personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that results are accurately determined. Neutron sources have been purchased at the Bevatron to provide a fail-safe fixed meter system, but an approved procedure is not operational. The 88" cyclotron was not aware of this requirement. The root cause of these nonconformances is informality of operations. To ensure that instrumentation used for radiological protection are calibrated, used, and maintained accurately, calibration and quality assurance procedures for fixed and portable radiation survey instruments will be drafted for use, and calibration of the meters at the 88" Cyclotron will be done in conformance with ANSI N323.

*Related Concerns* RP.3-1/T90 RP.8-3 RP.8-4

*Tasks* T1104 (Completed)

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*Concern* **RP.8-3 (COMPLETE)**

**Portable survey instruments in use at Lawrence Berkeley Laboratory may not correctly establish radiological conditions as required by DOE 5480.4 and ANSI N323.**

*Hazard/ Compliance Levels* H2/C1

*Category* II

*Compliance Protocol* ANSI N323; DOE 5480.4

*Response* Personnel dosimetry and radiological protection intsrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that results are accurately determined. Specific procedures or checklists for instrument calibration do not exist. The new calibration source is not used properly, and instruments returned for calibration are not recorded for "as found" conditions. The root cause of these nonconformances is informality of operations. To ensure that instrumentation used for radiological protection is calibrated, used, and maintained so that results are accurately determined, an instrument calibration checklist will be developed, and a procedure to track instruments will be developed.

*Related Concerns* RP.3-1/T90 RP.8-2

*Tasks* T1104 (Completed)

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*Concern* **RP.8-4 (COMPLETE)**

**Portable instrument calibration is inconsistent with the requirements of DOE 5480.4 and ANSI N323 in that beta efficiency is not determined and check sources not properly used.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* ANSI N323; DOE 5480.4

*Response* Personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that results are accurately determined. Survey meters used to monitor material for beta contamination are not used properly to document removable and fixed contamination limits per DOE Order 5480.11, and expected check source response was not known. The root cause of these noncompliances is informality of operations. To ensure that instrumentation used for radiological protection is calibrated, used, and maintained accurately, calibration and quality assurance procedures will be drafted and enforced, instrument calibration procedures will be developed for calibration and checking of beta survey instruments, and that LBL staff will be trained in proper use of beta radiation instrumentation.

*Related Concerns* RP.8-3

*Tasks* T1104 (Completed) T3023 (Completed)

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|---|---|
| *Concern* | **RP.9-1** |
| | **Air monitor calibration and placement of sample heads at the National Tritium Labeling facility do not conform to the requirements of DOE 5480.11.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | ANSI N13.1; ANSI N13.6; ANSI N42.18; DOE 5480.11 |
| *Response* | Air monitoring systems through selection, location, calibration, and maintenance should ensure reliable estimates of air activity for radiological control purposes. The continuous air monitors in the NTLF have not been calibrated as required, and sample locations are not in the workers breathing zone. The root cause of these findings is informality of operations. To ensure that air monitoring systems provide reliable estimates of air activity for radiological control purposes, the criteria for workplace air sampler placement will be refined and placed into PUB-3000, calibration procedures for the tritium monitors will be formalized and included in the EH&S meter calibration database, a procedure to assess workplace radiological hazards will be drafted, air sampler calibration procedures will be defined, and personnel will be trained in their use. |
| *Related Concerns* | RP.3-1/T90 RP.3-4 RP.9-2 |
| *Tasks* | T4025 (Completed) T4027 (Completed) |
| | T4026 T4028 |

*Concern* **RP.9-2**

**Workplace air sampling is not quantitative.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* ANSI N13.1; DOE 5400.xy; DOE 5480.11

*Response* Air monitoring systems through selection, location, calibration, and maintenance should ensure reliable estimates of air activity for radiological control purposes. Sample head location for air samples are not placed appropriately, flow measuring indicators on samplers are not calibrated often enough, criteria for workplace air sampling program are not documented, correction factor used for alpha absorption in air filters needs verification, and some air samplers are outdated. The root cause of these nonconformances is informality of operations. To ensure that reliable estimates of air activity for radiological control purposes are achieved, the criteria for workplace air sampler placement will be refined and placed into PUB-3000, a procedure to assess workplace radiological hazards will be drafted, air sampler calibration procedures will be defined, and personnel trained in their use, the alpha radiation absorption factor will be verified, and new air samplers will be procured. Procurement of workplace air samplers is an approved MEL-FS subproject under the Environmental Health and Safety Project.

*Related Concerns* A/CF-6 EM/CF-1 RP.9-1

*Tasks* T4027 (Completed) T4030 (Completed)

T4026 T4028 T4029

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*Concern* **RP.10-1/T90 (COMPLETE)**

**Contamination control practices observed at NTLF are inconsistent with good practice.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* Field verification of the 1989 Technical Safety Appraisal during the 1991 Tiger Team Assessment generated a recommendation of closure for this concern.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **RP.10-2**

**Lawrence Berkeley Laboratory has not assured that material released for uncontrolled use is free of radioactive materials and radioactive contamination in accordance with the requirements of DOE 5480.11 and DOE 5400.5.**

*Hazard/ Compliance Levels* H2/C1

*Category* II

*Compliance Protocol* DOE 5400.5; DOE 5480.11

*Response* The radiation monitoring and contamination control program should ensure worker protection from radiation exposures. Survey techniques used to evaluate materials for release for uncontrolled use have not been approved by DOE, and some materials such as lab coats or materials at reclamation may be released without adequate monitoring. A Policy and Procedure Memorandum has been issued which describes monitoring procedures for methods to monitor items sent to Salvage and Reclamation, and the Salvage and Reclamation personnel have received additional training. The root cause of these noncompliances is informality of operations. To ensure that material released for uncontrolled use is free of radioactive materials and contamination, steps will be taken to monitor and document all items for release to uncontrolled areas in accordance with DOE Order 5480.11 and 5400.5.

*Tasks* T1090 (Completed) T3023 (Completed) T4031 (Completed)

T4033

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*Concern* **RP.10-3**

**Contamination surveys of radioisotope areas are not being performed and documented on a regular basis.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* The radiation monitoring and contamination control program should ensure worker protection from radiation exposures. Monthly surveys for radiation contamination have not been performed and documented as required by PUB-3000 and DOE Order 5480.11. Research staff have been trained in appropriate techniques for their daily work, but this is not always recorded. The root cause of these noncompliances is informality of operations. To ensure that radiation monitoring program surveys enhance worker protection from radiation exposures, additional staffing requirements for the Health Physics Group will be evaluated to ensure correct conduct of surveys and performance of documentation functions as required.

*Related Concerns* RP.1-1

*Tasks* T1096 (Completed) T4031 (Completed)

T1062 T9195

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|---|---|
| *Concern* | **RP.10-4** |
| | **Lawrence Berkeley Laboratory requirements for hand and foot surveys are neither clearly defined nor consistently applied.** |
| *Hazard/ Compliance Levels* | H2/C2 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.11 |
| *Response* | The radiation monitoring and contamination control program should ensure worker protection from radiation exposures. Personnel leaving radioisotope work areas are required to monitor themselves either by use of hand and foot counters, or by use of portable instrumentation. "Radioisotope Work Area" needs to be better defined in relation to "Control Area." Signage and procedures are not adequate. The root cause of these nonconformances is informality of operations. To ensure that additional emphasis will be given during radiation training to self-monitoring for worker protection from radiation exposures, additional hand and foot monitors will be requested and installed, and new procedures will be developed and implemented through incorporation into PUB-3000. |
| *Related Concerns* | RP.10-3 |
| *Tasks* | T3023 (Completed) |
| | T4035 T9096 |

*Concern* **RP.11-1**

**The Lawrence Berkeley Laboratory has not ensured that internal exposures at the National Tritium Labeling facility are as low as reasonably achievable, as required by DOE 5480.11.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.11

*Response* A formally structured, adaptable program should be in place with established milestones to ensure that exposures are maintained as low as reasonably achievable (ALARA). NTLF personnel have instituted a program to greatly reduce the inventory of tritium used and stored. Additionally, the program equipment has been redesigned to greatly reduce the amount of effluent released to the atmosphere. The root cause of noncompliances described above is informality of operations. To ensure that exposures are maintained ALARA, enclosures and ventilation will be reevaluated, and personnel exposure will be reevaluated for ALARA considerations. (See RP.1-2)

*Related Concerns* RP.1-2

*Tasks* T3023 (Completed) T9098 (Completed)

T4036 T9099

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*Concern* **RP.12-1/T90**

**The records management program relating to health and safety records is inconsistent with DOE Order 1324.2A, ANSI N13.6 and N43.1 and records are improperly recorded, identified, and maintained by LBL.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Response* Records related to occupational radiation exposure should be maintained in a manner that permits easy retrievability, allows trend analysis, and aids in the protection of an individual and control of radiation exposure. Records related to occupational radiation exposure are not maintained as required. To ensure that records related to occupational radiation exposure are maintained properly, records will be maintained in prescribed locations in a retrievable format (most likely a computer database). (See Concern RP.10-2 and OA.7-3.)

*Related Concerns* OA.7-4 RP.10-2

*Tasks* T2045 (Completed)

T1081 T4040

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*Concern* **WS.4-1 (COMPLETE)**

**Lawrence Berkeley Laboratory does not comply with 29 CFR 1900.253, Oxygen-Fuel Gas Welding and Cutting, in that incompatible materials could form an explosive substance.**

*Hazard/ Compliance Levels* H1/C1

*Category* II

*Compliance Protocol* 29 CFR 1910.253; NFPA-51-A-Chapter 10, 1989

*Response* Workplaces should be free of uncontrolled physical hazards and be in compliance with DOE-prescribed occupational safety standards. Upon discovery of an instance of copper piping in an acetylene delivery system, LBL immediately surveyed all known support and program areas that use acetylene gas and turned up several additional acetylene gas piping systems with copper tubing. This is a violation of specifications in 29 CFR 1910.253, NFPA-51-A-Chapter 10-1989 and the LBL Health and Safety Manual (PUB-3000, Chapter 13). All systems found to have copper tubing were immediately purged of acetylene and suspended from operation. A Safety News Bulletin (No. 290, February, 1991) was distributed to all divisions which directed that no copper piping is allowed in acetylene delivery systems, and advised personnel to contact Environment and Safety Hazards Control for procedures on dismantling any such systems. The LBL Health and Safety Manual (PUB-3000) clearly prohibits the use of copper piping in acetylene systems. This concern is evidence that LBL supervisors do not have sufficient knowledge of and access to PUB-3000, as noted in finding LBL-PP.5-1 of the LBL self-assessment document (PUB-3090, Vol. 1). In addition to the mitigating actions taken the corrective action plan will address the root cause for this concern through training and regular inspections.

*Related Concerns* TC.1-4

*Tasks* T1128 (Completed) T1129 (Completed) T2017 (Completed) T2018 (Completed) T2019 (Completed) T2094 (Completed) T2095 (Completed) T9129 (Completed)

*Concern* **WS.4-2**

**Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910, Subpart E, Means of Egress.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910, Sub E

*Response* Workplaces at LBL should be free of uncontrolled physical hazards and be in compliance with DOE Orders prescribing occupational safety standards. Exit signs and emergency lighting should be in compliance with 29 CFR 1910, Subpart E, Means of Egress. There is not clear management or supervisory understanding about the kind of signs and labels that are required in various parts of the Laboratory. Laboratory policy and procedures (PUB-3000) do not provide adequate, clear guidance about sign and label requirements as an extension of risk identification and control programs. Procedures and inspections are not in place to assess adequacy of signage, or that signs have not been removed or defaced by building modifications, repair, or repainting. Development of an egress signage policy and a self-assessment checklist for ongoing verification will ensure compliance with 29 CFR 1910 in the future.

*Related Concerns* OP.5-1

*Tasks* T9052 (Completed)

T2058 T9053

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*Concern* **WS.4-3**

**Safety showers and eyewash stations at the Lawrence Berkeley Laboratory do not fully comply with 29 CFR 1910.151(c), Medical Services and First Aid.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.151 (c)

*Response* Workplaces should be free of uncontrolled physical hazards and be in compliance with DOE orders on occupational safety standards. 29 CFR 1910.151 (c) requires deluge showers and eyewash units in laboratories where hazardous chemicals are being used. ANSI codes further require that these units be connected to a domestic water supply. This deficiency was recognized by LBL in 1988 and corrective action was initiated. All showers and eyewash units in Buildings 70 and 70A have been switched over to domestic water systems as part of an MEL-FS project. Other LBL buildings, including LBL buildings on the UC-Berkeley campus and leased properties, will be analyzed and corrected as an extension of this project.

*Tasks* T4115

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*Concern* **WS.4-4**

**Machine guarding at Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910, Subpart O, General Requirements of All Machines.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Response* Workplaces at LBL should be free of uncontrolled physical hazards and be in compliance with DOE orders prescribing occupational safety standards. LBL does not have adequate machine guarding for flying chips, rotating parts, in-going nip points and point-of-operation. To ensure compliance with this standard, an understanding of the standard will be developed, and a machine guarding program implemented.

*Tasks* T3007 (Completed) T3008 (Completed) T3010 (Completed)

T3011 T9147

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*Concern* **WS.4-5**

**Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910, Subpart S, Electrical Standard.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Response* The use of GFCI protection around sinks, outdoor circuits, and hoods has been identified as a best practice by LBL. All new construction or areas of major modification will install GFCI protection. The permitted use of temporary wiring and extension cords has been defined for most areas of the Laboratory in PUB-3000, Chapter 8, Appendices C, D and E. Nonetheless many instances of improper use were found. A new Laboratory-wide inspection is needed to establish state of compliance. Panel clearance is not properly identified in many areas throughout the Laboratory. Doors on panels are not properly secured. Schedules for inspection of panels are either non-existent or poorly maintained in many areas. An improved program of maintenance and inspection of panels is needed. The lock-out/tag-out program at LBL is inadequate. Policies and procedures compliant with 29 CFR 1910 will be developed for electrical panel labeling and for electrical lock-out/tag-out, and personnel will be trained. Inspections will be conducted to locate and direct remediation for all non-compliant components.

*Tasks* T9141 (Completed)

T8641 T8643 T8650 T8670

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*Concern* **WS.4-6**

**Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910.106, Flammable and Combustible Liquids.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.106

*Response* 29 CFR 1910.106 defers to NFPA codes. LBL follows more stringent code in California 1988 Uniform Building/Fire Code which is spelled out in the Health and Safety Manual (PUB-3000), Section 5. However, the implementation and enforcement of the requirements in PUB-3000 is lacking. Employee awareness training on safe storage and handling of flammable and combustible liquids will be initiated. This will include plans for the use of pumps as a means to dispense flammable and combustible liquids. Enforcement will be established by a baseline survey and maintained by ongoing self-conducted fire loss surveys. (See FP.7-4.)

*Related Concerns* FP.7-4 WS.4-7

*Tasks* T4102 (Completed)

T3003 T4103 T8718

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*Concern* **WS.4-7**

**The fire extinguisher program at Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910.157, Portable Fire Extinguisher.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.157

*Response* Workplaces at LBL should be free of uncontrolled physical hazards and be in compliance with DOE orders prescribing occupational safety standards. Portable fire extinguishers at LBL were not located in places where they were readily accessible and/or clearly visible and marked. The program of inspection and testing of portable fire extinguishers at LBL is not in compliance with 29 CFR 1910.157. The root cause is an inadequate program of self-inspection of fire protection equipment and a failure to determine the adequacy of fire loss control devices (see Concern FP.1-5/T90). An improved program of self-inspection and an analysis of the adequacy of the portable fire extinguishers in controlling fire loss is needed. Baseline and ongoing fire loss surveys will be used to establish and maintain compliance with 29 CFR 1910.157

*Related Concerns* FP.1-5/T90 WS.4-6

*Tasks* T4102 (Completed)

T4103

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| *Concern* | **WS.4-8** |
| | **Aisle widths and floor loading labels at Lawrence Berkeley Laboratory do not comply with 29 CFR 1910.22, Subject C, General Requirement.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | 29 CFR 1910.22 |
| *Response* | In order to comply with the Federal regulation, this action plan will assure that aisles are clearly identified and appropriately marked to allow sufficient safe clearances. Allowable floor loadings and non-compliant aisle widths, approved by the LBL building official, will be securely posted in a conspicuous place in all Laboratory buildings. |
| *Tasks* | T1112 T1113 |

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| *Concern* | **WS.4-9 (COMPLETE)** |
| | **Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910.253, Welding, Cutting and Brazing.** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | III |
| *Compliance Protocol* | 29 CFR 1910.253 |
| *Response* | Workplaces at LBL should be free of uncontrolled physical hazards and be in compliance with DOE orders prescribing occupational safety standards. Operations in welding, cutting and brazing should comply with 29 CFR 1910.253. The procedures for oxy-acetylene/flammable gas users are prescribed in the LBL Health and Safety Manual (PUB-3000), Chapter 13, Section B, are in compliance with 29 CFR 1910.253. The several findings indicate that LBL should reinforce its communication of policy and training in welding, cutting, and brazing safety. Regular inspections will assure compliance with applicable codes and industry practice. Training of acetylene users in the 29 CFR 1910.253 code requirements, updating the LBL Health and Safety Manual, and regular inspections of acetylene operations will ensure future compliance in this regard. |
| *Related Concerns* | WS.4-1 |
| *Tasks* | T2094 (Completed) T2095 (Completed) T9129 (Completed) |

*Concern* **WS.4-10**

**Hand tools, compressed air and portable electrical equipment at the Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910.242, Hand and Portable Powered Tools and Equipment, General.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.242

*Response* LBL is responsible for the safe condition of hand and portable powered tools and equipment, including those furnished by employees. 29 CFR 1910.242 requires that compressed air used for cleaning must be limited to 30 lbs. air pressure at the nozzle. The LBL Health and Safety Manual (PUB-3000) states, "Compressed air for general shop or laboratory use must be restricted to 30 psi maximum pressure by use of restricting nozzles." Findings of non-compliance indicate a problem in training and employee communication. Employee notifications by posting signs at compressed air sources and issuing a Safety News Bulletin will address the communications issues for this concern. Mechanical Safety Subcommittee review will ensure that the LBL Health and Safety Manual is current in regard to hand and portable power tool requirements of 29 CFR 1910.242.

*Tasks* T2098 (Completed)

T2058 T2097

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*Concern* **WS.5-1**

**Lawrence Berkeley Laboratory does not provide effective control of fall protection to workers/employees during construction activity as required by 29 CFR 1926, Subparts L and M.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* 29 CFR 1926 Sub L, M

*Response* LBL has not achieved effective control over work at heights done by contractors, nor has our in house program been able to address all of the elements necessary to provide the best protection for workers who have exposure to heights. Scaffolding was observed without proper handrail and/or fall protection. A newly constructed facility was designed without attention to inherent fall hazards. Aerial lift equipment was not equiped with lanyards which means that they were probably not being used during aerial lift. This corrective action plan will bring LBL into full compliance with 29 CFR 1926, subparts L and M and assure the safety of workers and the public.

*Related Concerns* WS.5-2 WS.5-3

*Tasks* T2099

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*Concern* **WS.5-2 (COMPLETE)**

**Lawrence Berkeley Laboratory does not assure that construction contractors are using equipment in good repair and in compliance with Occupational Safety and Health Administration regulations as required by 29 CFR 1926.20, General Safety and Health Provisions.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1929.20; Plant Engineering Project Management Policy Memoranda; Plant Engineering Project Management Procedures Manual

*Response* Construction activities should be free of uncontrolled physical and health hazards. Construction contractors must be in compliance with all relevant DOE-orders. Numerous findings where contractor employees were not working in compliance with OSHA standards indicates LBL oversight of contractor employees is deficient. LBL has modified the subcontracting documents to require the subcontractor to submit a construction safety plan. The construction safety plan is reviewed by EH&S for OSHA compliance. Further corrective actions will ensure effective control of construction activities through implementation of periodic construction safety inspections.

*Related Concerns* WS.5-1 WS.5-3

*Tasks* T2100 (Completed) T2102 (Completed) T2104 (Completed)

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*Concern* **WS.5-3 (COMPLETE)**

**Lawrence Berkeley Laboratory does not enforce construction electrical standards as required by 29 CFR 1926, Subpart K, Electrical.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1926, Sub K

*Response* Construction activities should be free of uncontrolled physical and health hazards. Construction contractors must be in compliance with all relevant DOE orders. Numerous findings where contractor employees were not conducting in compliance with OSHA standards indicates LBL oversight of contractor employees is deficient. LBL has modified the subcontracting documents to require the subcontractor to submit a construction safety plan. The construction safety plan is reviewed by EH&S for OSHA compliance. Clarification of the Construction Safety Inspector's role, training and checklist procedures will ensure future compliance with 29 CFR 1926, Subpart K, Electrical.

*Related Concerns* WS.5-1 WS.5-2

*Tasks* T2103 (Completed) T2104 (Completed) T2106 (Completed)

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*Concern* **WS.6-1**

**Lawrence Berkeley Laboratory does not fully comply with 29 CFR 1910.1200, Hazard Communication, or 29 CFR 1910.1450, Occupational Exposures to Hazardous Chemicals in Laboratories.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.1200; 29 CFR 1910.1450

*Response* LBL recognizes that the principal causal factor leading to inappropriate storage and labeling of laboratory chemicals derives from insufficient training of Laboratory personnel. To promote full compliance with LBL's laboratory chemical storage and labeling procedures, as specified in PUB-3000, LBL will ensure that all Laboratory personnel are made aware of the published storage and labeling procedures through appropriate training sessions. This training will be included in the newly enhanced Laboratory Safety Training Program (see response to Finding TC.4-1). Project or Facility Notebooks, to be written for each laboratory with perceived hazards, will specify procedures and training requirements for chemical handling, labeling, and storage. Hazard Communication and a formal chemical hygiene plan will be included in the notebook where appropriate. Operating Safety Procedures (OSPs) will be incorporated in the notebook when required by unique hazards. These OSPs will require scheduled monitoring of employees working with substances on the OSHA carcinogens list when exposure amounts call for such monitoring.

*Related Concerns* IH.2-4 IH.6-1

*Tasks* T4009 (Completed)

T2022 T2023 T3020

*Concern* **IH.1-1 (COMPLETE)**

**Insufficient resources have been allocated to the occupational safety and industrial hygiene programs to meet mandatory Department of Energy and Occupational Safety and Health Administration requirements as mandated by DOE 5480.10.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.10

*Response* LBL organization and administration should ensure effective implementation and control of the industrial hygiene program. Routine industrial hygiene inspections of all facilities have not been conducted on a regular basis and normal attendance of safety courses by hygienists cannot be scheduled due to high workload levels. Safety and industrial hygiene program documentation and hazards inventory information are inadequate due to staffing limitations. The root cause of these noncomformances is LBL's inability to compensate for increasing ES&H requirements, primarily due to inadequate staffing levels. LBL recognizes that the staffing of professional industrial hygienists is inadequate for effective implementation and control of industrial hygiene at the Laboratory. Additional staff will be added.

*Related Concerns* OA.2-3

*Tasks* T4001 (Completed)

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*Concern* **IH.2-1/T90**

**Management has not established clear standards, directives, and guidelines to assure the uniform implementation of health and safety practices.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* ANSI Z117.1; ANSI Z88.2; OSHA 29 CFR 1910

*Response* Procedures and documentation should provide appropriate direction, record generation, and support for the industrial hygiene program. Various aspects of the industrial hygiene program at LBL, including hazard communication, carcinogen control and respiratory protection, are not clearly defined in LBL policies and procedures. The root cause of these nonconformances is LBL's inability to compensate for increasing ES&H requirements, primarily due to staffing levels. In order to provide clear direction and appropriate documentation for the industrial hygiene program, new staff will be added to enhance and carry out the program. Projects already being developed are a new Chemical Hygiene Plan, Hazards Communication training, Carcinogen Control, and Confined Spaces entry.

*Related Concerns* IH.2-2 IH.2-3 IH.2-4 IH.2-5 IH.2-6

*Tasks* T4001 (Completed) T4005 (Completed) T4009 (Completed)

T3020

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| *Concern* | **IH.2-2 (COMPLETE)** |
| | **Lawrence Berkeley Laboratory has not defined or implemented a permit-required confined space program as required by DOE 5480.4 and ANSI Z117.1-1989.** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | II |
| *Compliance Protocol* | ANSI Z117.1-1989; DOE 5480.4 |
| *Response* | Procedures and documentation should provide appropriate direction, record generation and support for the industrial hygiene program at LBL. Procedures for personnel protection in confined space should conform to ANSI Z177.1-1989 and DOE 5480.4. LBL has not established a definition of confined space which is consistent with ANSI Z177.1-1989 and DOE 5480.4. LBL does not have a sitewide inventory of confined space. LBL policy as stated in PUB-3000 does not define requirements for posting of confined space. The root cause of these nonconformances is LBL's inability to compensate for increasing ES&H requirements, primarily due to inadequate staffing levels. As interim measures, LBL has established general confined space procedures which are being implemented on a case-by-case basis, all confined spaces have been identified and labeled, appropriate meters have been purchased, and training plans are being developed. In order to provide proper protection of personnel from the hazards of confined space, LBL will develop and implement a new confined space program. |
| *Related Concerns* | OP.5 TC.5 |
| *Tasks* | T4003 (Completed) |

*Concern* **IH.2-3**

**Lawrence Berkeley Laboratory has not established or implemented a program to ensure compliance with the Occupational Safety and Health Administration lead standard (29 CFR 1910.1025).**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910.1025

*Response* Procedures and documentation should provide appropriate direction, record generation, and support for the Industrial Hygiene Program at LBL. The procedures for work with lead should conform to the OSHA standard 29 CFR 1910.1025. LBL does not have a lead use policy documented in PUB-3000. Monitoring of air in shops and laboratories where lead is used is not done in compliance with the OSHA standard. The root cause of these non-compliances is informality of operations. To ensure compliance with 29 CFR 1910,1025 and improve worker safety with lead, LBL will document its lead use program and revise lead use procedures to be in compliance with the OSHA standard.

*Related Concerns* WS.3

*Tasks* T4004

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*Concern* **IH.2-4 (COMPLETE)**

**The Lawrence Berkeley Laboratory chemical carcinogen control program was deficient in meeting Department of Energy and Occupational Safety and Health Administration requirements mandated by DOE 5480.10.**

*Hazard/ Compliance Levels* H1/C1

*Category* II

*Compliance Protocol* DOE 5480.10

*Response* Procedures and documentation at LBL should provide appropriate direction, record generation, and support for the Industrial Hygiene Program. The LBL Health and Safety Manual contains procedures for chemical carcinogens; however, it does not completely address OSHA and DOE requirements. The root cause of these noncompliances is informality of operations. As an interim measure, LBL has disseminated carcinogen control requirements, a preliminary inventory has been completed, a control program has been drafted, air sampling in a potentially high risk area has been completed, and a training program is being planned. An LBL Chemical Hygiene Plan, which includes carcinogen controls will be prepared.

*Related Concerns* IH.2-1 WS.3

*Tasks* T4005 (Completed) T4009 (Completed)

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| *Concern* | **IH.2-5** |
| | **Lawrence Berkeley Laboratory has not established a program of periodic chemical monitoring as required by DOE 5480.10 and 29 CFR 1910.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | 29 CFR 1910.1018; 29 CFR 1910.1025; DOE 5480.10 |
| *Response* | Procedures and documentation should provide appropriate direction, record generation and support for the Industrial Hygiene Program at LBL. A program of periodic chemical monitoring of LBL facilities is required by DOE Order 5480.10 and 29 CFR 1910.1000 series. LBL has not established or implemented a regular periodic chemical monitoring program. Chemical monitoring has been done only as a result of employee concerns or requests. LBL was aware of this deficiency. The root cause was a lack of resources. A consultant was recently contracted to advise LBL on air monitoring requirements. A chemical monitoring program will be developed and implemented. |
| *Related Concerns* | IH.2-1 |
| *Tasks* | T4001 (Completed) |
| | T4006 |

*Concern* **IH.2-6 (COMPLETE)**

**The Lawrence Berkeley Laboratory respiratory protection program has not been defined and implemented in a manner which ensures compliance with DOE 5480.4 and ANSI Z88.2-1980.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* ANSI Z88.2-1980.; DOE 5480.4

*Response* Procedures and documentation should provide appropriate direction, record generation and support for the Industrial Hygiene Program at LBL. The LBL respiratory protection program does not provide for quantitative fit tests of respirators, personnel monitoring is not routinely performed, respirator maintenance and storage is not performed in accordance with ANSI Z88.2-1980 and full-face respirators are not appropriately distributed. The root cause of these noncompliances is informality of operations. The LBL respiratory protection program will be defined and implemented to provide appropriate direction, record generation and support for the Industrial Hygiene Program at LBL by increasing Industrial Hygiene staff, developing an overall Chemical Hygiene Plan and developing and implementing, in accordance with this Plan and appropriate regulatory requirements, improved respiratory protection procedures.

*Related Concerns* IH.1-1 IH.2-1/T90

*Tasks* T4007 (Completed) T4009 (Completed)

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*Concern* **IH.3-1/T90 (COMPLETE)**

**The EH&S role does not include adequate proactive assurance, independent oversight, and hazard evaluation component.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **IH.3-2**

**Lawrence Berkeley Laboratory has not established a system which ensures that employees exposed to physical, biological, or chemical hazards are enrolled in a medical surveillance program as required by Department of Energy or the Occupational Safety and Health Administration.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* ANSI Z136.1

*Response* Chemical, biological, physical and/or other environmental stresses arising in the workplace at LBL should be identified, evaluated and controlled. Annual examinations of employees who work with regulated carcinogens, lead, and other highly toxic chemicals are required by OSHA standards in 29 CFR 1910.1000 series, but are conducted at LBL on a voluntary basis and often after work in the hazard area has begun. Termination physicals for laser workers are required by ANSI Z136.1, but are frequently not performed. (See concern MS.3-2) The root cause for these noncompliances is informality of operations. To ensure that chemical, biological, physical and/or other environmental stresses arising in the workplace at LBL are identified, evaluated, and controlled, a medical surveillance policy and procedures will be developed and implemented, and exposure records will be procedurally added to employee medical records.

*Related Concerns* MS.3-2

*Tasks* T1068 T1069

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*Concern* **IH.5-1/T90 (COMPLETE)**

**Oversight, monitoring, documentation, and establishment of performance criteria for asbestos abatement actions are inadequate to assure a safe and proper operation, and are inadequate to demonstrate compliance with 29 CFR 1926.58.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **IH.5-2/T90 (COMPLETE)**

**Laser operations are not in complete compliance with LBL laser safety procedures and ANSI Z136.1-1986.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **IH.5-3/T90**

**Good practices for the use and storage of hazardous chemicals are not applied consistently throughout the site.**

*Hazard/ Compliance Levels* H1/C2

*Category* III

*Response* LBL facilities should comply fully with DOE orders prescribing the standards for the evaluation and control of occupational health. The original TSA assessment found improper storage of chemicals in many LBL facilities, open tanks of corrosive or highly toxic liquids, and inadequate ventilation where hazardous chemicals were in use. The chemical waste disposal service at LBL was inconsistent. Other findings included inadequate eyewash stations and improper use of lead bricks. The Tiger Team assessment found that some improvement in storage, handling, and disposal of chemicals had been made, but that a program of inspections was needed to achieve full compliance. To achieve compliance with the DOE-prescribed standards for the evaluation and control of occupational health on a continuing basis, a program of periodic inspections will be instituted. These inspections are a part of the ongoing LBL Self-Assessment Program.

*Tasks* T2058

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| *Concern* | **IH.6-1/T90** |
| | **Hazard communication systems are not in full conformance with LBL policies and procedures, DOE 5483.1A, and referenced 29 CFR 1910.1200..** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | III |
| *Compliance Protocol* | 29 CFR 1910.1200; DOE 5480.1A |
| *Response* | Facility personnel should be adequately informed of chemical, physical, and biological stresses that may be encountered in their work environment. The hazard communication systems at LBL are not in full conformance with existing LBL policies and procedures, DOE 5480.1A and 29 CFR 1910.1200. Program documentation is incomplete, training is inadequate and there is no uniform labelling program. The root cause of these noncompliances is informality of operations. To ensure that hazard communication systems are in full compliance, hazard communication procedures will be developed/revised and the hazard communication and chemical program will be upgraded. |
| *Tasks* | T4009 (Completed) |
| | T3020 |

*Concern* **OS.1-1 (COMPLETE)**

**The Safety Review Committee charter provides the authority to approve waivers from all safety requirements in the LBL Health and Safety Manual (PUB-3000).**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* LBL needs an organizational structure that ensures effective implementation and control of the Occupational Safety Program. However, in the current LBL organizational structure there are instances where the functional relationship between different LBL units having ES&H responsibility is poorly defined or inconsistent. The charter of the Safety Review Committee provides the authority to approve waivers from all safety requirements in the LBL Health and Safety Manual (PUB-3000). The basis for granting these waivers is not defined. Revision procedures and authority for LBL health and safety documents are not clearly established. These factors are indication of a lack of firm and dynamic management control over these critical safety functions of the Laboratory. New charters for the Safety Review Committee and the Independent Review and Assurance Department, and a clear directive on requirements for establishing or changing LBL health and safety policy documents will provide proper management control and leadership for LBL safety policies.

*Related Concerns* FR.1-1

*Tasks* T2056 (Completed) T9135 (Completed)

*Concern* **OS.1-2**

**The Laboratory Occupational Safety and Industrial Hygiene Program as presently documented does not address safety requirements for Lawrence Berkeley Laboratory personnel performing work in University of California facilities.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Response* LBL needs an organizational structure that ensures effective implementation and control of the occupational safety program. However, in the current LBL organization structure there are instances where the functional relationship between different LBL units having ES&H responsiblitiy is poorly defined or inconsistent. In the case of the relationship between LBL and the University of California, Berkeley campus, where some LBL-funded work is conducted, a Memorandum of Understanding (MOU) between LBL and the University of California has been in effect since 1970. The MOU assigns EH&S responsibility for DOE funded programs which are conducted in campus laboratories. The latest version of the MOU, dated 1989, assigns responsibility for laboratories in the Donner and Calvin buildings to LBL, and for all other laboratories on campus to the UCB Department of EH&S. The MOU exempts the latter space from compliance with DOE Order 5480.4. (See MF-17). The present ES&H MOU expresses the past practice between LBL and UC-Berkeley Campus to treat administrative and safety interactions with much the same collegial approach that is extremely effective in shared research. A new ES&H MOU will be drawn up with concentration on good management practices and on governmental regulations and DOE Orders with compliance components.

*Tasks* T2070

*Concern* **OS.2-1 (COMPLETE)**

**Lawrence Berkeley Laboratory has not fully defined, established, or documented a sitewide system for the systematic identification and correction of occupational safety health related deficiencies on a continuing basis.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* LBL should have written procedures and documentation that ensure Laboratory compliance with requirements of OSHA. LBL does not have a documented program which ensures that a systematic inspection of all LBL facilities for OSHA-related deficiencies is conducted. LBL does not have a uniform site-wide system for tracking deficiencies and corrective action. The findings behind this concern are evidence of the catch-up mode that the Laboratory is in due to lack of aggressive management attention to coming into compliance with the OSHA codes which LBL is now required to meet. Newly developed systems for self-inspections and corrective action management under a designated responsible person will provide incentive and direction to compliance activities. Project, Function, and Facility Notebooks, developed under a common guidance, will provide systematic and documented control over all OSHA-related activities. Corrective action item T4003 will address the specific Category II concern over confined space operations throughout the Laboratory.

*Related Concerns* IH.2-2

*Tasks* T2053 (Completed) T2054 (Completed) T4010 (Completed)

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| *Concern* | **OS.2-2** |
| | **Program documentation, monthly inspections of equipment, a lack of high consequence lift requirements, and rigging practices do not conform to Occupational Safety and Health Administration requirements or DOE 5480.4.** |
| *Hazard/ Compliance Levels* | H2/C1 |
| *Category* | II |
| *Compliance Protocol* | DOE 5480.4; DOE Hoisting and Rigging Manual; OSHA 29 CFR 1910.179 |
| *Response* | LBL should have written procedures and documentation that ensures Laboratory compliance with the requirements of OSHA. Documentation of monthly maintenance log books for cranes, and signatures on inspection records were found to be incomplete. Control over outside contractors to make sure equipment and operators are certified is missing. Equipment under 3 tons was not subject to load testing requirements. Under-hook lifting equipment is not load tested periodically. All of these findings indicate an inadequate program for hoisting/rigging practices at LBL, and are symptomatic of a lack of management direction and support in the past for essential services and related regulatory requirements. Expert consultant services will be enlisted to assist in developing a documented hoisting/rigging program which is compliant with OSHA requirements and DOE Order 5480.4. The LBL QC/NDE magnafluxing program will be evaluated and be brought into full compliance with OSHA and DOE requirements by either an in-house or a contracted services arrangement. |
| *Related Concerns* | TC.8-1 |
| *Tasks* | T1077 T3019 |

*Concern* **OS.2-3 (COMPLETE)**

**The Lawrence Berkeley Laboratory program for control of permanent and portable ladders has not been effective in maintaining ladders in accordance with Occupational Safety and Health Administration requirements in 29 CFR 1910, Subpart D.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* 29 CFR 1910, Sub D ; 29 CFR 1910 ;

*Response* LBL should have written procedures and documentation that ensure Laboratory compliance with requirements of OSHA. A number of portable and permanent ladders were observed that did not comply with 29 CFR 1910, Subpart D. The section in the LBL Health and Safety Manual (PUB-3000) on Ladder Safety does not address requirements for permanent ladders. The findings behind this concern indicate a lack of management direction and in-field attention to OSHA-related safety issues. A Ladder Maintenance program will be developed which will document the inspection and maintenance of all LBL ladders and verification that construction contractors are using OSHA-compliant ladders. The Laboratory Health and Safety Manual, PUB-3000, will be updated to include permanent ladders.

*Tasks* T4011 (Completed) T8793 (Completed)

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*Concern* **OS.2-4**

**The eye protection program at the Lawrence Berkeley Laboratory is not clearly defined or uniformly implemented in accordance with DOE 5480.4 and ANSI Z136.1-1986.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* ANSI Z136.1-1986; DOE 5480.4

*Response* Procedures and documentation should provide appropriate direction, record generation, and support for the occupational safety program. The LBL Health and Safety Manual (PUB-3000) has two sections discussing Laboratory procedures for eye protection, Chapter 19, Personal Protective Equipment, and Chapter 16, Laser Safety. Chapter 16 requires medical surveillance of personnel working in a laser environment, but some workers have not had eye exams prior to exposure to the laser environment. The requirements for safety glasses in Chapter 19 do not mention side shields, but some LBL shops specify side shields are required. Chapter 19 permits requiring eye protection during "hazardous operation" rather than designating the area where the operation is conducted as an eye hazard area where eye protection is mandatory. Individuals were observed in shops and labs not wearing eye protection even though the individuals knew eye protection was required. The root cause is inconsistency in LBL policy combined with a lack of employee awareness. To ensure eye protection procedures are followed, the relevant sections in PUB-3000 will be rewritten and employee awareness will be raised.

*Tasks* T4012 (Completed) T9029 (Completed)

T2022

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| *Concern* | **OS.4-1 (COMPLETE)**<br><br>**OSHA Logs were not accurately maintained in accordance with 29 CFR 1904.** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | 29 CFR 1904 |
| *Response* | Appropriate surveillance of records should be conducted to measure safety performance and to ensure the continued effectiveness of controls. LBL maintains OSHA logs of reportable accidents and material losses as required, but numerous numerical errors were found in the logs, together with corrections made improperly. The root cause is attributed to training and lack of oversight. To ensure accuracy in OSHA logs, improved procedures for data entry and auditing will be developed. |
| *Tasks* | T4013 (Completed) |

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| *Concern* | **OS.5-1/T90**<br><br>**Known safety hazards and code violations are not corrected in a timely manner.** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | II |
| *Response* | The substance of this concern from the 1989 TSA is expressed in MF-13. The corrective action plan for MF-13 fully addresses this concern. |
| *Related Concerns* | MF-13 |
| *Tasks* | T2054 (Completed) T2057 (Completed) T9164 (Completed) T9166 (Completed) T9167 (Completed) T9183 (Completed)<br><br>T2058 T9168 T9169 |

*Concern* **FP.1-1/T90 (COMPLETE)**

**Authority to enforce fire protection codes, standards, and orders is not established at LBL.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Related Concerns* OA.5-1/T90

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **FP.1-2/T90**

**The Advanced Materials Laboratory is not constructed in accordance with the Uniform Building Code for occupancy by hazardous materials laboratories.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* ; UBC 1985, UBC 1988, UFC 1988, BMP

*Response* The AML was designed as a B-2 occupancy facility under the 1985 Uniform Building Code and is now functioning as a B-2 laboratory, in keeping with original NEPA and CEQA documents, as well as an Approved Safety Analysis Document (SAD). The original design and construction complied with the 1985 code for research laboratories using hazardous materials. General Plant Projects funded in FY 1990 and requested and budgeted for FY 1991 will upgrade the AML to fulfill stricter requirements of the 1988 Uniform Building Code . In addition, these improvements will provide safeguards equivalent to best management practices for the use of highly toxic materials in B-2 occupancy research facilities. These improvements are covered by the original NEPA Environmental Assessment for the facility. A new SAD has been submitted to DOE/SF (fall 1990) for operation under the new safeguards.

*Tasks* T2164

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| *Concern* | **FP.1-3/T90 (COMPLETE)** |
| | **There is no stated policy for LBL fire safety and for the direction of fire protection program (See section OA.2).** |
| *Hazard/ Compliance Levels* | H3/C2 |
| *Category* | III |
| *Response* | The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed. |
| *Tasks* | T9164 (Completed) T9183 (Completed) |

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| *Concern* | **FP.1-4/T90** |
| | **Early and continuing fire protection engineering review is not required by LBL in the design or modification of facilities to assure the adequacy of fire protection features as required by DOE 5480.7-10.b.(1) and DOE 6430.1A-0110-6.2.** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.7; DOE 6430.1A |
| *Response* | The TSA Field Verification Report indicates that LBL's actions have corrected the concern. However, the Recommendation appears to contain an error in that it recommends not closing the concern "due to conditions sited above." The recommendation appears to be intended for FP.4-1, not FP.1-4, and that a transposition of numbers has occurred. We consider the corrective action plan for FP.1-4 completed. |

*Concern* **FP.1-5/T90**

**Regular self-inspections, fire loss potential reviews and appraisals to identify the nature, location and severity of fire risks, as well as to determine the adequacy of fire loss control devices and activities, are not being conducted as required by DOE 5480.7-10b(2).**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* Although fire safety inspections are now being conducted regularly, fire loss potential reviews and appraisals (surveys) by fire protection engineers are not being conducted; and consequently, effective implementation and control of fire protection equipment and activities is not ensured as required by DOE Order 5480.7–10b(2). This concern will be addressed by initiating a baseline survey with consultants and following this with ongoing self-conducted fire loss surveys.

*Related Concerns* FP.2-2 FP.4-1 FP.4-2 FP.5-1 FP.5-2 FP.7-1/T90 FP.7-2 FP.7-4/T90 FP.7-6/T90 FP.7-7/T90

*Tasks* T4102 (Completed)

T4103

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*Concern* **FP.1-6 (COMPLETE)**

**Independent design review of fire protection construction projects can be adversely affected by the fact that the Fire Protection Engineer is administratively under the Mechanical Engineering Section in Plant Engineering.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* Fire protection organization and administration should ensure the effective implementation and control of fire protection equipment and activities. Design review responsibility appears fragmented because the FP Engineer is in the Plant Engineering Department and because of the way the delegation of authority is written in the Fire Safety and Protection Policy. Also, no document, such as the Health & Safety Manual, currently defines design review responsibility, authority, and process. These conditions interfere with LBL's ability to ensure effective implementation and control of fire protection equipment and activities. (Also see MF-5). This concern is addressed by redefining and clearly delineating fire protection design responsibilities between Plant Engineering and the Fire Department.

*Tasks* T2165 (Completed)

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*Concern* **FP.1-7**

**There is no comprehensive documented fire protection program from policy to implementation. (Also see Concern OA.1-4.)**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* The official LBL policy statement and direction for the performance of the fire protection program is relatively new and is continuing to be fine-tuned. Detailed implementing procedures that will further refine the program are still not developed. There are still gaps in the overall program, which are evidenced by incomplete training programs, incomplete fire protection facility inspections, and lack of formalized risk reduction programs. Responsibilities and authorities contained in the Health and Safety Manual (PUB-3000) do not match the way business is conducted. The fire protection program at LBL is fragmented among several manuals, internal procedures, and managers. The flow of implementation requirements for the fire protection program cannot be traced from top policy statements to implementing procedures for each function and/or responsibility throughout the Laboratory. LBL's fire protection program needs review and improvement in terms of policy, procedures, risk reduction activities, training, and inspections in order to ensure effective implementation and control of fire protection equipment and activities. The responsibilities and authorities contained in PUB-3000 are addressed and updated in the Corrective Action Plan (CAP) for Concern FP.1-6. The fire loss survey initiated in the CAP for Concern FP.1-5/T90 also addresses part of this concern. Other deficiencies will be addressed through the development of a Fire Department Quality Assurance (QA) Plan, revised procedures, and improved training for fire fighters. The documents resulting from this CAP will be included in the Fire Department's Function Notebook developed as a part of Task T2024.

*Related Concerns* FP.1-6 FP.5-1/T90

*Tasks* T2165 (Completed) T2169 (Completed)

T2024 T4103 T8647 T9100

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*Concern* **FP.2-1/T90 (COMPLETE)**

**Conformance with NFPA 101 Life Safety Code, as recommended by DOE 5480.7-9.1.(1), is not maintained at LBL and verified by periodic inspection.**

*Hazard/ Compliance Levels* H1/C1

*Category* II

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **FP.2-2**

**Lawrence Berkeley Laboratory facilities do not meet requirement of NFPA 101, Life Safety Code.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.7; NFPA 101

*Response* All facilities on site should provide adequate life safety provisions against the effects of fire. There is no comprehensive program in place at LBL to ensure compliance with NFPA 101, the Life Safety Code. Some exits and egress pathways are not yet marked with signs. Facility exits and exit ways do not meet NFPA 101 requirements. Fire and smoke doors are not maintained to meet requirements of NFPA 101, Life Safety Code and NFPA 80, Fire Doors. Where a Life Safety Code discrepancy exists that takes long-term corrective action and funding to correct, near-term action to reduce the risk to occupants in a fire situation has not been completed. The Building Managers are not trained in recognizing Life Safety Code requirements. There are still a number of Life Safety Code discrepancies observed in facilities that indicate the need for a more intensive emphasis on the self-inspection of the facilities by a Fire Protection Engineer. LBL is taking action to correct these discrepancies . LBL is also initiating a comprehensive survey to identify all NFPA 101 discrepancies to be corrected. Although compliance efforts are being conducted, a comprehensive program to ensure compliance with NFPA 101 must be developed and implemented. To ensure that adequate life safety provisions against the effects of fire are in place the Corrective Action Plan involves: conducting inspections to identify mitigation requirements, providing mitigation measures, conducting fire loss surveys (see CAP for Concern FP.1-5/T90), correcting baseline deficiencies, and developing a Laboratory Fire Safety Education Program.

*Related Concerns* FP.1-4/T90 FP.1-5/T90 FP.1-7 FP.4-2/T90

*Tasks* T4102 (Completed)

T2173 T2174 T4103 T8654 T8718

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*Concern* **FP.3-1/T90 (COMPLETE)**

**It has not been determined, based upon a quantitative analysis, that an offsite release of hazardous amounts of toxic and radioactive materials will not occur under maximum credible fire conditions as per DOE 5480.7-9.a.(3).**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

*Concern* **FP.4-1/T90**

**A credible fire could result in program interruption in critical facilities at LBL or in another DOE-owned facility in excess of the limits established by DOE 5480.7-9(b).**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5480.7-9(b)

*Response* The Tiger Team TSA Field Verification Report accepts the original TSA Action Plan for this concern and recognizes that progress is being made to accomplish it. The recommendation of the report is that the item remain open pending completion to corrective actions (already initiated) that, when completed, will bring LBL into compliance with DOE Order 5480.7–9(b). These corrective actions include conducting an initial fire protection survey by consultants, correcting the deficiencies identified by the survey, and initiating ongoing fire loss surveys. These tasks are all a part of the CAP for Concerns FP.1-5/T90 and FP.2-2.

*Related Concerns* FP.1-5 FP.2-2 FP.4-2/T90 FP.5-1/T90 FP.5-2/T90

*Tasks* T4102 (Completed)

T4103 T8654

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*Concern* **FP.4-2/T90**

**Fire Hazards Analysis Reports, Fire Risk Assessment Reports, or similar documents have not been prepared to evaluate the potential for interruption of operations due to a credible fire that may exceed the limits specified in DOE 5480.7-9(b).**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* The Tiger Team TSA Field Verification Report accepts the original TSA Action Plan for this concern, and recognizes that progress is being made to accomplish it. The recommendation of the report is that the item remain open pending completion of (already initiated) corrective actions that, when completed, will bring LBL into compliance with DOE Order 5480.7-9(b). These corrective actions include conducting an initial Fire Protection by consultants, correcting the deficiencies identified by the survey, and initiating ongoing fire loss surveys. These tasks are part of the CAP for Concerns FP.1-5/T90 and FP.2-2.

*Related Concerns* FP.1-5/T90 FP.1-7 FP.2-2 FP.4-1/T90 FP.5-1/T90 FP.5-2/T90

*Tasks* T4102 (Completed)

T4103 T8654

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|---|---|
| *Concern* | **FP.5-1/T90** |
| | **The maximum credible and maximum possible fire loss values may exceed the property damage limits established in DOE 5480.7-9(c).** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.7 |
| *Response* | The Tiger Team TSA Field Verification Report accepts the original TSA Action Plan for this concern and recognizes that progress is being made to accomplish it. The recommendation of the report is that this concern remain open, pending satisfactory completion of the (already initiated) corrective actions that, when completed, will bring LBL into compliance with DOE Order 5480.7–9(c). These corrective actions include conducting an initial Fire Protection by consultants, correcting the deficiencies identified by the survey, and initiating ongoing fire loss surveys. These tasks are part of the CAP for Concerns FP.1-5/T90 and FP.2-2. |
| *Related Concerns* | FP.1-5/T90 FP.1-7 FP.4-1/T90 FP.4-2/T90 FP.5-2/T90 |
| *Tasks* | T4102 (Completed) |
| | T4103 T8654 |

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|---|---|
| *Concern* | **FP.5-2/T90** |
| | **Fire Hazards Analysis Reports, Fire Risk Assessment Reports, or similar documents have not been prepared to evaluate the potential for property losses due to a credible fire that may exceed the limits specified in DOE 5480.7-9(c).** |
| *Hazard/ Compliance Levels* | H3/C1 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.7 |
| *Response* | The Tiger Team TSA Field Verification Report accepts the original TSA Action Plan for this concern and recognizes that progress is being made to accomplish it. The recommendation of the report is that this concern remain open, pending satisfactory completion of the (already initiated) corrective actions that, when completed, will bring LBL into compliance with DOE Order 5480.7–9(c). These corrective actions include conducting an initial Fire Protection by consultants, correcting the deficiencies identified by the survey, and initiating ongoing fire loss surveys. These tasks are part of the CAP for Concerns FP.1-5/T90 and FP.2-2. |
| *Related Concerns* | FP.1-5/T90 FP.4-1/T90 FP.4-2/T90 FP.5-1/T90 |
| *Tasks* | T4102 (Completed) |
| | T4103 T8654 |

| | |
|---|---|
| *Concern* | **FP.6-1/T90** |
| | **The Fire Department operations are only in partial compliance with NFPA 1500, Standard on Fire Department Occupational Safety and Health Program.** |
| *Hazard/ Compliance Levels* | H1/C1 |
| *Category* | III |
| *Compliance Protocol* | 29 CFR part 1910.133; ANSI 288.5; ANSI 288.6; CGA G-7.1; DOE 5480.7; NFPA 1002; NFPA 1003; NFPA 1021; NFPA 1500; NFPA 1901; NFPA 1911; NFPA 1962; NFPA 1971; NFPA 1972; NFPA 1973; NFPA 1974; NFPA 1975; NFPA 1981; NFPA 1982; NFPA 1983; NFPA 600 |
| *Response* | The Laboratory committed to conducting a needs assessment to determine the areas of non-compliance with NFPA 1500. The assessment has been completed and corrections made. A list of eighteen areas of noncompliance remain. Generally, they concern fire fighter training, safety procedures, and equipment. Completion of improved training programs, improved procedures, and correction of equipment deficiencies tasks will bring the Laboratory into compliance with NFPA 1500. Improved training and procedures are addressed by the CAP for Concern FP.1-7. A task addressing equipment deficiencies is described in the CAP for this concern. |
| *Related Concerns* | FP.1-7 FP.6-2/T90 |
| *Tasks* | T2169 (Completed) |
| | T8647 T8719 |

*Concern* **FP.6-2**

**Fire Department response has not been evaluated for special hazard response and appropriate staffing provided to ensure adequate, trained response.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.7; NFPA 1500

*Response* The Fire Department should have the capacity to promptly terminate and mitigate the effects of a fire in a safe and effective manner. The major incident involving special hazards for the LBL Fire Department is a fire in a facility during an earthquake. A response to a structure fire requires at least five trained fire fighters as required by NFPA 1500. The LBL auxiliary fire fighters are not trained to NFPA 1500 requirements and cannot be considered structural fire fighters. Responding to an incident involving special hazards with less than five trained fire fighters is an unacceptable safety risk. The Laboratory has evaluated the minimum staffing level required for special hazard response and provides minimum shift staffing of five as a general practice. This evaluation and practice will be formally documented. Training of this staff is addressed by the CAP of Concern FP.1-7. As a part of the emergency preparedness plan, a drill/exercise program will regularly present opportunities to evaluate the Fire Department response to special emergencies.

*Related Concerns* EP.4-2 FP.1-7 FP.6-1/T90

*Tasks* T4089 (Completed) T4105 (Completed)

T8647

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*Concern* **FP.6-3 (COMPLETE)**

**There is no formal mechanism to keep the pre-fire plans current.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* Because LBL lacks a formal mechanism for keeping pre-fire plans current, the Fire Department's ability to promptly terminate and mitigate the effects of a fire safely and effectively may be impaired. A system will be developed to keep pre-fire plans current.

*Tasks* T4106 (Completed)

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*Concern* **FP.7-1/T90**

**The use of ordinary lumber is not controlled to assure that non-combustible or better construction is maintained as required by DOE 5480.7-10b(6).**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.7; Uniform Building Code

*Response* The issue remaining open from the 1989 TSA is the use of ordinary lumber in areas where prohibited by current codes. Use of ordinary lumber for new construction is now controlled by the Construction and Maintenance Department with a document system. Identification of existing untreated lumber in prohibited locations will be accomplished as part of the baseline Fire Protection Engineering Survey being conducted by consultants (Concern FP.1-5). A removal plan will be developed once areas of noncompliance are located and ordinary lumber removed (Concern FP.2-2). Continued monitoring of the use of ordinary lumber will occur as part of the Laboratory's ongoing self-conducted fire protection inspections (Concern FP.1-5).

*Related Concerns* FP.1-5 FP.2-2

*Tasks* T4102 (Completed)

T4103 T8654 T9174

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*Concern* **FP.7-2/T90**

**Automatic sprinkler protection is not provided to protect areas with combustible construction or contents that present a significant potential for property damage or program impact, as required by DOE 5480.7-10b(11). Examples of such areas were found in Bldg. 51B and the platform in Bldg. 52.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.7; NFPA 13; Uniform Building Code

*Response* The Tiger Team TSA Field Verification Report accepts the original TSA Action Plan for the concern, and recognizes that progress is being made to accomplish it. It notes that all major facilities have sprinkler protection. The recommendation of the report is that the concern remain open until completion of the (already initiated) corrective action. This action involves completion of the baseline Fire Protection Engineering Survey, correction of automatic sprinkler protection, and periodic surveys in the Laboratory's ongoing self-conducted fire protection inspections. These corrective actions are detailed in the CAP for Concerns FP.1-5 and FP.2-2.

*Related Concerns* FP.1-5 FP.2-2

*Tasks* T4102 (Completed)

T2174 T4103 T8654

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*Concern* **FP.7-3/T90 (COMPLETE)**

**Regular self-inspections are not conducted to assure the adequacy of general housekeeping and protection as required by DOE 5480.7-10.b.(2).**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **FP.7-4/T90**

**Flammable liquids use and handling at LBL is not in conformance with applicable NFPA standards.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.7; NFPA 30; Uniform Fire Code

*Response* As stated in the Tiger Team TSA Field Verification, there already has been noticeable improvement, and corrective activity is on schedule. However, additional correction and preventative action still needs to be accomplished. These will comprise relocating flammable liquid storage from unapproved areas, relocating drum storage from racks to centralized flammable liquid storage modules, and inclusion of flammable liquid storage in the Laboratory's ongoing self-conducted fire protection inspections. A comprehensive fire protection survey by consultants and the initiation of a fire-loss self-inspection program developed in the CAP for Concern FP.1-5/T90 addresses part of this concern. A task to relocate drum storage of flammables addresses the balance of the concern. The fire safety education program (Concern FP.2-2) should address a causal factor and help maintain compliance.

*Related Concerns* FP.1-5/T90 FP.2-2

*Tasks* T4102 (Completed)

T3003 T4103 T8718

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*Concern* **FP.7-5/T90 (COMPLETE)**

**The storage of magnetic tapes in the data processing rooms in Bldg. 50B is not in conformance with NFPA 75, "Electronic Data Processing Equipment," and DOE EP-0108, "Standard for Fire Protection of Electronic Computer/Data Processing Systems."**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE EP-0108; NFPA 75

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **FP.7-6/T90**

**The use of combustible, insulated electrical cables is not controlled in the facilities at LBL.**

*Hazard/ Compliance Levels* H2/C2

*Category* III

*Response* The Tiger Team TSA field verification report accepts the original TSA Action Plan for this concern and recognizes that progress is being made to accomplish it. The recommendation of the report is that the concern remain open, pending completion of our Corrective Action Plan which calls for locating noncompliant electrical cable as part of the baseline Fire Protection Engineering Survey, removing or mitigating noncompliant cable in the Laboratory's ongoing self-conducted fire protection inspections. This concern is addressed by the CAP of Concern FP.1-5/T90 and the Life Safety Deficiencies Corrective Project of Concern FP.2-2.

*Related Concerns* FP.1-5/T90 FP.2-2

*Tasks* T4102 (Completed)

T4103 T8654 T9179

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*Concern* **FP.7-7/T90**

**Fire protection engineering review and approval is not required or necessarily performed for new experiments prior to the initiation of new experiments at LBL (See Concern SR.2-1).**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* DOE 5480.7

*Response* The new Laboratory Fire Safety and Protection Policy makes all Division Directors responsible for having all projects reviewed for compliance with all fire safety and protection requirements prior to their initiation. However, "new experiments" are not specifically stated. (See also Concern EA.4-1.)

*Tasks* T4145

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*Concern* **FP.7-8/T90 (COMPLETE)**

**Sprinkler system and water supply system control valves, fire and water flow alarm systems, and fire pumps are not tested and inspected at the frequencies, and with appropriate corrective action taken, as required by NFPA Standards and DOE guidance.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Compliance Protocol* California Health & Safety Code; CFR; DOE 5480.7; NFPA 13A; NFPA 72H

*Response* The current quarterly testing frequency of sprinkler systems and water supply system control valves, etc., does not meet NFPA requirements. Increase this frequency to be in compliance.

*Tasks* T3006 (Completed)

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*Concern* **FP.7-9/T90 (COMPLETE)**

**Employees expected to use portable fire extinguishers are not trained in their use as required by DOE 5483.1A and 29 CFR 1910.157.**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **FP.7-10/T90 (COMPLETE)**

**Water pressure at fire hose connections in LBL facilities exceeds the 100 psi limit established in NFPA 14, "Standpipe and Hose Systems."**

*Hazard/ Compliance Levels* H1/C1

*Category* III

*Response* The 1991 Tiger Team Assessment recommended that this concern, from the 1989 TSA, be closed.

*Tasks* T9164 (Completed) T9183 (Completed)

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*Concern* **FP.7-11 (COMPLETE)**

**The San Francisco Operations Office does not evaluate fire protection program requirements in accordance with DOE 5482.1B. Also see Concern OA.1-5.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5482.1B

*Response* Fire protection reviews will be made more program oriented insofar as insurance survey and TSA follow-up will allow.

*Related Concerns* OA.1-5

*Tasks* T1118 (Completed) T1120 (Completed)

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|---|---|
| *Concern* | **FP.7-12** |
| | **Technical aspects of the fire protection program such as fire protection facility surveys, trend analysis of fire alarms, and development of laboratory standards pertaining to fire risks are not being accomplished.** |
| *Hazard/ Compliance Levels* | H2/C2 |
| *Category* | III |
| *Compliance Protocol* | DOE 5480.7 |
| *Response* | Complete annual fire protection facility surveys are not accomplished as required in DOE 5480.7. There are no trend nor root cause analyses of fire runs. There is a lack of procedures or Laboratory standards dealing with special fire risks. The CAP for Concern FP.1-5/T90 addresses the survey aspects of this concern. Improved procedures, which include dealing with special fire risks, are addressed in Concern FP.1-7. Finally, a trend and root cause analysis system will be developed here to ensure that the technical aspects of the fire protection program are in place. |
| *Related Concerns* | FP.1-5/T90 FP.1-7 FP.4-1/T90 FP.4-2/T90 FP.5-1/T90 FP.5-2/T90 |
| *Tasks* | T2169 (Completed) T4102 (Completed) T4108 (Completed) |
| | T4103 |

*Concern* **MS.2-1**

**A written Occupational Medical Plan does not exist as required by DOE 5480.8.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5480.8

*Response* Much documentation of policies, practices, and procedures required by DOE 5480.8 is present in the form of memoranda, copies of reference sources, and equipment operating instructions. Documentation is informal, not indexed, not well organized, and largely kept in loose leaf binders. There is no up-to-date department medical emergency plan which can be integrated with the site Master Emergency Plan. The quality assurance plan for Medical Services is incomplete and not fully implemented. Documentation is dispersed in multiple locations and not readily accessible for reference, review, or training. These conditions, which make it difficult for the Laboratory to provide appropriate direction, record generation, and support of the medical services for the facility and site, will be eliminated by procedures and requirements in an Occupational Medical Plan and a Quality Assurance Plan being developed as apart of the Function Notebook for the Medical Services Department. These plans will be folded into the Laboratory Master Emergency Plan as appropriate.

*Related Concerns* EP.2-1 MS.3-1 OA.3-1 QV.1-2

*Tasks* T1065 T1067 T4084

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*Concern* **MS.3-1 (COMPLETE)**

**Staffing levels do not meet minimum guidelines based on population served as required by DOE 5480.8.**

*Hazard/ Compliance Levels* H3/C2

*Category* III

*Compliance Protocol* DOE 5480.8

*Response* DOE 5480.8 gives specific guidelines for physician and nurse staffing levels. At the time of the Tiger Team visit there were on the staff 1.8 FTE physicians (one full-time, two part-time) and 3.0 FTE nurses (two full time, two part-time). These staffing levels preclude frequent site visits as required by DOE 5480.8 and are not adequate to meet the demands of growing health and safety programs. They also compromise the Laboratory's ability to provide medical treatment by qualified, competent staff. (See also MF-2.)

*Related Concerns* MS.2-1 MS.3-2

*Tasks* T9031 (Completed) T9032 (Completed)

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*Concern* **MS.3-2**

**Medical surveillance of employees exposed to carcinogens, chemicals, physical, and biologic agents cannot be assured as required by Occupational Safety and Health Administration standards and DOE 5480.8.**

*Hazard/ Compliance Levels* H2/C1

*Category* III

*Compliance Protocol* DOE 5480.11; DOE 5480.8

*Response* The Laboratory does not have written policies, practices, or procedures for required medical surveillance. The Medical Services staff is not provided with full and timely information on physical, chemical, and biologic hazards in the workplace as required by DOE 5480.8 and OSHA standards. The medical records do not contain the employee's history of exposure to physical, chemical, or biologic agents. Medical Services does not have access to on-line Material Safety Data Sheet information. These conditions limit the Laboratory's ability to provide adequate medical treatment. (See also Concerns IH.3-2 and RP.2-2.)

*Related Concerns* IH.2-4 IH.3-2 MS.3-1 OS.2-4

*Tasks* T2161 (Completed)

T1068 T1069

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*Concern* **MS.3-3**

**The medical facility does not meet minimum standards required by DOE 5480.8 or accepted industry standards of medical practice in that the facility is not large enough and does not provide patient privacy.**

*Hazard/ Compliance Levels* H3/C1

*Category* III

*Compliance Protocol* DOE 5480.8

*Response* The medical facility does not meet DOE 5480.8 requirements for space and privacy. It lacks a library, a conference room, offices for medical staff, and dedicated storage space. The Laboratory recognized this situation and has received funding as part of MEL-FS Project No. 88-R-806 for an addition to Building 26.

*Tasks* T2162

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**TASK: T1049 Organizational Roles Throughout LBL** *Complete:* 10/01/91

All environment, safety, and health roles, responsibilities, and authorities will be identified by current organizational unit, personnel, and reporting relationships; organizational overlaps, fragmentation, and interdependences will be noted. This task will review all divisions, with particular attention to several portions of the current organization: Scientific and Technical Resources (EH&S Division); Administration (Personnel Department, Plant Engineering Department, Construction and Maintenance Department, and Material Management); Office of Planning and Assurance (IRAD); and Earth Sciences (well monitoring). Analyses of functional organizational units will be done, with particular emphasis on interfaces between programmatic divisions and support organizations.

| Milestones: | *Schedule* |
|---|---|
| *ES&H responsibilities analyzed* | *Done:* 09/31/91 |
| *Organizational recommendations implemented* | *Done:* 10/01/91 |

**TASK: T1057 Manifest Review Procedure** *Complete:* 06/07/91

A review system will be established that will provide for a person other than the one originating the manifest to inspect it for accuracy and compliance with DOE, DOT, EPA, OSHA, and CAL DOHS Orders. This requirements will be included in the Function Notebook.

| Milestones: | *Schedule* |
|---|---|
| *Manifest review procedures completed* | *Done:* 06/07/91 |

**TASK: T1061 Radioactive Waste Container (RWC) Labeling** *Complete:* 07/01/91

The HWHF will establish a system to ensure that all radioactive waste containers are properly labeled and are in good condition.

| Milestones: | *Schedule* |
|---|---|
| *RWC inventory completed* | *Done:* 05/15/91 |
| *Labeling of RWCs reviewed for adequacy* | *Done:* 06/01/91 |
| *Inadequate labels replaced* | *Done:* 07/01/91 |

**TASK: T1062 Provide Adequate Rad. Protect. Manpwr & Resources**

LBL will review the manpower and resources requirements for adequacy to carry out its mission and develop additional requirements. As a part of the overall ES&H resource plan (MF-2) begin obtaining additional staff.

| Milestones: | *Schedule* |
|---|---|
| *RP program manpower & resources reviewed* | *Done:* 07/01/91 |
| *RP manpower & res. input into MF-2 completed* | *Done:* 10/01/91 |
| *Plan for recruitment completed* | *Done:* 10/01/91 |
| *Four Rad. Assessment FTE's hired in FY93* | *Done:* 04/01/92 |
| *Two Rad. Assessment FTE's hired in FY94* | *Due:* 09/30/93 |

**TASK: T1065 Develop Occupational Medical Plan (OMP)**

A formal written Occupational Medical Plan as required by DOE 5480.8 will be developed and implemented.

| Milestones: | *Schedule* |
|---|---|
| *LBL documents centralized; LLNL documents reviewed* | *Done:* 12/20/91 |
| *First draft OMP written* | *Done:* 07/01/92 |
| *OMP reviewed and revised* | *Due:* 07/01/93 |
| *OMP approved* | *Due:* 09/01/93 |
| *Training for users of plan initiated* | *Due:* 09/30/93 |

**TASK: T1067 Develop Occupational Medical QA Plan**

LBL will complete and implement a formal, written Medical Services department Occupational Medical Quality Assurance Plan (OMQAP) consistent with institutional QA approaches.

| Milestones: | *Schedule* |
|---|---|
| *Current OMQAP and analogous documents reviewed* | *Done:* 12/20/91 |
| *First draft OMQAP prepared* | *Done:* 07/01/92 |
| *OMQAP reviewed and revised* | *Due:* 07/01/93 |
| *OMQAP approved* | *Due:* 09/01/93 |
| *Training provided to staff* | *Due:* 09/30/93 |

**TASK: T1068 Develop Med. Surveillance Policy & Proced. (MSPPS)**

LBL will develop and implement written policies and procedures for required medical surveillance. These will include the types and levels of exposures to be covered by the medical surveillance program and the role of supervisors in implementing the program.

| Milestones: | *Schedule* |
|---|---|
| *Current MSPPs and reference documents reviewed* | *Done:* 03/01/92 |
| *First draft MSPPs written* | *Done:* 09/01/92 |
| *Draft MSPPs reviewed and revised* | *Due:* 03/01/93 |
| *MSPPs approved* | *Due:* 04/01/93 |
| *MSPPs initiated* | *Due:* 04/15/93 |

**TASK: T1069 Add Exposures to Medical Records**

LBL will add to employee's medical records history of exposure to physical, chemical, or biological agents.

| Milestones: | *Schedule* |
|---|---|
| *Current exp. records upgraded, ref. docs. reviewed* | *Done:* 05/15/92 |
| *New medical record forms drafted* | *Due:* 12/01/92 |
| *Final medical record forms implemented* | *Due:* 06/01/93 |

**TASK: T1076 Prepare Emergency Plan for DOE/SF**

DOE/SF is fully committed to achieving and maintaining an emergency program that is effective and in compliance with applicable DOE Orders. DOE/SF will: (1) Prepare and issue a new Memorandum of Agreement (MOA) delineating the emergency preparedness responsibility of the AMEMS, AMEP and AMDP. (2) Establish a DOE/SF emergency response organization. The organization will support emergencies within DOE/SF and those areas specified in the MOA. (3) Develop a DOE/SF Master Emergency Plan and Implementing Procedures. (4) Develop an internal audit system to ensure compliance with applicable DOE Orders and directives.

| Milestones: | *Schedule* |
|---|---|
| *MOA finalized* | *Done:* 07/16/92 |
| *DOE/SF Master Plan developed and issued* | *Due:* 11/30/92 |
| *DOE/SF emergency organization established* | *Due:* 11/30/92 |
| *Audit procedures were developed & implemented* | *Due:* 12/31/92 |

**TASK: T1077 Hoisting Rigging Outside Review**

LBL will engage the services of licensed outside consultants to evaluate the current LBL hoisting/rigging and crane operations against the OSHA standard. Specific evaluations and recommendations will include: improving operations of the rigging crew, management control of contractor rigging and hoisting, maintenance of fixed building cranes and hoists and below- the-hook lifting fixtures, training, testing, and certifying of Laboratory incidental crane operators.

| Milestones: | *Schedule* |
|---|---|
| *Consultant contract in place* | *Done:* 07/01/91 |
| *Consultant report (preliminary)* | *Done:* 08/25/91 |
| *Off-site facilities program reviewed* | *Done:* 09/01/91 |
| *Consultant report (final)* | *Done:* 10/01/91 |
| *Coordinator hired* | *Done:* 12/20/91 |
| *Implementation of new Hoisting Rigging program* | *Done:* 12/20/91 |
| *Strengthened language in contracts* | *Done:* 08/01/92 |
| *PUB-3000 revised* | *Done:* 09/15/92 |
| *Incidental crane operator program updated* | *Done:* 10/01/92 |
| *Clarify requirements* | *Due:* 11/01/92 |

**TASK: T1079 Evaluate All Unusual Radiation Exposures** *Complete:* 02/15/92

LBL will incorporate into PUB-3000 a section delineating the composition of committees charged with investigating incidents. The composition shall include an appropriate EH&S professional staff member, i.e. incidents involving chemicals, LASERS, confined spaces (an industrial hygienist); incidents involving radiation (health physicist). The goal of this task is to ensure proper review of incidents involving specific hazardous materials or operations. This was a specific Tiger Concern with the 88" Bevatron incident in 1989.

| Milestones: | *Schedule* |
|---|---|
| *Procedures drafted* | *Done:* 02/15/92 |
| *Procedures incorporated into PDO Procedure manual* | *Done:* 02/15/92 |

**TASK: T1080 Establish External Radiation Exposure Limits** *Complete:* 06/01/91

An investigation limit of 5rem for extremity and/or nonstochastic and 0.5 rem for whole-body exposures will be incorporated into the Occurrence Reporting Manual.

| Milestones: | *Schedule* |
|---|---|
| *Investigation level incorporated into Publications* | *Done:* 06/01/91 |

**TASK: T1081 External and Internal Radiation Exposure Doc.**

Prepare procedures to ensure that all radiation exposures are entered into a person's personnel dosimetry records. In conjunction with the Medical Services Department, the Office of Personnel Dosimetry will develop an approved procedure to ensure that internal and external exposure information is entered into each individual's medical record. The need for an effective Dose Equivalent Data Base will be reviewed. These procedures will be part of the conduct of operations to be included in the Facility Notebook for the Personnel Dosimetry Office, EH&S.

| Milestones: | *Schedule* |
|---|---|
| *Radiation exposure recording procedures approved* | *Done:* 05/04/92 |
| *Exposure entry to medical records approved* | *Done:* 10/01/92 |
| *Procedures implemented* | *Due:* 11/30/92 |
| *Personnel medical dosimetry records updated* | *Due:* 01/31/93 |

**TASK: T1083 Physical Safety Systems Augmenting Access Control** *Complete:* 06/01/92

Develop procedures for physical safety systems augmenting access control at accelerators, to include the existing interlock checklist system with modifications as necessary.

| Milestones: | *Schedule* |
|---|---|
| *Accelerator physical safety system def. completed* | *Done:* 10/17/91 |
| *Operational safety control procedures developed* | *Done:* 10/09/91 |
| *Accel. oper. safety prcds. subm. for PUB-3000 rev.* | *Done:* 06/01/92 |

**TASK: T1084 Evaluate and Develop Radiation Interlock Retrofits**

Perform and evaluate results of interlock systems review at existing accelerators to determine feasibility of dual interlock retrofits. Perform cost analysis of interlock retrofits, and request variance from compliance with ANSI N43.1 interlock requirements, if necessary, and install interlocks.

| Milestones: | *Schedule* |
|---|---|
| *Review of exist. interlock syst. per policy comp.* | *Done:* 07/31/92 |
| *Evaluation of interlock review completed* | *Due:* 11/15/92 |
| *Cost analysis of dual interlock retrofit completed* | *Due:* 12/01/92 |
| *Notice of intent to comply submitted to DOE/SF* | *Due:* 03/01/93 |
| *Retrofits Implemented* | *Due:* 10/01/94 |

**TASK: T1085 Develop and Implement Accel. Interlock Policy** *Complete:* 06/01/92

Establish a draft policy requiring interlock systems compliant with DOE Order 5480.11 on new and rebuilt facilities.

| Milestones: | *Schedule* |
|---|---|
| *Draft accelerator interlock policy completed* | *Done:* 12/13/91 |
| *Draft accelerator interlock policy approved by SRC* | *Done:* 01/17/92 |
| *Acc. Interlock policy incorporated into PUB-3000* | *Done:* 06/01/92 |

**TASK: T1086 Develop Radiation Work Approval Permit Procedure** *Complete:* 08/01/92

Develop and implement a radiation work control permitting procedure, including employee consultation with EH&S and documentation of such consultations, a formalized application process to EH&S and notification of employees by EH&S, through a Laboratory Workplace Standard, of required radiation controls for the work.

| Milestones: | *Schedule* |
|---|---|
| *Radiation work conditions requiring permit defined* | *Done:* 09/30/91 |
| *Radiation work permitting procedure developed* | *Done:* 02/01/92 |
| *Permitting procedure draft policy completed* | *Done:* 08/01/92 |

**TASK: T1090 Devel. Policy to Inventory Sealed Rad. Sources** *Complete:* 06/01/91

Develop a policy to identify all sealed sources and ensure periodic leak check for contamination.

| Milestones: | *Schedule* |
|---|---|
| *Sealed source policy revised* | *Done:* 06/01/91 |

**TASK: T1094 LBL Radioisotope Inventory Control** *Complete:* 09/30/92

LBL will develop and implement a revised radioisotope inventory program that reflects the types and quantities of all radioactive materials currently in use.

| Milestones: | *Schedule* |
|---|---|
| *RAD inventory program assessed and established* | *Done:* 02/15/92 |
| *Inventory control procedure completed* | *Done:* 09/30/92 |
| *Program implemented* | *Done:* 09/01/92 |

**TASK: T1096 Develop Area Survey Procedures** *Complete:* 09/30/92

Develop and approve procedures detailing required documentation, frequency, locations and personnel for radiological area surveys to comply with SF MD 5480.11, DOE Order 5480.4, and ANSI N43.1, and incorporate into PUB-3000 for implementation.

| Milestones: | *Schedule* |
|---|---|
| *Protocol developed* | *Done:* 08/01/91 |
| *Radiological areas defined* | *Done:* 06/01/92 |
| *Radiological area survey procedure developed* | *Done:* 09/30/92 |
| *Radiological Survey Procedure Policy drafted* | *Done:* 09/30/92 |

**TASK: T1097 Prepare Internal Dosimetry Procedures**

Approved written procedures will be prepared for routine counting and data analysis for bioassay and whole body counting, gamma detector calibration, dose reporting to Personnel Dosimetry, dose calculation for chronic exposure, bioassay, and enforcement, documentation, notification and disposition of results of the dosimetry program, type and frequency of required bioassay testing, and compliance and penalties for non-compliance with required bioassay testing to comply with DOE Order 5480.11. Procedures will be reviewed for technical content, and approved by management.

| Milestones: | *Schedule* |
|---|---|
| *Internal dosimetry procedure documents reviewed* | *Done:* 12/20/91 |
| *Rec's for req'd bioassay complaince given to SRC* | *Done:* 03/02/92 |
| *SRC review policy for bioassay compliance* | *Done:* 07/17/92 |
| *Procedures for internal dosimetry program written* | *Due:* 12/01/92 |
| *Procedures approved* | *Due:* 02/01/93 |
| *Bioassay procedure implemented* | *Due:* 04/01/93 |

**TASK: T1100 Prompt Response** *Complete:* 08/01/92

LBL will initiate prompt response to the specific findings related to Concern RP.7-3. Completing the blind internal audit sample program and whole body counter efficiency calibration may require more than six months to complete.

| Milestones: | *Schedule* |
|---|---|
| *WBC Operation* | *Done:* 12/20/91 |
| *Blind Audit Program* | *Done:* 02/01/92 |
| *WBC Calibration* | *Done:* 08/01/92 |

**TASK: T1101 Review QAPP**

The present EH&S Division QAPP will be reviewed for agreement with quality assurance recommendations in document ANSI N13.30 pertaining to internal dosimetry. The QAPP will be revised as necessary and the new plan will be implemented.

| Milestones: | *Schedule* |
|---|---|
| *Review standards* | *Due:* 12/01/92 |
| *Revise QAPP* | *Due:* 03/01/93 |
| *Implementation* | *Due:* 06/01/93 |

**TASK: T1104 Develop Radiation Inst. Calibration Procedures** *Complete:* 04/24/92

LBL will develop an approved radiation instrumentation calibration, documentation, and quality assurance procedure for fixed and portable radiation survey instruments for all of LBL facilities and site, per ANSI N323 and N43.1.

| Milestones: | *Schedule* |
|---|---|
| *Requirements reviewed* | *Done:* 12/01/90 |
| *Checklist for instrument calibration completed* | *Done:* 05/01/91 |
| *EH&S and EE calibration assessment completed* | *Done:* 12/19/91 |
| *Calibration procedures approved & inst. upgraded* | *Done:* 03/13/92 |
| *EH&S calibration responsibility designated* | *Done:* 04/24/92 |

**TASK: T1110 Hire HEPA Filter Test Technician** *Complete:* 02/18/92

LBL prepared job description and posted a position for a technician to conduct approved HEPA filter testing program.

| Milestones: | *Schedule* |
|---|---|
| *Job description and posting completed* | *Done:* 09/30/91 |
| *HEPA filter technician hired* | *Done:* 02/18/92 |

**TASK: T1112 Provide Approved Aisle Markings**

LBL will provide approved identification labell ing on all aisles not currently having such markings.

| Milestones: | *Schedule* |
|---|---|
| *Survey of bldgs for aisle markings completed* | *Done:* 06/24/92 |
| *Issue Prelim. Eng. Report & request for FY93 NCA $* | *Done:* 08/19/92 |
| *Job order issued* | *Due:* 02/28/93 |
| *All aisles markings brought into compliance* | *Due:* 07/30/93 |

**TASK: T1113 Provide Building Floor Loading Signs**

LBL will provide floor loading signs in all building areas used for installation of laboratory equipment or storage purposes.

| Milestones: | *Schedule* |
|---|---|
| *Unposted floor and storage areas determined* | *Done:* 07/10/92 |
| *Issue Prelim. Eng. Report & request for FY93 NCA $* | *Done:* 07/15/92 |
| *Field meas. & calc. performed, job order issued* | *Due:* 02/28/93 |
| *Initial floor loading signs installed* | *Due:* 07/30/93 |
| *Fabricate & install remaining floor loading signs* | *Due:* 02/01/94 |
| *Loading signs completed* | *Due:* 03/01/94 |

**TASK: T1118 DOE/SF to Evaluate Program Elements in Fire Prot.** *Complete:* 02/04/92

DOE/SF fire protection appraisals will be scoped to include program requirements

| Milestones: | *Schedule* |
|---|---|
| *Evaluation of fire protection appraisals completed* | *Done:* 02/04/92 |

**TASK: T1120 Clarify DOE/SF Roles and Responsibilities** *Complete:* 09/30/91

The DOE/SF roles and responsibilities during fire inspection surveys conducted at LBL will be communicated and clarified to inspectors, and DOE/SF will provide LBL appropriate direction/recommendations.

| Milestones: | *Schedule* |
|---|---|
| *DOE/SF roles and responsibilities clarified* | *Done:* 09/30/91 |

**TASK: T1124 Develop Oversight Plan and Operations Protocols**

A Site Management Plan (SMP) defining all aspects of DOE oversight activities will be prepared. The SMP will incorporate the Laboratory Appraisal Plan, define performance indicators, and establish the bases for the frequency and level of physical oversight. One element of the SMP will be Operations Protocols.

| Milestones: | *Schedule* |
|---|---|
| *Interim protocols issued* | *Due:* 11/06/92 |
| *Interim SMP implemented* | *Due:* 11/06/92 |
| *Draft SMP issued* | *Due:* 11/06/92 |
| *Draft protocols to LBL* | *Due:* 11/06/92 |
| *Protocols finalized* | *Due:* 12/31/92 |
| *SMP finalized* | *Due:* 12/31/92 |

**TASK: T1128 Acetylene Piping—Training C&M Personnel** *Complete:* 02/19/91

Construction and Maintenance (C&M) supervisors will provide training to C&M regular shop workers that do compressed gas manifold work regarding the hazard and prohibition of using copper piping in acetylene delivery systems. This training is an explicit item in the basic job training required for entry-level employees in the C&M regulator shop.

| Milestones: | *Schedule* |
|---|---|
| *C&M regulator shop workers trained* | *Done:* 02/19/91 |

**TASK: T1129 Initiate Fire Dept. Inspection of Acetylene Piping** *Complete:* 09/30/91

Initiate the periodic inspection of acetylene piping systems in the periodic building and facility inspections conducted by the LBL Fire Department.

| Milestones: | *Schedule* |
|---|---|
| *Addition to Fire Dept. checklist completed* | *Done:* 09/30/91 |

**TASK: T2 Include ES&H Responsibilities in Job Descriptions** *Complete:* 09/14/92

Job descriptions will be provided for each employee, and they will include ES&H responsibilities . Supervisors will review ES&H job descriptions with employees. Independent verification of employee Job Descriptions will be conducted to verify compliance with the task.

| Milestones: | *Schedule* |
|---|---|
| *Current job descriptions assessed* | *Done:* 03/15/91 |
| *Job description criteria prepared* | *Done:* 04/27/92 |
| *Job descriptions updated* | *Done:* 08/31/92 |
| *Ver. of imp. of EH&S resp. in job descrip. in SAM* | *Done:* 09/14/92 |

**TASK: T2007 Training Responsibilities and Coordination**

The purpose of this task is to establish overall roles and responsibilities for training. This task is a necessary precursor to two others: T2008, Comprehensive Training Database, and T2009, LBL Training Program. At present, Laboratory-wide training and database activities are underway in the Personnel Department, EH&S Division, and Information and Computing Sciences Division. In addition, individual research divisions have training programs and record keeping activities. These activities are loosely coordinated. This group of tasks will: (1) Establish a central function for coordinating LBL's training activities, and define the responsibilities of that function; (2) Define the roles of existing Laboratory training activities, (3) Delineate the functional relationship among the central office function and other training activities, (4) Define responsibilities for (a) developing and (b) managing a comprehensive training data base, (5) Provide guidelines on financial responsibilities for training (i.e., research accounts vs. overhead accounts).

| Milestones: | *Schedule* |
|---|---|
| *Policy and Procedure Memorandum drafted* | *Done:* 03/12/92 |
| *Policy and Procedure Memorandum issued* | *Due:* 01/01/92 |

**TASK: T2008 Comprehensive Training Database**

The purpose of this Task is to develop a training database that is sufficiently comprehensive that other training databases and record-keeping activities are not needed. At present, Laboratory-wide data base activities are underway in the Personnel Department, EH&S Division, and Information and Computing Science Division. In addition, individual research divisions have record-keeping activities. These various activities serve specialized purposes, but they are duplicative to some extent and are counter-productive to (a) providing a complete picture for an individual employee, and (b) permitting an analysis of, for example, the Laboratory's compliance with a particular training requirement. Elements of the database will include: 1) For each employee: requirements, courses and other training completed, unsatisfied requirements, degrees, on-the-job training; 2) Covers all education and training, not just ES&H; 3) Covers all individuals requiring ES&H or other training, including participating guests, graduate students, and faculty members with joint appointments; 4) Auditable; 5) Flexible, with a wide variety of permitted inputs, outputs, and interfaces to other databases; and 6) Provides for specialized needs of the divisions. Task 2007, Training Responsibilities and Coordination, is a necessary precursor to this task. This Task will establish criteria for the database; the administrative structure for developing, controlling, and maintaining the database, and the database itself.

| Milestones: | *Schedule* |
|---|---|
| *Draft criteria and administrative structure* | *Done:* 03/12/92 |
| *Final criteria and administrative structure* | *Done:* 03/12/92 |
| *Selection of database system* | *Done:* 03/12/92 |
| *Test version of database* | *Done:* 10/01/92 |
| *Operational version of database* | *Due:* 01/01/93 |
| *Completed database* | *Due:* 06/01/93 |

**TASK: T2009 LBL Training Program**

The purpose of this task is to develop an LBL Training Program that meets the needs of the institution. At present, Laboratory-wide training activities are underway in the Personnel Department, EH&S Division, and Information and Computing Sciences Division. In addition, individual divisions have training activities. These various activities serve specialized purposes, but they are loosely coordinated and duplicative to some extent. More importantly, even in total they do not provide for an adequate overall training program. The Program will coordinate existing training activities, and develop additional activities as needed. Elements of the Program will include: 1) Identification of and timely compliance with training and certification requirements imposed by DOE Orders and regulatory agencies, 2) Training requirements corresponding to "good practice," 3) Option training—discretion of employee/supervisor, 4) Match LBL's requirements, method of training, and level of detail to: the hazard (for ES&H training), the risk to the institution, and the level of responsibility of the persons being training. The process will include distinguishing among: personnel with major ES&H job functions, such as EH&S personnel, building managers, and Division Safety Coordinators; managers and supervisors; and personnel at the working level, such as laboratory researchers and technicians, 5) Coordination among divisions to avoid duplicative efforts and provide uniform programs for divisions with similar needs, 6) Methods for evaluating the effectiveness of the Program. Included will be a method to evaluate the effectiveness and compliance of the line management's ES&H training. Tasks T2008 and T2006 need to proceed in parallel with this task. Many other tasks address specialized training to meet an identified ES&H need. These tasks will proceed according to their own schedule, but will eventually be incorporated into the overall LBL Training Program. This task will establish criteria for the Program; the organizational structure for developing, controlling, maintaining, and evaluating the Program, and the Program itself. The organizational structure includes the central function, and the coordination among the central function and existing training activities.

| Milestones: | *Schedule* |
|---|---|
| *Draft criteria and organizational structure* | *Due:* 12/01/92 |
| *Final criteria and organizational structure* | *Due:* 01/15/93 |
| *Organizational structure in place* | *Due:* 02/15/93 |
| *Draft program description* | *Due:* 06/15/93 |
| *Final program description* | *Due:* 12/15/93 |
| *Program initiated* | *Due:* 02/15/94 |

**TASK: T2017 Initiate Inspection of Acetylene Piping by EH&S** *Complete:* 03/01/91

LBL will initiate the regular inspection of acetylene piping systems in the periodic building and facility inspections conducted by EH&S Division.

| Milestones: | *Schedule* |
|---|---|
| *Addition to EH&S inspection procedure completed* | *Done:* 03/01/91 |

**TASK: T2018 Notify All Personnel of Acetylene Piping Problems** *Complete:* 02/04/91

The Laboratory will notify all personnel of the danger and prohibition of using copper piping in acetylene delivery systems and advise them of procedures for assistance in removing any copper piping found in such systems.

| Milestones: | *Schedule* |
|---|---|
| *Notification completed* | *Done:* 02/04/91 |

**TASK: T2019 Survey Acetylene Users** *Complete:* 02/10/91

The Laboratory will survey all known LBL acetylene users to find any instance where copper piping may have been used in acetylene delivery systems. If found, copper piping will be removed and replaced with non-copper materials.

| Milestones: | *Schedule* |
|---|---|
| *Survey completed* | *Done:* 02/05/91 |
| *Copper piping removed* | *Done:* 02/10/91 |

**TASK: T2021 Institutional Quality Assurance Plan**

The IQAP establishes the Quality Assurance Policy of the Laboratory and the organizational structure that implements it. A related document, the Institutional Conduct of Operation Plan (ICOP) establishes the Conduct of Operations Policy of the Laboratory and the organizational structure that implements it. The two documents work in concert to drive an integrated implementation of Quality Assurance and Conduct of Operations. The IQAP will have the following features, among others: a) it adopts a graded approach to NQA-1. b) it describes the 18 points of NQA-1 that must be considered in the development of individual second tier QA plans as required by DOE Order 5700.6 and it gives guidelines on their implementation, including the need for independent verification. c) it establishes criteria for the classification of facilities, projects or functions. The classification will be based on the degree to which a failure of Quality Assurance or Conduct of Operation would lead to major consequences for the Laboratory as a whole. These consequences could be programmatic consequences (e.g., suspension of operations of an accelerator for a period of several months), major environmental consequences (e.g., release of contamination off-site requiring extensive clean-up), or likely major injury or death (e.g., failure of personnel protection system in a high radiation accelerator enclosure). d) depending on the classification, it calls for the designated facilities, projects or functions to develop individual integrated Quality Assurance/Conduct of Operations Plans(QA/COP) along the lines established in IQAP and ICOP. e) it calls for the establishment of three Notebooks: the Facility Notebook, the Project Notebook and the Function Notebook to be used by facilities, projects and functions that are not designated to have individual QA/COP plans. These Notebooks are maintained by the facility supervisor, project leader or person responsible for a given function in the Laboratory. They contain both a uniform QA/COP plan as well as implementation instructions. The instructions in the notebooks are controlled. f) Quality Assurance and Conduct of Operations is implemented in research activities by the combined use of Facility Notebooks and Project Notebooks. For example, in the Physics Division the group collaborating in the Colliding Detector Facility at FNAL would have one Project Notebook defining QA/COP activities of the group. The group uses several facilities such as the assembly shop or electronic laboratories, the QAP/COP activities of which are defined in their Facility Notebooks. g) Quality Assurance and Conduct of Operations is implemented in support functions by the combined use of Facilities Notebook and the Functions Notebook. For example, the Motor Pool function would have a function book describing QA/COP for the operation and management of the Motor Pool, and Facilities Notebooks for each of the facilities used for servicing the vehicles. h) it calls for additional QA/COP plans when required by specific contractors. i) it calls for the staffing of a Quality Assurance/Conduct of Operations Support Office in the Scientific and Technical Resources Division to provide technical support in the development of QA/COPs and the implementation and use of the three Notebooks. j) it calls for the IRAD to verify the implementation of Quality Assurance and Conduct of Operations at the Laboratory.

| Milestones: | *Schedule* |
|---|---|
| *Draft OAP* | *Done:* 07/01/92 |
| *Criteria for classifying facilities* | *Done:* 07/01/92 |
| *Review completed* | *Done:* 08/01/92 |
| *IQAP signed by the Director* | *Due:* 10/30/92 |
| *Training on the IQAP* | *Due:* 12/01/92 |

**TASK: T2022 Development of Facility Notebook**

The Facility Notebook will describe the requirements for the operation of facilities and documents that those requirements have been fulfilled. It consists of guidance and instructions for sections to be filled out by the Facility staff. These sections include (i) a description of the Facility in terms of function and hazards, (ii) approved written procedures for normal operation, hazardous waste control, and abnormal conditions, (iii) what training consists of, and (iv) documentation of training and assessments. This document will provide increased assurance that all operations, even in low hazard areas, are conducted with sufficient formality and discipline to achieve compliance with ES&H requirements. It will embody requirements that arise from ES&H Orders, most importantly the Conduct of Operations Order 5480.19. Many other requirements, such as those established by the OSHA Chemical Hygiene Law, or DOE orders on record keeping will also be incorporated into the Facility Notebook. The Facility Notebooks in conjunction with either the Project Notebooks or the Function Notebooks will also cover the requirements of the Quality Assurance Order 5700.6B. The two-notebook approach was taken because a given scientific project or support function may utilize more than one facility or, conversely, two or more project or support functions may share a facility. A preliminary table of contents for the Facility Notebook is as follows: 1) Introduction 2) Facility Information 3) Emergency Procedures 4) Training 5) Facility-specific Policies - shall address User Groups of National Facilities 6) Materials and Waste Management 7) Written Operational Procedure 8) Inspections and Audits 9) Current Action Items. The Function Notebook and the Project Notebook provide companion information to assure coverage of all essential areas or topics.

| Milestones: | *Schedule* |
|---|---|
| *Facility Notebook issued—trial phase* | *Done:* 01/15/91 |
| *Implementation completed—50% trial phase* | *Done:* 03/01/91 |
| *Revised Facility Notebook issued for review* | *Done:* 06/01/92 |
| *Facility Notebook finalized* | *Due:* 09/15/92 |
| *Facility Notebooks issued to all facilities* | *Due:* 09/30/92 |

**TASK: T2023 Development of the Project Notebook**

The Project Notebook will describe the requirements for carrying out projects and documents that those requirements have been fulfilled. This document will provide increased assurance that all projects, including those that pose low hazards, are conducted with sufficient formality and discipline to achieve compliance with ES&H requirements. It will embody requirements that arise from DOE Orders, most importantly the Quality Assurance Order 5700.6B. The DOE orders have elements that correspond to good research practice and contain language that recognizes that procedural controls should be imposed on many different types of work, with the specific nature of those controls dependent on such factors as risk, cost, uniqueness, and frequency of use. The Project Notebook also incorporates requirements that are not covered by DOE Orders but that reflect LBL's successful record in achieving excellence in research, such as peer review, hiring and promotion policies. The Project Notebook is being developed in conjunction with the Facilities Notebook. The two-notebook approach was taken because a given scientific project may utilize more than one facility or, conversely, two or more projects may share a facility. The Project Notebook is tentatively organized into the following sections: 1) Research Program and Organization 2) Procedures and Processes 3) Staff Proficiency 4) Procurements 5) Designed Research Equipment and Facilities 6) Handling of Equipment and Materials 7) Handling of Data, Records and Reports 8) External Measures of Scientific Quality. The Facility Notebook provides companion information to assure coverage of all essential areas or topics.

| Milestones: | *Schedule* |
|---|---|
| *Project Notebook issued—trial phase* | *Done:* 09/30/91 |
| *Implementation completed in 50% of the trial phase* | *Done:* 01/15/92 |
| *Revised Project Notebook reviewed by management* | *Done:* 07/01/92 |
| *Project Notebook finalized* | *Due:* 08/01/92 |
| *Issue Project Notebooks to all projects* | *Due:* 09/01/92 |

**TASK: T2024 Development of the Function Notebook**

The Function Notebook describes the requirements for carrying out support functions and documents when those requirements have been fulfilled. Such support functions are for instance, Purchasing, Construction and Maintenance, Accounting, and so forth. They tend to be activities where traditional management controls can be fully effective. It embodies requirements that arise from DOE Orders, most importantly the Quality Assurance Order 5700.6B. The DOE Orders have elements that correspond to good practices and contain language that recognizes that procedural controls should be imposed on many different types of work, with the specific nature of those controls dependent on factors as risk, cost, uniqueness, and frequency of use. The Function Notebook is being developed in conjunction with the Facilities Notebook. The two notebook approach was taken because a given function may utilize none, one, or more facilities or, conversely, two or more functions may share a facility. The Function Notebook is tentatively organized into the following sections: 1) Program and Organization 2) Procedures and Processes 3) Staff Proficiency and Training 4) Procurements 5) Plant Modifications 6) Handling of Equipment and Materials 7) Handling of Record and Reports 8) Internal and External Measure of Quality. The Facility Notebook provides companion information to assure coverage of all essential areas and topics.

| Milestones: | *Schedule* |
|---|---|
| *Draft instructions issued* | *Due:* 04/01/92 |
| *Comments returned; trial functions identified* | *Done:* 05/01/92 |
| *Instructions revised; trial Notebooks distributed* | *Done:* 08/01/92 |
| *Trial phase completed* | *Due:* 10/01/92 |
| *Final revisions* | *Due:* 11/01/92 |
| *Final approval* | *Due:* 12/01/92 |
| *Function Notebooks issued.* | *Due:* 12/30/92 |

**TASK: T2045 Dosimetry Records Protection** *Complete:* 11/15/91

EH&S will survey record storage equipment and files to identify record storage that is in non-compliance with DOE Order 1324.2A, DOE Order 5500.7A, and ANSI/ASME and NQA-1 standards. Filing systems will be purchased and installed in appropriate locations to assure that exposure records are stored in a manner consistent with the orders and standards.

| Milestones: | *Schedule* |
|---|---|
| *Records requiring improved storage identified* | *Done:* 11/01/91 |
| *Improved storage files installed* | *Done:* 11/15/91 |

**TASK: T2047 Develop/Implement LBL Document Control System**

The purpose of this Task is to develop a document control system that will ensure that policies and procedures are disseminated to the people needing the information; that they are complete, accurate, and current; and that revisions are received and old versions removed from use. The development of this system will be the responsibility of the Associate Laboratory Director, Administration. Criteria will be established to define an adequate policy and procedure document control system for LBL. The present systems will be upgraded, or a new system developed, to meet the criteria. Criteria will be established for specifying which LBL policies and procedures will be included in the document control system. Each Administrative support function and Scientific and Technical Resources function that has elements of ES&H will be examined with respect to these criteria. The programmatic divisions will also be examined.

| Milestones: | *Schedule* |
|---|---|
| *Project plan concept approved* | *Done:* 08/14/91 |
| *Document Control Task Force appointed* | *Done:* 09/25/91 |
| *Consultant engaged* | *Done:* 11/14/91 |
| *Document control at other labs reviewed* | *Done:* 02/01/92 |
| *Relevant DOE Orders reviewed* | *Done:* 02/28/92 |
| *Survey of existing policy docs./systems conducted* | *Done:* 03/19/92 |
| *Survey data analyzed* | *Done:* 05/30/92 |
| *Hierarchy of control categories and policy drafted* | *Done:* 05/30/92 |
| *Applicable category for each document determined* | *Done:* 05/30/92 |
| *Pilot test in EH&S Division* | *Due:* 12/21/92 |
| *Pilot test results reviewed* | *Due:* 01/22/93 |
| *Doc. control policy & guid. approved & promulgated* | *Due:* 03/19/93 |
| *Audit plan developed* | *Due:* 06/01/93 |
| *Doc control system implemented for division docs.* | *Due:* 06/30/93 |
| *Periodic audits initiated* | *Due:* 07/01/93 |

**TASK: T2049 Establish Long Range Overhead Budget Planning Proc** *Complete:* 07/17/92

The Laboratory has established a new process for overhead budget review. The Laboratory Director with the assistance of the Director's Action Committee (DAC) reviews the budget proposals of the overhead cost centers before the beginning of the fiscal year. In order to gain a long range perspective, the Chief Financial Officer (CFO) prepares a 10 year operating expense budget projection. Within the framework of this projection, different overhead rates are examined for overall impact on the Laboratory's scientific competitiveness and its ability to meet overhead management requirements. A mid-year review of overhead expenditures will take place in April of the fiscal year. For the FY1992 mid-year review, the overhead cost centers will be required to prepare a three year projection through FY1995 for their budgets. The CFO will provide guidance to the cost centers. In subsequent years these projections will be rolled forward at the time of the mid-year review. Within this process, the one-time and ongoing corrective actions arising from this plan and future assessments will be reviewed for funding.

| Milestones: | *Schedule* |
|---|---|
| *Ten-year operating budget projection presented* | *Done:* 08/07/91 |
| *FY1992 Overhead Budget Review Completed* | *Done:* 08/28/91 |
| *FY1992 Overhead Budget and rate established* | *Done:* 09/04/91 |
| *FY1992 Mid-year Review, overhead proj. completed* | *Done:* 07/17/92 |

**TASK: T2051 Implement an ES&H Review for FTP and WFO**

The Laboratory will develop an ES&H compliance review for new research programs and projects when they are being developed as Field Task Proposals (FTPs) or Work for Others (WFO) proposals. WFO proposals are already subject to a summary review that must be intensified. The FY1993 DOE budget submission guidance required an early review of LBL FTPs for NEPA compliance. In the future, an expanded process will be developed that addresses both FTPs and WFO proposals. The guidance will address the responsibilities of the Administration and EH&S Divisions and the approvals required for the review.

| Milestones: | *Schedule* |
|---|---|
| *ES&H issues identified* | *Done:* 06/11/91 |
| *Guidance for FY 1994 budget submission issued* | *Done:* 02/29/92 |
| *Guidance for WFO ES&H review process prepared* | *Due:* 12/15/92 |

**TASK: T2053 Assign Corrective Action Mgmt. Sys. Responsibility** *Complete:* 04/30/91

LBL will assign responsibility for developing its corrective action management system.

| Milestones: | *Schedule* |
|---|---|
| *Responsibility assigned* | *Done:* 04/30/91 |

**TASK: T2054 Develop LBL's Corrective Action Management System** *Complete:* 12/01/91

LBL will develop its Corrective Action Management System (CAMS) as a part the implementation of the LBL Institutional Self-Assessment (LISA) program.

| Milestones: | *Schedule* |
|---|---|
| *Corrective action tracking database developed* | *Done:* 03/31/91 |
| *Corrective Action Management System initiated* | *Done:* 12/01/91 |

**TASK: T2056 Revise OAA and SRC Charters** *Complete:* 08/01/92

LBL will revise charters for the Safety Review Committee and Office of Assessment and Assurance to clearly define roles, responsibilities, and authorities and to eliminate any overlap in function.

| Milestones: | *Schedule* |
|---|---|
| *New charters for OAA and SRC drafted* | *Done:* 01/30/92 |
| *Charters for OAA and SRC approved* | *Done:* 08/01/92 |

**TASK: T2057 LBL Institutional Self-Assessment Program** *Complete:* 06/09/92

The LBL Institutional Self-Assessment Program (LISA) will establish the self-assessment policy of the Laboratory and the organizational responsibilities for implementing it. The LISA will be included as part of the LBL Self-Assessment Manual (SAM), providing the following features: a) The SAM will describe the multi-level review process and the responsibilities of the line divisions, the EH&S Division, the Safety Review Committee, and the Independent Review and Assurance Department. It will also provide a model for the development and approval of divisional self-assessment implementation plans. b) It will establish the broad performance objectives consistent with DOE guidance that the organizations of the Laboratory are expected to meet and it will describe the process by which performance objectives are to be tailored into specific objectives that meet the needs of each division. In particular, it will address the interrelationships between checklists and performance criteria embodied in the Project, Facility, and Function Notebooks. c) It will describe the Corrective Action Management System (CAMS). It will establish criteria for reports from the line organizations to the central system both with respect to level of deficiencies that must be reported and the frequency of reports. It will establish expectations for closeout of corrective actions. d) It will describe the methodology for prioritizing corrective actions. e) It will establish expectations for sharing lessons learned within the line organizations of the Laboratory and it will set forth criteria for communicating information related to lessons learned and experience training reports within the Laboratory as a whole. f) The SAM will also provide guidance for implementing Standard Review Guidelines, Self-Assessment training, conducting root cause analysis and reports, and preparing for independent verification and validation reviews.

| Milestones: | *Schedule* |
|---|---|
| *Draft SAPIP completed* | *Done:* 01/17/92 |
| *Interim SAPIP utilizing checklist* | *Done:* 04/10/92 |
| *Review Draft SAPIP* | *Done:* 02/14/92 |
| *Final SAPIP Approval* | *Done:* 06/09/92 |

**TASK: T2058 LBL Institutional Self-Assessment Program (LISA)**

Implementation of the SAPIP, the Self-Assessment Manual (SAM) and Divisions Self-Assessement Program Implementation Plan (DSAPIP) will begin with training for self assessment required for senior managers and designated supervisors and staff. In addition, the Laboratory will develop standard review procedures (SRP) and train designated supervisors and staff. Draft SAPIPs will be used as the basis to pilot the program. Independent function reviews will be conducted prior to issuing final procedures. (Costs for the on-going implementation of the LBL Self-Assessment Program are included in this task.)

| Milestones: | *Schedule* |
|---|---|
| *Draft DSAIPs reviewed for pilot implementation* | *Done:* 07/22/92 |
| *Pilot functional reviews* | *Done:* 07/21/92 |
| *Initial training for pilot implementation* | *Done:* 07/22/92 |
| *Training for implementation of the LBL SAM* | *Done:* 10/15/92 |
| *Laboratory-wide implementation of DSAPIPs begins* | *Due:* 11/15/92 |
| *Final DSAPIPs approved* | *Due:* 11/15/92 |

**TASK: T2061 Arrange Triennial Appraisal**

DOE/SF will arrange for the required triennial appraisal of LBL's programs including the Self-Assessment Program.

| Milestones: | *Schedule* |
|---|---|
| *OPD Requests Deferral of Triennial Review.* | *Done:* 04/30/91 |
| *DOE/SF to arrange for an External Review.* | *Due:* 06/30/92 |
| *Review to be Conducted* | *Due:* 07/31/92 |
| *Review Report from DOE/SF* | *Due:* 09/31/92 |

**TASK: T2067 UC ES&H Reorganization**

The University of California will establish a new oversight organization for the national laboratories. One element of the reorganization will address ES&H oversight. This task will be supported through the UC management fee.

| Milestones: | *Schedule* |
|---|---|
| *HSEAC Charter revised* | *Done:* 11/21/91 |
| *Formation of Council on National Laboratories (UC)* | *Done:* 11/21/91 |
| *Announce ES&H Oversight Organization* | *Done:* 09/01/91 |
| *Charter for UC Pres. Council on Nat'l Labs drafted* | *Done:* 08/30/92 |
| *First meeting of UC Pres Council on Nat'l Labs* | *Due:* 11/30/92 |

**TASK: T2070 Revise LBL-UCB Memorandum of Understanding**

The Laboratory and the Berkeley campus have committed to revise the Memorandum of Understanding governing ES&H responsibility in campus facilities where LBL work is carried out. A Task Force has been formed of LBL and UCB members. The standards of ES&H performance and provisions for oversight by LBL and DOE/SF will be addressed explicitly. The inclusion of the work and facilities of LBL employees on campus in LBL programs for QA. Conduct of Operations and ES&H Self Assessment will also be addressed.

| Milestones: | *Schedule* |
|---|---|
| *Berkeley Campus ES&H standards reviewed* | *Done:* 05/30/91 |
| *MOU drafted* | *Done:* 02/10/92 |
| *Draft MOU reviewed by Campus* | *Done:* 06/05/92 |
| *Draft MOU reviewed by DOE/SF* | *Due:* 12/15/92 |
| *MOU approved by LBL, UCB, and DOE/SF* | *Due:* 02/01/93 |

**TASK: T2094 Review & Distrib. Policies Re: Use of Flamm. Gases** *Complete:* 02/05/92

PUB-3000 will establish policy for flammable gas (acetylene) handling. The findings indicate the need for specific targeting of PUB-3000 policy regarding flammable gas use to all known users of flammable gas (acetylene). The Mechanical Safety Subcommittee will review the PUB-3000 Flammable Gas Policy for compliance to 29 CFR 1910.253, revise if necessary, develop a comprehensive list of acetylene users, and distribute a special notice of flammable gas policy to the listed users.

| Milestones: | *Schedule* |
|---|---|
| *Draft policy completed* | *Done:* 07/15/91 |
| *Policies distributed* | *Done:* 02/05/92 |

**TASK: T2095 Provide Refresher Courses for Flammable Gas Users** *Complete:* 04/07/92

LBL will provide refresher courses for all LBL staff using flammable gases based on procedures in PUB-3000, Chapter 13, Section B.

| Milestones: | *Schedule* |
|---|---|
| *Acetylene refresher course developed* | *Done:* 03/15/92 |
| *First course given* | *Done:* 04/07/92 |

**TASK: T2097 Establish Hand/Power Tool Policy**

LBL will establish policy and procedure, communication, training and instructions to ensure all portable and powered hand tools are maintained in safe working order. Hand and portable powered tools and equipment will be included in LBL inspection program.

| Milestones: | *Schedule* |
|---|---|
| *Training program established* | *Due:* 10/31/92 |
| *Policy & Procedure established* | *Due:* 10/31/92 |
| *First hand/power tool training class completed* | *Due:* 10/31/92 |

**TASK: T2098 Communicate Air Nozzle Policy & Replace Nozzles** *Complete:* 04/10/92

LBL will communicate established policy (PUB-3000) regarding the use of LBL Stock Pressure Reduction (30 psi/207-kPa) air nozzles and replace all non-compliant nozzels.

| Milestones: | *Schedule* |
|---|---|
| *Safety News Bulletin issued* | *Done:* 06/30/91 |
| *Non-code nozzles replaced* | *Done:* 04/10/92 |
| *Signs posted* | *Done:* 04/10/92 |

**TASK: T2099 Develop Elevated Workstations Program**

LBL will upgrade the LBL Elevated Workstations Program (EWP) to be more comprehensive. The program will extend to training, recordkeeping, design, construction inspection, and compliance with 29 CFR 1926, Subparts L and M..

| Milestones: | *Schedule* |
|---|---|
| *EH&S Elev. workstation monitoring initiated* | *Done:* 08/01/91 |
| *Roles clarified* | *Done:* 12/15/91 |
| *Safety questionnaire reviewed* | *Done:* 11/01/91 |
| *Construction specifications and standards reviewed* | *Done:* 11/01/91 |
| *PM program for fall arrest gear initiated* | *Due:* 08/01/92 |
| *Training rqmts. for incidental elev. work reviewed* | *Due:* 09/01/92 |
| *Roofing crew trained in new procedures* | *Due:* 09/01/92 |
| *Roofing safety procedures revised* | *Due:* 11/01/92 |
| *Current construction inspectors trained* | *Due:* 11/01/92 |
| *Inspection guidelines developed* | *Due:* 11/01/92 |
| *Design guidelines developed* | *Due:* 11/01/92 |
| *PUB-3000 working at heights procedure revised* | *Due:* 11/01/92 |

**TASK: T2100 Provide safety training for Const. & Safety Insps.** *Complete:* 04/20/92

LBL will provide additional safety training for LBL construction personnel, inspectors, Safety Inspectors, engineers, contracting officers, and project managers.

| Milestones: | *Schedule* |
|---|---|
| *Training needs determined* | *Done:* 09/30/91 |
| *Construction personnel trained* | *Done:* 04/20/92 |

**TASK: T2102 Institute Construction Safety Inspections** *Complete:* 06/26/92

LBL will require detailed inspections by the Safety Inspector to ensure that construction subcontractors are in full and continuous compliance with safety regulations. The frequency of these inspections is to be established in accordance with criteria specified in the LBL Construction Safety Policy and Procedures document.

| Milestones: | *Schedule* |
|---|---|
| *Safety inspection checklists prepared* | *Done:* 11/15/91 |
| *Inspectors checklists issued* | *Done:* 06/26/92 |

**TASK: T2103 Provide OSHA Electrical Training for Cnstr. Inspec** *Complete:* 04/17/92

LBL will provide OSHA electrical training for LBL Construction Inspectors.

| Milestones: | *Schedule* |
|---|---|
| *Training needs determined* | *Done:* 06/30/91 |
| *Construction inspectors trained* | *Done:* 04/17/92 |

**TASK: T2104 Revise Job Site Safety Inspection Procedures** *Complete:* 11/27/91

LBL will change policies and procedures, in appropriate manuals, to indicate that the Construction Safety Inspector has responsibility for monitoring the contractor's job site safety and reporting safety problems promptly to the LBL construction manager and the subcontractors.

| Milestones: | *Schedule* |
|---|---|
| *Revised policy and job description drafted* | *Done:* 09/01/91 |
| *New policy and job description reviewed & approved* | *Done:* 11/27/91 |

**TASK: T2106 Institute More Frequent Elec. Safety Inspections** *Complete:* 08/12/92

Establish a policy detailing required frequency of electrical inspections by the Construction Inspectors to ensure that Construction Subcontractors are in full and continuous compliance with electrical safety regulations.

| Milestones: | *Schedule* |
|---|---|
| *Electrical inspector hired* | *Done:* 03/16/92 |
| *Inspection frequency policy drafted and approved* | *Done:* 03/16/92 |
| *Safety Checklists Prepared* | *Done:* 07/10/92 |
| *Checklists issued to inspectors* | *Done:* 08/12/92 |

**TASK: T2108 Develop & Implement Electrical Maintenance Program**

The C&M Department will develop and implement an improved electrical maintenance program. All shop space, storage and work bench facilities will be a part of this program.

| Milestones: | *Schedule* |
|---|---|
| *Lock and tag procedure drafted* | *Done:* 08/30/91 |
| *Lock & tag procedure incorporated into PUB-3000* | *Done:* 06/01/92 |
| *MIS-Electrical procedures and guidebooks* | *Done:* 09/01/92 |
| *MIS database* | *Done:* 07/01/92 |
| *Train engineers and mechanics* | *Due:* 03/15/93 |
| *Design of electrical systems* | *Due:* 03/15/93 |
| *Document Control System* | *Due:* 04/01/93 |
| *Verify plant circuits* | *Due:* 06/30/94 |

**TASK: T2109 Integrated Inspection Program**

Establish an integrated inspection program which integrates the policy developed by the safety System Task Force into the Lab self-assessment process or other inspection process.

| Milestones: | *Schedule* |
|---|---|
| *Identify which systems need permits* | *Done:* 07/01/92 |
| *Establish permit systems* | *Due:* 09/01/92 |
| *Develop procedure for recording problems, unauthor* | *Due:* 10/01/92 |
| *Develop field inspection checklist* | *Due:* 02/01/93 |
| *Train self-assessment inspectors* | *Due:* 05/01/93 |

**TASK: T2110 Upgrade Maintenance Training Programs**

Upgrade maintenance training programs in accordance with maintenance policy.

| Milestones: | *Schedule* |
|---|---|
| *Identify needs* | *Due:* 03/15/92 |
| *Develop supervisor training* | *Due:* 04/30/92 |
| *Develop checklists* | *Due:* 04/30/92 |
| *Establish job training procedure* | *Due:* 06/01/92 |

**TASK: T2111 Develop Training Materials to Define Scope of Work**

Develop training materials to augment the training given to researchers and guests that will more clearly define scope of work that may be done by non-craft or non-technical individuals.

| Milestones: | *Schedule* |
|---|---|
| *Identify needs* | *Due:* 06/01/92 |
| *Develop training aids* | *Due:* 08/30/92 |
| *Integrate additional materials* | *Due:* 10/30/92 |

**TASK: T2112 Coordination of "As-Built" Drawings**

Develop procedure to better coordinate preparation and distribution of "as-built" drawings.

| Milestones: | *Schedule* |
|---|---|
| *Reference results of Maintenance Management group* | *Due:* 08/01/92 |

**TASK: T2114 Develop Policy on Equipment and Part Storage**

A general policy will be developed listing guidelines addressing the storage of shop tools, equipment and supplies. Examples of the type of actions that when implemented together will lead to the correction of the indicated deficiencies are: 1) Make available to all shop supervisors lists of all LBL stocked storage & equipment lockers, parts cabinets, and tool boxes; 2) Review for appropriateness of stock & inventory in all shops; 3) All shops should designate specific areas and proper storage for specialty tools and equipment; 4) Shop supervisors reiterate and enforce good housekeeping practices and maintenance of proper storage capabilities by addressing these issues in the individuals annual performance appraisal.

| Milestones: | *Schedule* |
|---|---|
| *Develop guidelines* | *Due:* 08/30/92 |
| *Distribute guidelines* | *Due:* 09/15/92 |
| *Procure and install storage facilities* | *Due:* 09/30/92 |

**TASK: T2115 Obtain Hydraulic Lift Funds** *Complete:* 10/02/91

As an initial mitigating measure, initiate request for FY92 General Purpose Equipment (GPE) funds to purchase a third Hydraulic lift. Wait for DAC GPE list review and approval, procurement and installation of hoist that same year.

| Milestones: | *Schedule* |
|---|---|
| *Submit hoist on FY92 Equipment Request List* | *Done:* 02/10/91 |
| *GPE FY92 hoist approval* | *Done:* 07/01/91 |
| *Purchase request* | *Done:* 07/10/91 |
| *Install lift* | *Done:* 10/02/91 |

**TASK: T2116 Develop Action Plan for Vehicle Maintenance**

Plant Engineering and operating personnel meet to review the current Vehicle Maintenance Facility, form conclusions, develop and implement a plan of corrective action.

| Milestones: | *Schedule* |
|---|---|
| *Hold planning meeting* | *Done:* 07/02/91 |
| *Develop plan* | *Due:* 10/30/92 |
| *Prepare conclusions* | *Due:* 10/30/92 |
| *Implementation* | *Due:* 03/31/93 |

**TASK: T2117 Hire Maintenance Planner** *Complete:* 09/01/91

Hire a Maintenance Planner for the C&M Department.

| Milestones: | *Schedule* |
|---|---|
| *Hire Maintenance Planner* | *Done:* 09/01/91 |

**TASK: T2118 Develop Planning Procedures** *Complete:* 10/01/92

Develop and implement a Maintenance Planning Manual.

| Milestones: | *Schedule* |
|---|---|
| *Approval of task plan and funding to proceed* | *Done:* 09/01/91 |
| *Issue draft planning procedures* | *Done:* 06/01/92 |
| *Train personnel* | *Done:* 10/01/92 |
| *Issue manual for implementation* | *Done:* 09/15/92 |

**TASK: T2119 Review and Update Job Order Procedures**

Review the Job Order Procedures and software, of the various maintenance groups, to establish formal health and safety reviews, job safety inspections and a pre-startup and testing program.

| Milestones: | *Schedule* |
|---|---|
| *Approval of task plan and funding to proceed* | *Done:* 12/01/91 |
| *Implement software changes* | *Done:* 07/01/92 |
| *Issue Draft Job Order Procedures* | *Due:* 12/01/92 |
| *Issue procedure for implementation* | *Due:* 02/01/93 |
| *Train personnel* | *Due:* 02/15/93 |

**TASK: T2120 Develop a Maintenance Repair Procedures Manual**

Develop a Maintenance Repair Procedures Manual for conduct of maintenance and repair work, to conventional facilities and research facilities, which ensure work is done by authorized personnel and that hazards reviews take place prior to work authorization.

| Milestones: | *Schedule* |
|---|---|
| *Approval of task plan and funding to proceed* | *Done:* 10/01/91 |
| *Collect and review current procedures.* | *Done:* 04/01/92 |
| *Hire consultant* | *Done:* 04/15/92 |
| *Issue manual for implementation* | *Due:* 12/01/92 |
| *Issue draft procedures* | *Due:* 12/01/92 |
| *Train all C&M personnel in the new procedures.* | *Due:* 02/01/93 |
| *Revise and develop safety check list* | *Due:* 04/01/93 |
| *Update database* | *Due:* 05/01/93 |

**TASK: T2121 Policy & Standards for Job Expectations Logbooks** *Complete:* 02/24/92

LBL will define uniform policy and establish uniform standards and job expectations for maintaining logbooks, including but not limited to the specific findings in Concern MA.8-2.

| Milestones: | *Schedule* |
|---|---|
| *Lab-wide Log Policy committee established* | *Done:* 12/18/91 |
| *Draft policy submitted to Director for approval* | *Done:* 02/24/92 |

**TASK: T2124 Provide Direction for Correction of Log Records**

LBL to provide oversight, inspection and directions for correction of log-book records.

| Milestones: | *Schedule* |
|---|---|
| *Add to self-assessment plan* | *Done:* 11/08/91 |
| *First quarterly SA database update* | *Due:* 12/31/92 |
| *First quarterly SA database update* | *Due:* 12/31/92 |
| *First quarterly SA database update* | *Due:* 12/31/92 |
| *First quarterly SA database update* | *Due:* 12/31/92 |
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| *First quarterly SA database update* | *Due:* 12/31/92 |
| *First quarterly SA database update* | *Due:* 12/31/92 |

**TASK: T2133 Modify PUB-3000 to Contain OSP Review Requirements** *Complete:* 01/31/91

Modify the Laboratory Health and Safety Manual to contain review requirements for OSPs, and distribute the modifications to registered holders of PUB 3000.

| Milestones: | *Schedule* |
|---|---|
| *Health and Safety Manual modified* | *Done:* 01/15/91 |
| *New sections of H & S Manual distributed* | *Done:* 01/31/91 |

**TASK: T2137 Review Laboratory Hazard Levels**

Review changes to Laboratory facilities since the 1986 safety analysis to verify the hazard levels associated therewith in accordance with the ratings defined in DOE 5481.1B.

| Milestones: | *Schedule* |
|---|---|
| *Establishment of review panel* | *Done:* 01/31/92 |
| *Acceptance of hazard classification guidelines* | *Done:* 07/31/92 |
| *Completion of hazard class. for each building* | *Due:* 09/01/92 |

**TASK: T2138 Establish a Design Management Policy** *Complete:* 10/21/92

Establish a Design Management Policy for all divisions requiring compliance with DOE Order 6430.1A and good engineering practice for all conventional and research facilities designs.

| Milestones: | *Schedule* |
|---|---|
| *Policy team established* | *Done:* 02/14/92 |
| *Design Management Policy developed* | *Done:* 07/14/92 |
| *Design Management Policy issued* | *Done:* 10/21/92 |

**TASK: T2139 Develop Plant Eng Design Mgmt Procedures Manual** *Complete:* 10/21/92

Develop a Plant Engineering Design Management Procedures Manual complying with LBL policy and DOE Orders.

| Milestones: | *Schedule* |
|---|---|
| *Overhead funds approved* | *Done:* 07/01/90 |
| *Consultant hired* | *Done:* 07/15/90 |
| *Design procedures reviewed* | *Done:* 08/15/90 |
| *Draft Design Management Procedures Manual approved* | *Done:* 09/30/90 |
| *Design Management Procedures Manual issued* | *Done:* 11/30/90 |
| *Design personnel trained* | *Done:* 12/31/90 |
| *Filing and retention procedures reviewed* | *Done:* 12/20/91 |
| *Manuals updated with new procedures* | *Done:* 10/21/92 |
| *Formal project maintainability review started* | *Done:* 06/30/92 |

**TASK: T2140 Develop Eng. Div. Design Mgmt. Procedures Manual**

Develop an Engineering Division Design Management Procedures Manual complying with LBL policy and DOE Orders.

| Milestones: | *Schedule* |
|---|---|
| *Manual development team established* | *Done:* 11/05/91 |
| *Current Procedures Reviewed* | *Done:* 03/26/92 |
| *Design Management Manual drafted* | *Due:* 11/15/92 |
| *Design Management Manual approved* | *Due:* 01/15/93 |
| *Formal Project Review System initiated* | *Due:* 02/28/93 |
| *Design personnel trained* | *Due:* 02/28/93 |

**TASK: T2143 Develop Safety-Critical Equipment Test Program**

Using inventory lists of safety-critical equipment, design test programs and procedures which differentiate the maintenance requirements for this equipment versus normal equipment and are in accordance with DOE Order 5840.7 and DOE Order N5500.3. Include initial schedule, required frequency of tests, and documentation requirements.

| Milestones: | *Schedule* |
|---|---|
| *Test Program Development Started* | *Due:* 08/15/92 |
| *Test Program Development Completed* | *Due:* 09/01/92 |
| *System for new equipment developed* | *Due:* 11/30/92 |

**TASK: T2144 Train Testing Staff**

Provide documented training in the performance of the approved test procedures and the approved test programs. Prepare lists of qualified testing staff.

| Milestones: | *Schedule* |
|---|---|
| *Testing staff training started* | *Due:* 08/30/92 |
| *Testing staff training completed* | *Due:* 11/30/92 |

**TASK: T2146 Implement Test Program and Review Process**

LBL will conduct the first test of safety-related equipment and write the associated report.

| Milestones: | *Schedule* |
|---|---|
| *Test and report completed* | *Due:* 06/01/92 |

**TASK: T2147 LBL Implementation of DOE Maint. Order, SF MD**

LBL will establish an institutional maintenance policy and standards, stipulating a graded approach related to risks and benefits. Management and staff will be trained in application of the policy and standards.

| Milestones: | *Schedule* |
|---|---|
| *Support team formulated to review DOE orders/MDs* | *Done:* 01/07/92 |
| *Draft LBL-wide maintenance policy formulated* | *Done:* 09/30/92 |
| *Draft comment on maintenance policy obtained* | *Done:* 08/15/92 |
| *Draft maintenance policy adjusted to Div. input* | *Done:* 11/01/92 |
| *Draft maintenance policy reviewed by DAC* | *Due:* 09/07/92 |
| *LBL maintenance policy approved by Director* | *Due:* 09/15/92 |
| *Draft maintenance policy approved by Director* | *Due:* 09/15/92 |
| *Maintenance training seminar completed* | *Due:* 10/01/92 |

**TASK: T2150 Assessment & Update of LBL Maintenance Programs**

LBL divisions and subordinate maintenance organizations will initiate internal assessment and establish maintenance programs to achieve compliance with LBL maintenance policy and LBL Maintenance Manual.

| Milestones: | *Schedule* |
|---|---|
| *Risk inventory inspted for maint. prog. needs* | *Due:* 09/01/92 |
| *Divisions' maintenance assets analyzed, risks ID'd* | *Due:* 10/01/92 |

**TASK: T2154 Review DOE Order 1324.2A** *Complete:* 05/01/90

Review DOE Order 1324.2A for applicability to the Laboratory. Task was completed in 4th quarter of FY90.

| Milestones: | *Schedule* |
|---|---|
| *DOE Order 1324.2A reviewed* | *Done:* 05/01/90 |

**TASK: T2155 Action Plan for Plant Engineering and C&M** *Complete:* 04/10/92

LBL will formulate an action plan for use by Plant Engineering and Construction and Maintenance departments.

| Milestones: | *Schedule* |
|---|---|
| *Action plan formulated* | *Done:* 04/10/92 |

**TASK: T2156 Implement Action Plan—Plant Engineering and C&M** *Complete:* 09/30/92

Implement the action plan developed in Task T2155 in Plant Engineering and Construction and Maintenance departments.

| Milestones: | *Schedule* |
|---|---|
| *Action plan implemented* | *Done:* 09/30/92 |

**TASK: T2157 Apply T2155 Plan to Other Divisions**

Determine applicability of plan developed in Task T2155 to other divisions of the Laboratory which have maintenance responsibilities.

| Milestones: | *Schedule* |
|---|---|
| *Dist. action plan to correct Rec. Mgmt. Defic.* | *Done:* 05/15/92 |
| *Divisions respond to plan* | *Due:* 12/15/92 |

**TASK: T2158 Implement Action Plans**

Implement action plans appropriate to each division.

| Milestones: | *Schedule* |
|---|---|
| *Dev. plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Develop plan to correct Records Mgmt Deficiencies* | *Done:* 10/01/92 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
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| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |
| *Corrective action plan implementation begun* | *Due:* 07/01/93 |

**TASK: T2159 Housekeeping Measures** *Complete:* 04/10/92

At the direction of LBL's upper management, the Laboratory implemented a general clean-up during FY90. To continue and maintain an adequate housekeeping effort, four specific measures are now in effect. The EH&S Division will coordinate LBL inspections that address housekeeping concerns and ensure timely follow-up for corrective measures. Measures to enhance housekeeping will also include supervisor training, more frequent inspections, and an information dissemination program on 29 CFR 1910.22.

| Milestones: | *Schedule* |
|---|---|
| *Include housekeeping in Fire Protection Checklist* | *Done:* 09/30/91 |
| *Develop housekeeping section in PUB-3000* | *Done:* 12/01/90 |
| *General clean-up pre Tiger Team* | *Done:* 11/11/90 |
| *Line management is proactive in housekeeping* | *Done:* 04/10/92 |
| *EH&S coordinated with divisions* | *Done:* 04/10/92 |

**TASK: T2161 Provide MSDS On-Line Access** *Complete:* 03/01/91

Provide access to on-line Material Safety Data Sheet (MSDS) information for Medical Services on the upper floor of Building 26.

| Milestones: | *Schedule* |
|---|---|
| *Computer access line and hardware installed* | *Done:* 03/01/91 |

**TASK: T2162 Complete Building 26 Addition**

The Laboratory will construct an addition to Building 26.

| Milestones: | *Schedule* |
|---|---|
| *Complete building design* | *Done:* 03/30/91 |
| *Complete subcontract bidding, evaluation, & award* | *Done:* 08/27/91 |
| *Construction of Building 26 addition* | *Due:* 01/08/93 |

**TASK: T2164 Upgrade Bldg. 2 with Additional Safeguards**

Building 2 will be provided with additional fire stopping, emergency shutoff switches will be installed, HVAC and emergency power systems will be upgraded, and a central alarm system and a vertical transportation system for hazardous materials will be installed.

| Milestones: | *Schedule* |
|---|---|
| *HVAC Distribution System Modifications* | *Done:* 03/30/92 |
| *Upgrade Emergency Power System* | *Done:* 09/30/92 |
| *Fire Sprinkler Upgrade* | *Done:* 06/30/92 |
| *Fire Stopping Phase 1 completed* | *Done:* 06/19/92 |
| *Elevator Door Smoke Gaskets* | *Due:* 11/30/92 |
| *Provide Hazardous Material Alarm System* | *Due:* 12/15/92 |
| *Emergency Ventilation Shut Off Switches* | *Due:* 12/15/92 |

**TASK: T2165 Redefine Fire Prot. Design Review Responsibilities** *Complete:* 04/20/92

The Fire Protection Design Review and code enforcement authority and responsibilities between Plant Engineering and the Fire Department will be redefined by reviewing the current organization and policy, assigning specific design duties to Plant Engineering, assigning enforcement duties to the Fire Department, and incorporating the policy in the Health and Safety Manual.

| Milestones: | *Schedule* |
|---|---|
| *Current Organization & Policy reviewed* | *Done:* 07/30/91 |
| *FP Design & Design Consultation assigned to Plant* | *Done:* 07/30/91 |
| *FP Enforcement Design Revs assigned to Fire Dept.* | *Done:* 04/20/92 |
| *Submitted for incorp. in PUB-3000* | *Done:* 04/10/92 |

**TASK: T2169 Review, Revise, and Expand Procedures** *Complete:* 05/21/92

The Fire Department will make a comprehensive review of its existing operating procedures, revising and expanding them where necessary. Procedures will be developed in consideration of site-specific inherent safety risks. The procedure will specifically address detailed implementing procedures as they flow from top policy statements for each function and/or responsibility. These policy and procedures shall be incorporated in appropriate sections of the Fire Department Function Notebook developed in response to Task T2024.

| Milestones: | *Schedule* |
|---|---|
| *Auxiliary fire fighters' duties limited* | *Done:* 02/08/91 |
| *Procedures at other facilities reviewed* | *Done:* 03/13/92 |
| *Department procedures completed* | *Done:* 05/21/92 |

**TASK: T2173 Conduct Inspections to Identify Mitigation Reqmts**

Inspections will be conducted to identify critical fire protection mitigation requirements concerning: 1) flammable liquid and gas storage in exit ways; 2) exit signs; 3) door bolts; 4) fire doors; 5) exit way sprinklers; 6) smoke detectors; and 7) emergency exit lighting. Costs are reflected in T2174.

| Milestones: | *Schedule* |
|---|---|
| *Inspections complete & mitigation reqs. identified* | *Due:* 10/30/92 |

**TASK: T2174 Provide Interim Mitigation Measures**

Interim fire protection mitigation measures will be provided based on the results of inspections to identify critical mitigation requirements.

| Milestones: | *Schedule* |
|---|---|
| *Inspector hired or retained* | *Due:* 05/30/92 |
| *Interim mitigation inspections initiated* | *Done:* 10/01/92 |
| *Inspection completed* | *Due:* 11/30/92 |
| *Re-inspection initiated* | *Due:* 11/30/92 |
| *Interim corrective actions completed* | *Due:* 02/28/93 |
| *Re-inspection completed* | *Due:* 04/30/93 |

**TASK: T2183 Provide Radiological Monitoring Instr to Bldg Mgrs** *Complete:* 08/13/92

LBL will provide radiological monitoring instruments to those Building Managers with potential need for same.

| Milestones: | *Schedule* |
|---|---|
| *Radiological monitoring instruments provided* | *Done:* 03/13/92 |
| *Emergency procedures drafted* | *Done:* 05/15/92 |
| *Emergency procedures approved* | *Done:* 08/13/92 |

**TASK: T2185 Review Site for Potential Evacuation Hazards**

LBL will formally review site for potential evacuation hazards and will develop evacuation plan if required.

| Milestones: | *Schedule* |
|---|---|
| *Site potential evacuation hazards reviewed* | *Done:* 03/13/92 |
| *Site evacuation plans developed (if required)* | *Due:* 09/30/92 |

**TASK: T3 Include ES&H in Performance Evaluations** *Complete:* 05/01/92

Performance evaluations are conducted for each employee and will include an evaluation of ES&H performance. The performance evaluations will take the form of a performance appraisal for employees represented by a union, and a Performance/Progress Review (P2R) for non represented employees. ES&H performance criteria guidelines will be developed by the Personnel Department in conjunction with the EH&S Division.

| Milestones: | *Schedule* |
|---|---|
| *ES&H performance evaluation criteria prepared* | *Done:* 04/01/91 |
| *Performance evaluation guidance issued* | *Done:* 05/01/91 |
| *Performance evals. with EH&S criteria conducted* | *Done:* 08/01/91 |
| *ES&H perf. appraisal verification in Div. SA* | *Done:* 05/01/92 |

**TASK: T3003 Relocate Drum Storage**

Drum storage will be relocated from racks to centralized flammable liquid storage modules.

| Milestones: | *Schedule* |
|---|---|
| *MELFS funding requested* | *Done:* 03/30/92 |
| *MELFS funding approved* | *Due:* 01/01/94 |
| *First phase initiated* | *Due:* 02/01/94 |
| *Second phase initiated* | *Due:* 06/01/94 |
| *Relocation project completed* | *Due:* 02/15/95 |

**TASK: T3006 Test FP systems per NFPA Frequencies** *Complete:* 09/01/91

Sprinkler and water supply control valve systems will be tested per NFPA frequencies.

| Milestones: | *Schedule* |
|---|---|
| *Testing responsibility transferred from FD to C&M* | *Done:* 08/01/91 |
| *Plant maintenance technicians hired* | *Done:* 09/01/91 |
| *Tests at required frequency level initiated* | *Done:* 09/01/91 |

**TASK: T3007 Evaluate 29 CFR 1910, Subpart O, for Applicability** *Complete:* 02/28/91

LBL will evaluate 29 CFR 1910, Subpart O, for applicability to LBL facilities, and obtain information on 29 CFR 1910 compliance at other DOE facilities and review lessons learned for applicability to LBL.

| Milestones: | *Schedule* |
|---|---|
| *LBL machine guarding self-assessment completed* | *Done:* 01/31/91 |
| *Other DOE laboratories' solutions reviewed* | *Done:* 01/31/91 |
| *ANSI B15.1; 01.1; UL 987; B 11.8; B 11.6 Reviewed* | *Done:* 01/31/91 |
| *29 CFR 1910, Subpart O reviewed* | *Done:* 01/31/91 |
| *Tiger Team Assessment reviewed* | *Done:* 02/28/91 |

**TASK: T3008 Survey All LBL Machine Tools; Evaluate for Hazards** *Complete:* 04/06/92

LBL will survey all machine tools and evaluate for hazards under 29 CFR 1910 requirements.

| Milestones: | *Schedule* |
|---|---|
| *List of all machine tools completed* | *Done:* 04/06/92 |
| *Hazard survey completed* | *Done:* 04/06/92 |

**TASK: T3010 Develop Machine Guarding Strategy** *Complete:* 04/06/92

LBL will develop guarding procedures for every machine tool at LBL facilities. 29 CFR 1910, Subpart O, including lessons learned from other DOE facilities, will be complied with.

| Milestones: | *Schedule* |
|---|---|
| *Machines prioritized* | *Done:* 04/06/92 |
| *Survey of LBL machines completed* | *Done:* 04/06/92 |
| *Survey team trained* | *Done:* 03/27/92 |
| *Survey team selected* | *Done:* 03/24/92 |
| *Guarding procedures identified* | *Done:* 03/26/92 |

**TASK: T3011 Train Supervisors/Workers on Machines w/Guards**

LBL will train supervisors, machine tool workers, and self-assessment OSHA inspectors on procedures for use of machines with guards installed.

| Milestones: | *Schedule* |
|---|---|
| *Procedures and training materials developed* | *Due:* 12/15/92 |
| *Supervisors and workers trained* | *Due:* 02/28/93 |

**TASK: T3015 Testing Training Effectiveness**

Mechanisms to solicit feedback and assess understanding of material presented in safety training courses will be identified and implemented. Effectiveness of on-the-job safety training will be assessed using demonstration or performance-based evaluations.

| Milestones: | *Schedule* |
|---|---|
| *Current courses evaluated* | *Done:* 03/13/92 |
| *Test methods implemented* | *Due:* 11/01/92 |

**TASK: T3019 NDE Training Program**

NDE current operations have been suspended. LBL will hire a licensed consultant to assess our current QC/NDE capabilities in relation to OSHA compliance capabilities required to meet LBL program needs, which will include identifying staff training needs. A determination will then be made whether or not the Laboratory continues with an in-house NDE program. A formal ND/QC inspector training and certification program will be developed if the determination is made to continue with the in-house NDE program.

| Milestones: | *Schedule* |
|---|---|
| *QC/NDE Program need assessed* | *Done:* 02/18/92 |
| *QC/NDE Training Program prepared* | *Due:* 06/30/92 |
| *QC/NDE Training Program initiated* | *Due:* 07/31/92 |
| *Alternate NDE testing method in place* | *Due:* 11/30/92 |
| *NDE equipment moved to B77* | *Due:* 01/15/93 |

**TASK: T3020 Hazard Communication Training Program**

The EH&S Division will develop additional training programs to meet the requirements in 29 CFR 1910.1200, Hazard Communication (HAZCOM), and 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories. Such training programs will include chemical safety for shop areas and laboratory safety for research labs.

| Milestones: | *Schedule* |
|---|---|
| *HAZCOM training requirements reviewed* | *Done:* 06/30/91 |
| *HAZCOM training program developed* | *Done:* 07/31/92 |
| *Chemical safety training program developed* | *Done:* 07/30/92 |
| *HAZCOM training program implemented* | *Due:* 09/30/92 |
| *Chemical safety training program implemented* | *Due:* 09/30/92 |

**TASK: T3023 Evaluate/Revise Radiation Safety Training Material** *Complete:* 07/15/92

Evaluate, revise and implement all existing (and new, as required) LBL radiation safety training procedures to comply with requirements in DOE Order 5480.11, including radiation protection technician training. Evaluation of existing training procedures will utilize input from independent reviewers.

| Milestones: | *Schedule* |
|---|---|
| *Definition of regulatory requirements completed* | *Done:* 09/01/91 |
| *Outside review of LBL rad safety training complete* | *Done:* 07/15/92 |

**TASK: T3026 System for DOE Reqs. Distribution/Implementation**

Improve LBL's internal system for distribution and implementation of DOE requirements under the direction of the UC Office of the President (UC-OP).

| Milestones: | *Schedule* |
|---|---|
| *Responsibilities assigned* | *Due:* 01/01/93 |
| *Procedures modified* | *Due:* 02/01/93 |
| *Periodic audits* | *Due:* 08/01/93 |

**TASK: T4001 Increase Industrial Hygiene Staff** *Complete:* 10/01/91

The LBL Industrial Hygiene Department will review its staffing needs to carry out a comprehensive program, and staff will be increased appropriately. Staff has already been increased by 1 Industrial Hygienist, and another is expected to be hired by 9/30/91.

| Milestones: | *Schedule* |
|---|---|
| *Staffing needs evaluated and prioritized* | *Done:* 10/01/91 |
| *Staffing needs input to MF-2 completed* | *Done:* 10/01/91 |
| *Plans for recruitment completed* | *Done:* 10/01/91 |
| *Three IH FTE's hired in FY93* | *Done:* 10/01/91 |
| *IH Technician hired* | *Done:* 10/01/91 |

**TASK: T4003 Upgrade Confined Space Entry Program** *Complete:* 06/01/92

LBL will develop a definition of confined space applicable to LBL that is consistent with ANSI Z177.1-1989. Conduct a survey of all LBL facilities and develop an inventory of confined space. Apply the proper classification and required labeling to each confined space area. Assign responsibility for maintenance of the confined space inventory.

| Milestones: | *Schedule* |
|---|---|
| *Definition of confined space developed* | *Done:* 04/01/91 |
| *Survey all LBL facilities for confined space* | *Done:* 06/01/91 |
| *Hazards identified and labels developed* | *Done:* 06/01/91 |
| *Confined spaces program drafted* | *Done:* 06/20/91 |
| *Assign confined-space inventory maint. resp.* | *Done:* 07/15/91 |
| *Confined space program reviewed & approved* | *Done:* 11/11/91 |
| *Add confined-space checklist to div.'s self-ass't* | *Done:* 05/15/92 |
| *PUB-3000 confined space def. & procedures revised* | *Done:* 06/01/92 |

**TASK: T4004 Upgrade Lead Program/Procedures**

Review regulatory requirements for lead use, modify lead use program/procedures accordingly, including the review of work records to verify whether the frequency of operations warrants routine blood lead measurements. Procedurally ensure regular additional personal exposure monitoring in accordance with the OSHA lead standard. Prepare a written lead policy for inclusion in PUB-3000.

| Milestones: | *Schedule* |
|---|---|
| *Review lead use policy for 29 CFR 1910 compliance* | *Done:* 06/30/91 |
| *Lead program drafted* | *Done:* 03/30/91 |
| *Air and biological sampling started* | *Done:* 08/31/91 |
| *Revised lead guidelines drafted* | *Done:* 04/30/91 |
| *Air & biological sampling finished (init. eval.)* | *Done:* 10/07/92 |
| *Appr. lead guidelines distrib. to ident. personnel* | *Due:* 09/30/92 |

**TASK: T4005 Upgrade Carcinogen Control Program** *Complete:* 09/22/92

Review requirements and rewrite LBL's chemical carcinogen control program as part of its Chemical Hygiene Plan.

| Milestones: | *Schedule* |
|---|---|
| *Preliminary carcinogen inventory completed* | *Done:* 02/07/91 |
| *Carcinogen control requirements disseminated* | *Done:* 02/07/91 |
| *Carcinogen control program drafted* | *Done:* 07/01/91 |
| *Add carcinogen control self-assessment checklist* | *Done:* 06/01/92 |
| *PUB-3000 revised according to carcinogen program* | *Done:* 09/11/92 |
| *Review, revise & approve carcinogen control prog.* | *Done:* 09/22/92 |

**TASK: T4006 Upgrade Chemical Monitoring Program**

LBL will first expand its existing effort to assess hazards in the workplace and to include field air monitoring surveys. Key operations which warrant monitoring will be identified and monitoring will be conducted. An industrial Hygiene Monitoring Plan will be prepared.

| Milestones: | *Schedule* |
|---|---|
| *Revise contract with sampling laboratory* | *Done:* 06/15/91 |
| *Prepare Monitoring Plan* | *Done:* 05/31/91 |
| *Initial hazard deter. and air sampling started* | *Done:* 05/31/91 |
| *Haz deter & air sampl compl for noted hi-haz ops* | *Due:* 01/01/93 |
| *Chemical monitoring program finalized* | *Due:* 02/01/93 |

**TASK: T4007 Develop Improved Respirator Program/Procedures** *Complete:* 03/13/92

Identify regulatory requirements for respiratory protection from DOE Order 5480.4 and ANSI Z88.2-1980, review and revise existing respirator procedures as applicable (including fit testing), and implement revised procedures.

| Milestones: | *Schedule* |
|---|---|
| *Respiratory protections requirements identified* | *Done:* 08/01/91 |
| *Protection program procedures reviewed and revised* | *Done:* 11/27/91 |
| *Procedures reviewed/revised/approved by EH&S Div.* | *Done:* 02/20/92 |
| *Respirator procedures implemented* | *Done:* 03/13/92 |

**TASK: T4009 Upgrade Chemical Hygiene Plan (CHP)** *Complete:* 09/30/92

A Chemical Hygiene Plan to meet the requirements of the OSHA Hazardous Chemicals in Laboratories Standard 29 CFR 1910.1450 will be developed.

| Milestones: | *Schedule* |
|---|---|
| *Study 29 CFR 1910.1450 for applicable sections* | *Done:* 05/01/91 |
| *Draft CHP developed* | *Done:* 07/01/91 |
| *CHP reviewed and approved* | *Done:* 09/30/92 |
| *Chemical Hygiene Plan distributed* | *Done:* 09/30/92 |
| *Estab. Sys. of acquiring MSDS's for users* | *Done:* 02/15/91 |

**TASK: T4010 Develop Procedures for Regular Inspections** *Complete:* 06/07/91

LBL will develop a procedure for regular inspections of all its facilities for OSHA compliance. The OSHA Field Operations Manual will be used as a guide for programmed inspections. LBL will inspect high hazard/high rate areas annually. High rate areas are defined as those with frequency and severity rates equal to or above the LBL average rates. Such areas will include accelerators, shop areas, selected laboratories (carcinogenic toxics, flammables involved). All other facilities (comprised mostly of office space) will be inspected at least every 3 years.

| Milestones: | *Schedule* |
|---|---|
| *OSHA inspection team members identified* | *Done:* 06/07/91 |
| *Inspection schedule established* | *Done:* 04/22/91 |

**TASK: T4011 Ladder Maintenance** *Complete:* 08/01/92

LBL will develop and implement a program for inspection and maintenance and tracking of portable and permanent ladders.

| Milestones: | *Schedule* |
|---|---|
| *Ladders surveyed* | *Done:* 02/09/92 |
| *Ladder maintenance system developed* | *Done:* 02/11/92 |
| *Ladder maintenance system implemented* | *Done:* 08/01/92 |
| *Ladders inspected* | *Done:* 02/09/92 |

**TASK: T4012 Eye Protection Program** *Complete:* 06/01/92

LBL will revise PUB-3000, Chapter 19, on requirements for safety glasses. A requirement for side shields will be added. Eye protection will be provided and worn in any area where eye hazards exist at any time.

| Milestones: | *Schedule* |
|---|---|
| *Revision to PUB-3000, Chapter 19 drafted* | *Done:* 11/27/91 |
| *Eye protection checklist revised* | *Done:* 06/01/92 |
| *Revision to PUB-3000, Chap 19 reviewed & approved* | *Done:* 06/01/92 |

**TASK: T4013 Develop Correct and Proper OSHA Log Procedures** *Complete:* 05/08/92

Written procedures for correct and proper log entries will be developed to include processing, correcting and maintaining of logs. The procedures and the maintenance of the logs will be reviewed semiannually by a committee consisting of both EH&S Division personnel and staff from the Independent Review and Assurance Department (IRAD).

| Milestones: | *Schedule* |
|---|---|
| *Members appointed to OSHA Log Review Committee* | *Done:* 04/01/92 |
| *Reviews of log maintenance scheduled* | *Done:* 05/08/92 |

**TASK: T4025 Formalize Procedure, Calibrate NTLF Air Monitors** *Complete:* 05/01/92

Formalize the calibration procedure for the continuous emission tritium monitors in the NTLF, calibrate the monitors, and include the calibration data in the meter calibration database.

| Milestones: | *Schedule* |
|---|---|
| *Calibration procedure drafted* | *Done:* 02/01/92 |
| *Monitor calibration complete* | *Done:* 02/15/92 |
| *Procedure reviewed and edited* | *Done:* 03/15/92 |
| *Tritium data in meter database* | *Done:* 03/30/92 |
| *Procedure finalized and implemented* | *Done:* 05/01/92 |

**TASK: T4026 Radiological Workplace Assessment**

Formalization, documentation, and promulgation of a procedure to assess workplace radiological hazards in order to assure documented compliance with the 100 mREM/year trigger level requirement for workplace air sampling mandated in DOE Order 5480.11.

| Milestones: | *Schedule* |
|---|---|
| *Write workplace radiological assessment protocol* | *Done:* 08/01/92 |
| *Review of rad. workplace assessment protocol* | *Done:* 09/01/92 |
| *Approve rad. workplace assessment protocol* | *Due:* 12/01/92 |
| *Promulgate rad. workplace assessment protocol* | *Due:* 02/01/93 |

**TASK: T4027 Calibration of Workplace Air Samplers** *Complete:* 09/15/92

LBL will revise the air-sampler calibration procedure, develop forms, and train calibration personnel.

| Milestones: | *Schedule* |
|---|---|
| *Procedures revised* | *Done:* 08/01/92 |
| *Procedures were reviewed and approved* | *Done:* 09/01/92 |
| *Calibrator technician trained* | *Done:* 09/15/92 |

**TASK: T4028 Refine Workplace Air Sampler Placement Criteria**

The Laboratory will refine criteria for indoor air sampler placement and revise procedure manuals and PUB-3000 to reflect the changes.

| Milestones: | *Schedule* |
|---|---|
| *Procedures revised* | *Done:* 08/01/92 |
| *Procedures reviewed and approved* | *Due:* 08/01/92 |
| *Air sampler placement procedures implemented* | *Due:* 08/15/92 |

**TASK: T4029 Replace Workplace Air Samplers**

Specify, purchase, evaluate, and install workplace air samplers.

| Milestones: | *Schedule* |
|---|---|
| *List candidates for new workplace samplers* | *Done:* 03/05/92 |
| *Specify new workplace air samplers* | *Done:* 07/14/92 |
| *Purchase new air samplers* | *Done:* 09/01/92 |
| *Install new air samplers* | *Due:* 12/31/92 |

**TASK: T4030 Verify Correction Factor for Alpha Absorption** *Complete:* 06/02/92

Verify that the typical alpha transmission factor for filter media LB5211, as employed at LBL, is greater than or equal to 0.7.

| Milestones: | *Schedule* |
|---|---|
| *Verification methodology planned* | *Done:* 02/21/92 |
| *Verification completed* | *Done:* 06/02/92 |

**TASK: T4031 Interim Survey Procedural Corrections** *Complete:* 08/01/92

Upgrade and combine existing policy and procedure memoranda concerning 1) monitoring and tagging of items (including gas cylinders) sent from radiological areas to salvage, and 2) monitoring and tagging of items (including gas cylinders) sent from radiological areas to other uncontrolled areas. The resulting combined procedure will include requirements for: a) tagging of containers holding items from radiological areas to indicate monitored status of contents, b) use of appropriate monitoring instrumentation, c) performance of monitoring in areas of appropriately low background radiation and d) disposition of tagging records. These upgrades will bring the procedures into compliance with applicable requirements of DOE Order 5480.11, DOE Order 5400.5, and assure implementation of EH&S [formerly ESHC] Policy No. 730.

| Milestones: | *Schedule* |
|---|---|
| *Survey release procedures completed* | *Done:* 02/22/91 |
| *Procedure for monitoring/tagging of items complete* | *Done:* 04/30/92 |
| *Procedure for monitoring & tagging approved* | *Done:* 05/22/92 |
| *Procedure implemented by new EH&S technician* | *Done:* 08/01/92 |

**TASK: T4033 DOE Approval of Survey Techniques and Methods**

Submit procedure developed under T4031 to DOE/SF for review and approval of portion(s) addressing materials with accelerator-induced radioactivity under SF MD 5480.11, and forward for approval under DOE Order 5400.5 to EH-1. Revise procedure, if required.

| Milestones: | *Schedule* |
|---|---|
| *Monitoring/tagging procedures submitted to DOE/SF* | *Done:* 05/28/92 |
| *Monitoring procedures approved by DOE* | *Due:* 12/31/92 |
| *Changes in procedures incorporated* | *Due:* 01/31/93 |

**TASK: T4035 LBL Contamination Survey Procedures**

Radioisotope work areas will be defined, placed into PUB-3000, areas requiring posting will be identified, posted, and updated by the facility notebook self-assessment.

| Milestones: | *Schedule* |
|---|---|
| *"Radio Materials Management Area" def. completed* | *Done:* 11/01/91 |
| *Areas requiring posting identified* | *Done:* 11/15/91 |
| *Posting of areas completed* | *Done:* 12/01/91 |
| *Update of areas by facility notebooks ensured* | *Due:* 07/30/92 |

**TASK: T4036 LBL ALARA Program**

Develop and implement a formal ALARA program for LBL radiation sources, including the NTLF. The program will conform with DOE ALARA guidelines and include equipment and procedural upgrades, trending and development of ALARA goals, determination of survey action levels, training to enforce ALARA goals and documentation.

| Milestones: | *Schedule* |
|---|---|
| *NTLF operating procedures modified* | *Due:* 02/01/93 |
| *Radiation control procedures modified* | *Due:* 03/01/93 |
| *Upgrades to NTLF equipment completed* | *Due:* 04/01/93 |
| *Radiation protection trending analysis completed* | *Due:* 05/01/93 |
| *Definition of ALARA goals completed* | *Due:* 06/01/93 |
| *ALARA procedures developed* | *Done:* 09/30/92 |
| *ALARA program approved* | *Due:* 09/30/93 |

**TASK: T4040 Correct Record Keeping Deficiencies**

Deficiencies found will be corrected. A listing will be made describing the types of records generated, who is responsible for generating, where the records are stored and how the records may be retrieved.

| Milestones: | *Schedule* |
|---|---|
| *Directory of radiation records prepared* | *Done:* 09/02/92 |
| *Deficiencies corrected* | *Due:* 05/01/93 |

**TASK: T4041 Reorganize EH&S Division** *Complete:* 09/01/91

Reorganize the EH&S Division to better meet the needs of the site.

| Milestones: | *Schedule* |
|---|---|
| *Evaluate assignments in the Division* | *Done:* 09/01/91 |
| *Reorganize Division* | *Done:* 09/01/91 |

**TASK: T4042 Reorganize ESHC Department** *Complete:* 09/01/91

Reorganize functions of ESHC Department within EH&S Division to better meet needs of the site.

| Milestones: | *Schedule* |
|---|---|
| *Assignments in department evaluated* | *Done:* 09/01/91 |
| *Department reorganized* | *Done:* 09/01/91 |

**TASK: T4045 Sitewide Guidance: Line Org. Use of ES&H Expertise** *Complete:* 01/21/92

LBL management, under the direction of the EH&S Division, will develop a centralized guidance framework for the utilization of ES&H expertise and the responsibilities of line organizations.

| Milestones: | *Schedule* |
|---|---|
| *Policy drafted* | *Done:* 01/21/92 |
| *Policy reviewed and approved* | *Done:* 01/21/92 |
| *Policy issued* | *Done:* 01/21/92 |

**TASK: T4056 Develop/Implement DOE/SF Oversight Plan for LBL** *Complete:* 05/01/92

Develop and implement DOE/SF Oversight Plan for LBL.

| Milestones: | *Schedule* |
|---|---|
| *Oversight plan implemented* | *Done:* 05/01/92 |

**TASK: T4057 Develop MOUs Between DOE/SF Organizations**

Develop MOUs between DOE/SF organizations.

| Milestones: | *Schedule* |
|---|---|
| *Draft MOU designed* | *Done:* 10/02/92 |
| *MOU issued for comment* | *Done:* 10/09/92 |
| *MOU approved and issued* | *Due:* 12/01/92 |

**TASK: T4058 Issue revised annual appraisal plan** *Complete:* 10/17/91

Issue annual appraisal schedule.

| Milestones: | *Schedule* |
|---|---|
| *Draft revised plan issued for review and comment* | *Done:* 10/17/91 |

**TASK: T4059 Develop Verification and Closure Procedures**

Develop formal verification and closure procedures.

| Milestones: | *Schedule* |
|---|---|
| *DOE/SF Work Group to Develop Procedures Assembled* | *Done:* 09/15/91 |
| *Input from DOE/SF, OER, and Ops.Offices solicited* | *Done:* 02/07/92 |
| *Procedures issued for review and comment* | *Done:* 09/30/92 |
| *Procedures issued* | *Due:* 11/20/92 |
| *Procedure Implementation Train. Sessions Conducted* | *Due:* 12/04/92 |

**TASK: T4060 Develop & Implement Appraisal/Inspection Tracking**

Develop and implement an appraisal/inspection tracking system.

| Milestones: | *Schedule* |
|---|---|
| *System design content determined* | *Done:* 04/30/92 |
| *LBL-SO System Selection and Procurement* | *Done:* 04/30/92 |
| *Staff training on system utilization completed* | *Due:* 05/30/92 |
| *Data Entry completed /Data Base established* | *Done:* 06/30/92 |

**TASK: T4069 DOE/SF To Provide QA Direction to LBL**

Update DOE/SF Management Directive for DOE Order 5700.6B and update LBL QA Implementation Plan.

| Milestones: | *Schedule* |
|---|---|
| *Updated QA implementation plan issued* | *Due:* 03/15/92 |

**TASK: T4070 Implement DOE/SF Technical Competence Prgm.—LBL SO**

Link training to individual's knowledge, skills, and abilities to specifically address technical requirements (including ES&H) of a position within an organizational component.

| Milestones: | *Schedule* |
|---|---|
| *Job analysis for onsite personnel conducted* | *Due:* 12/01/82 |
| *Training procured* | *Done:* 07/01/91 |
| *Core courses for on-site tech. persons identified* | *Done:* 05/01/91 |
| *Documentation completed* | *Due:* 12/01/92 |

**TASK: T4074 Clarify/update DOE/SF/ER Procedures for 5000.3A** *Complete:* 10/01/92

Clarify and update DOE/SF/ER Procedures (LBL-SO) for implementing DOE Order 5000.3A to include distribution requirements for all occurrence reports to the proper DOE/SF technical expert for the purpose of adequate review and assessment.

| Milestones: | *Schedule* |
|---|---|
| *LBL-SO 5000.3A procedures updated* | *Done:* 10/17/91 |
| *Occurrence reporting included in tech. appraisals* | *Done:* 10/01/92 |

**TASK: T4075 Overview LBL's DOE 5000.3A Tracking System** *Complete:* 10/30/91

Access LBL's internal tracking system for corrective actions resulting from occurrence reporting. Access will be required for the purposes of effective oversight.

| Milestones: | *Schedule* |
|---|---|
| *Tracking system accessed* | *Done:* 09/30/91 |
| *Procedures for accessing LBL Tracking established* | *Done:* 10/30/91 |

**TASK: T4081 Develop all EPIPS to implement MEP**

The full set of Emergency Plan implementing procedures (EPIPS) to implement the MEP as required by the applicable DOE 5500 order series will be developed.

| Milestones: | *Schedule* |
|---|---|
| *EPIPS developed from revised MEP* | *Due:* 05/01/93 |
| *EPIPS formally approved* | *Due:* 06/01/93 |

**TASK: T4084 Revise Master Emergency Plan**

Under the direction of the LBL Emergency Preparedness Coordinator, the LBL Master Emergency Plan (MEP) will be revised to be applicable to DOE 5500 series orders. The revised plan will address all planning and preparedness requirements of DOE 5500 series including: (1) organization and assignment of responsibilities, (2) emergency response support and resources, (3) emergency response level plans, (4) notification methods and procedures, (5) emergency communications, (6) public education and information, (7) accident assessment, (8) protective response, (9) radiological exposure control, (10) medical and health support, (11) recovery and reentry planning post accident operations, (12) exercises and critiques, (13) radiological emergency response training, (14) memoranda of understanding and letters of agreement, (15) emergency plan implementing procedures as required and as detailed in corrective action plans for other EP concerns, (16) media briefing plans, and (17) coordination with state and local emergency response organizations.

| Milestones: | *Schedule* |
|---|---|
| *Draft DOE 5500.3A reviewed* | *Done:* 03/13/92 |
| *Recovery & re-entry plan completed* | *Done:* 09/09/92 |
| *MEP first draft completed* | *Done:* 09/30/92 |
| *MEP first draft reviewed* | *Due:* 04/01/93 |
| *MEP final draft completed* | *Due:* 06/01/93 |
| *MEP revision approved* | *Due:* 07/01/93 |
| *State & local coordination completed* | *Due:* 09/30/93 |

**TASK: T4086 Develop Emerg Mgmt & Response Organization**

Using the requirements of the revised MEP, LBL will develop and staff, as necessary, a detailed Emergency Management and Response Organization including emergency command center personnel, response teams, support staff, and specialized field teams. A job task analysis will be performed to identify the responsibilities of each member of the organization.

| Milestones: | *Schedule* |
|---|---|
| *Emergency mgmt & response organization defined* | *Due:* 03/01/93 |
| *Job task analysis completed* | *Due:* 06/01/93 |
| *Staffing assignment completed* | *Due:* 06/30/93 |

**TASK: T4089 Develop and Implement an EP Drill/Exercise Program** *Complete:* 10/06/92

Using the requirement of the revised Master Emergency Plan (MEP), an emergency preparedness (EP) drill/exercise program will be prepared and the system will be critiqued for each building, grouping of buildings, and Laboratory-wide exercises will be developed. The program will be designated to test the capabilities of the Emergency Management and Response Organization and specialized field teams, such as the Fire Department, Medical Services, and assessment and damage repair teams. An on going schedule will be established to include all facilities and organizational units with various scenarios so that over a period of time all teams are tested in simulated but likely situations. A design team procedure will be established for developing the specific drills/exercises. A formal method of independent appraisal will be established, including extending experts as appropriate, and including feedback from appraisals, drills, and exercises to make improvements in the MEP, EPIPS, and Emergency Management and Response Organization. An umpire and controller training program and a drill critique guide will be developed.

| Milestones: | *Schedule* |
|---|---|
| *Drill/Exercise schedule developed* | *Done:* 06/01/92 |
| *Exercise team formed* | *Done:* 07/01/92 |
| *Critique process established* | *Done:* 09/09/92 |
| *Umpire and controller training developed* | *Done:* 08/03/92 |
| *First training drill/exercise program initiated* | *Done:* 10/06/92 |

**TASK: T4094 Develop and Document EP Training Program**

Using the requirements of the revised MEP, LBL will develop and document an emergency preparedness training program for each member of the Emergency Management and Response organization, including DOE/SF liaison, offsite response team and medical treatment facility, and support personnel, which addresses the following elements: (1) detailed lesson plans, (2) testing to assess the effectiveness and understanding of material, (3) documentation of training in an auditable manner, (4) implementation schedule, and (5) refresher training requirements.

| Milestones: | *Schedule* |
|---|---|
| *Auditable training documentation plan established* | *Done:* 08/03/92 |
| *EP training lesson plans completed* | *Due:* 12/01/92 |
| *Initial ERO training completed* | *Due:* 12/31/92 |
| *Effectiveness/understanding of training evaluated* | *Due:* 12/31/92 |
| *EP refresher training requirements established* | *Due:* 12/31/92 |
| *EP training implementation schedule established* | *Due:* 12/31/92 |

**TASK: T4102 Conduct Baseline FPE Survey with Consultants** *Complete:* 06/15/92

A baseline fire protection engineering survey (FPES) will be conducted by consultants. The survey will include: 1) fire loss potential; 2) potential program interruption, operation interruption, property damage, and property loss from credible fires; 3) use of ordinary lumber; 4) sprinkler protection; 5) combustible insulated electrical cable; 6) flammable liquids; 7) NFPA 101 compliance; and 8) fire extinguishers. The survey will be phased through five groups of buildings.

| Milestones: | *Schedule* |
|---|---|
| *Baseline survey initiated* | *Done:* 03/04/91 |
| *Baseline survey completed* | *Done:* 06/15/92 |
| *FPE survey of LBL fire protect. systems completed* | *Done:* 06/15/92 |
| *FPE survey in building groups 4 and 5 completed* | *Done:* 06/15/92 |
| *FPE survey in building groups 1–3 completed* | *Done:* 06/15/92 |

**TASK: T4103 Initiate Self-Conducted Fire Loss Surveys**

Regular self-conducted fire loss surveys and inspections will be conducted with a new fire protection engineer. These surveys will address: 1) ongoing compliance with NFPA 101 (Life Safety Code); 2) potential program interruption, operations interruption, property damage, and property loss from credible fire; 3) use of ordinary lumber; 4) sprinkler protection; 5) non-reviewed new experiment setups; 6) formal risk reduction measures; and 7) combustible insulated electrical cable.

| Milestones: | *Schedule* |
|---|---|
| *Full time fire protection engineer hired* | *Done:* 06/29/92 |
| *Survey procedure and schedule developed* | *Done:* 10/12/92 |
| *Survey schedule initiated* | *Due:* 10/30/92 |

**TASK: T4105 Document Shift Staffing Requirements** *Complete:* 08/09/91

Shift staffing appropriate for special hazard responses will be provided and maintained.

| Milestones: | *Schedule* |
|---|---|
| *Shift staffing policy revised* | *Done:* 08/09/91 |

**TASK: T4106 Establish Pre-fire Plan Update Mechanism** *Complete:* 03/16/92

A formal mechanism will be established and maintained to keep pre-fire plans current. (See Task T8647 for cost.)

| Milestones: | *Schedule* |
|---|---|
| *Policy and procedures drafted* | *Done:* 01/16/92 |
| *Review & approval of policy & procedures completed* | *Done:* 02/21/92 |
| *Pre-fire plan policy and procedures implemented* | *Done:* 03/16/92 |

**TASK: T4108 Annual Trend and Root Cause Analysis** *Complete:* 09/11/92

Annual trend and root cause analyses of fire inspection reports will be initiated. This will be done by the Fire Protection Engineering staff. (Cost included in Task T4103).

| Milestones: | *Schedule* |
|---|---|
| *Forms and procedures developed* | *Done:* 08/28/92 |
| *Trend analysis initiated* | *Done:* 09/11/92 |

**TASK: T4111 Guidelines for review of division safety programs** *Complete:* 07/19/91

Internal appraisal system requirements specified in DOE Order 5482.1B,9d(2)(g) will be added to guidelines for SRC review of Division safety programs.

| Milestones: | *Schedule* |
|---|---|
| *Internal appraisal requirements added* | *Done:* 07/19/91 |

**TASK: T4115 Correct Location of and Water Supply to Eyewashes**

The Laboratory will analyze all facility buildings and laboratories for the necessity and location of showers and eyewash units for compliance with 29 CFR 1910.151 (c). Units will be added and/or relocated as necessary. Eyewash units and deluge showers will be connected to domestic water supply as necessary.

| Milestones: | *Schedule* |
|---|---|
| *Hazardous chemical locations reviewed* | *Done:* 05/15/92 |
| *Showers & eyewash units inspected* | *Done:* 08/14/92 |
| *Relocation scheduled* | *Due:* 02/28/93 |
| *Relocation completed* | *Due:* 09/30/94 |

**TASK: T4117 Review and Modify SF MD 1321.1B** *Complete:* 10/18/91

Review SF MD 1321.1B and modify to provide for the timely transmission of DOE Orders to contractors and assure Responsible Division follow up and review of contractor implementation plans.

| Milestones: | *Schedule* |
|---|---|
| *DOE Order 1321.1B modified to Order 1321.1C* | *Done:* 10/18/91 |

**TASK: T4135 Provide Adequate EP Manpower & Resources** *Complete:* 11/01/91

The Emergency Preparedness manpower and resources requirements will be reviewed for adequacy to carry out its mission and develop additional requirements. As a part of the overall ES&H resource plan (see Management Finding MF-2) the Laboratory will begin obtaining additional staff.

| Milestones: | *Schedule* |
|---|---|
| *EP program manpower and resources reviewed* | *Done:* 11/01/91 |
| *EP additional resources plan initiated* | *Done:* 11/01/91 |
| *EP manpower, resources input to MF-2 CAP completed* | *Done:* 11/01/91 |

**TASK: T4137 Review Emergency Command Center Space** *Complete:* 08/03/92

LBL will review command center space and use, both old and new addition, and optimize its utilization. LBL will improve document inventory and update status board prompts and initiate procedure to periodically inventory command center resources.

| Milestones: | *Schedule* |
|---|---|
| *Command Center space reviewed* | *Done:* 03/13/92 |
| *ECC status board prompts updated* | *Done:* 06/01/92 |
| *ECC Document Inventory Improved* | *Done:* 07/15/92 |
| *ECC periodic resource inventory plan developed* | *Done:* 08/03/92 |

**TASK: T4139 Establish Response Team Dispatch Center** *Complete:* 07/15/92

LBL will establish Dispatch Centers for all Response Teams to facilitate briefings by ECC staff.

| Milestones: | *Schedule* |
|---|---|
| *Response team dispatch center established* | *Done:* 07/15/92 |

**TASK: T4145 Require FP Engineering Review for New Projects**

The requirement for FP engineering review for new projects will be clarified.

| Milestones: | *Schedule* |
|---|---|
| *"New experiments" and "research projects" defined* | *Done:* 08/11/82 |
| *Health and Safety Manual revised* | *Due:* 06/01/93 |
| *Non-reviewed projects included in ongoing surveys* | *Due:* 11/30/93 |

**TASK: T5004 Organizational Structure Review** *Complete:* 12/05/91

Review current bifurcated organizational structure of packaging and transportation of hazardous material activities for adequacy of management control as required by DOE 5480.3. Functions include receipt, distribution, and shipment of hazardous material, highly toxic material, and hazardous waste.

| Milestones: | *Schedule* |
|---|---|
| *Review study conclusions and recs. completed* | *Done:* 10/29/91 |
| *Recommendations approved* | *Done:* 11/22/91 |
| *Approved changes implemented* | *Done:* 12/05/91 |

**TASK: T5005 Develop Onsite P&T Safety Manual** *Complete:* 04/09/92

LBL will develop an Onsite Safety Manual in accordance with DOE Order 5480.5 for use by all personnel involved in the packaging, distribution, and transportation of hazardous material. This will be included in the Function Notebook for this activity. (See Concern PT.1-1.)

| Milestones: | *Schedule* |
|---|---|
| *Onsite Safety Manual developed* | *Done:* 04/09/92 |

**TASK: T5006 Expand & consolidate P&T Procedures in PUB-3000** *Complete:* 11/20/91

LBL will expand Chapter 26 in the LBL Health and Safety Manual, PUB-3000, to include procedures for packaging and transportation of hazardous material.

| Milestones: | *Schedule* |
|---|---|
| *PUB-3000, Chapter 26 revision completed* | *Done:* 11/20/91 |

**TASK: T5008 Prepare Documented Training Program** *Complete:* 01/23/92

LBL will prepare a documented training plan for all positions in packaging and transportation of hazardous materials activities, to include compliance requirements for all governmental regulations, per DOE Order 5480.3. This is to include on-the-job, on-site, and off-site training methods. Re-training and re-certification requirements will be addressed. Documentation of such training will be formalized and easily retrievable.

| Milestones: | *Schedule* |
|---|---|
| *Training program drafted* | *Done:* 09/30/91 |
| *Draft program reviewed* | *Done:* 10/18/91 |
| *Training program approved* | *Done:* 01/23/92 |

**TASK: T5011 Update HWHF procedures** *Complete:* 05/01/92

Current HWHF procedures for packaging conform primarily with Westinghouse Hanford SDARs, which are exclusively for radioactive materials. These procedures will be updated to include hazardous waste and to comply with DOE 5480.3 and will be included in the appropriate Facility and Function Notebooks.

| Milestones: | *Schedule* |
|---|---|
| *DOE 5480.3 reqmts. & existing procedures reviewed* | *Done:* 07/15/91 |
| *First draft of procedures update completed* | *Done:* 08/30/91 |
| *Implementation initiated* | *Done:* 05/01/92 |
| *Final draft completed and approved* | *Done:* 05/01/92 |

**TASK: T5013 Create and Implement HWHF Checkoff List for P&T** *Complete:* 08/01/91

HWHF will immediately initiate a packaging and transportation checklist that will ensure compliance with DOE, DOT, EPA, OSHA, NRC, and CAL-DOHS Orders.

| Milestones: | *Schedule* |
|---|---|
| *Compliance requirements reviewed* | *Done:* 04/30/91 |
| *Draft checklist completed and approved* | *Done:* 06/07/91 |
| *Implementation checklist initiated* | *Done:* 08/01/91 |

**TASK: T5014 Safety Meetings for EH&S Operations Personnel** *Complete:* 11/22/91

LBL will organize and implement safety meetings for EH&S personnel. These meetings will be held on a regular basis and will address all applicable safety matters. They will review all accidents and incidents that would be pertinent, and document their determinations of lessons learned.

| Milestones: | *Schedule* |
|---|---|
| *Format & frequency for safety meetings developed* | *Done:* 11/15/91 |
| *Safety meetings initiated* | *Done:* 11/22/91 |

**TASK: T5018 Initiate Routine Radiation Surveys for Machines** *Complete:* 05/29/92

Initiate routine radiation surveys and documentation of procedures developed in T1096.

| Milestones: | *Schedule* |
|---|---|
| *Radiation surveys initiated* | *Done:* 05/29/92 |

**TASK: T5019 Request DOELAP Variance for Dosimetry Program** *Complete:* 03/15/91

Request a variance of dosimetry program pending DOELAP accreditation.

| Milestones: | *Schedule* |
|---|---|
| *Draft request for variance completed* | *Done:* 02/15/91 |
| *Variance request approved by LBL management* | *Done:* 03/15/91 |
| *Variance request transmitted to DOE for approval* | *Done:* 03/15/91 |

**TASK: T5020 Obtain DOELAP Accreditation**

Obtain site DOELAP accreditation by successful completion of compliance testing.

| Milestones: | *Schedule* |
|---|---|
| *Requirements—site dosimetry op. proc.evaluated* | *Done:* 03/15/91 |
| *Site dosimetry operating procedures developed* | *Done:* 04/01/91 |
| *Beta standards and beta extrapolation completed* | *Done:* 06/01/91 |
| *Dosimeter performance tests completed* | *Done:* 12/20/91 |
| *Site dosimetry operating procedures incorporated* | *Done:* 05/04/92 |
| *DOELAP site assessment of dosimetry program* | *Due:* 05/30/93 |
| *DOELAP accreditation received* | *Due:* 06/01/93 |

**TASK: T5021 Neutron Dosimetry Clarification by DOE** *Complete:* 08/01/91

Request clarification of high energy neutron dosimetry program from DOE.

| Milestones: | *Schedule* |
|---|---|
| *Information requested* | *Done:* 04/01/91 |
| *Information Request Transmitted to DOE* | *Done:* 04/01/91 |
| *Response received from DOE* | *Done:* 07/01/91 |
| *Response analyzed and incorporated* | *Done:* 08/01/91 |

**TASK: T5022 Gamma Film Dosimeter Closure Plan**

Review all applicable DOELAP criteria for Gamma Film Dosimetry as used at LBL. Determine if LBL film dosimetry meets their requirements. Prepare a final closure package documenting all appropriate information, including testing, calibration and procedures.

| Milestones: | *Schedule* |
|---|---|
| *Gamma closure plan developed* | *Due:* 04/30/93 |
| *Gamma closure package completed* | *Due:* 06/01/93 |

**TASK: T5023 Setup Vacuum Cleaner HEPA Filter Testing Program**

Develop and implement a comprehensive HEPA filter testing procedure, including ANSI N510 requirements. Procedure will include testing requirements and intervals.

| Milestones: | *Schedule* |
|---|---|
| *Formal vacuum cleaner HEPA Testing Proc. completed* | *Due:* 01/01/93 |
| *HEPA filter vac. cleaner testing proc. implemented* | *Due:* 02/01/93 |
| *Vacuum cleaner HEPA filter testing proc. approved* | *Due:* 02/01/93 |

**TASK: T5024 Monitor Isotope Worksites** *Complete:* 04/30/92

Survey radioisotope work places to identify areas where bioassay monitoring is required by DOE 5480.11. Establish criteria for required bioassay tests. If any areas are identified, establish access control procedure for casual visitors. (The Tritium Facility is the only recognized worksite requiring bioassay monitoring. Access control for casual visitors has been established).

| Milestones: | *Schedule* |
|---|---|
| *Monitoring results reviewed* | *Done:* 05/01/91 |
| *Criteria established for bioassay monitoring* | *Done:* 04/01/92 |
| *Access control instituted* | *Done:* 04/30/92 |
| *Radioisotope work places surveyed* | *Done:* 04/30/92 |

**TASK: T8609 Work Control System Safety Upgrade**

Integrate requirements of DOE Order 4330 into the Work Control Systems of the various divisions performing maintenance covered by the order.

| Milestones: | *Schedule* |
|---|---|
| *Final DOE Order 4330 arrives* | *Done:* 08/01/91 |
| *Obtain resources* | *Done:* 05/01/92 |
| *Graded approach adopted* | *Done:* 08/30/92 |
| *Software modified* | *Due:* 12/15/92 |
| *Update procedures* | *Due:* 03/15/93 |
| *Training of crews* | *Due:* 05/15/93 |

**TASK: T8635 Establish ES&H and EP Roles and Responsibilities**

LBL will establish overall roles, responsibilities, and interrelationships for emergency preparedness and ES&H in LBL buildings in order to better delineate the position currently known as the Building Manager. The present Building Manager responsibilities are identified in PUB-3000 and Building Emergency Plans for individual buildings (e.g., PUB-519 for Building 90). Many other individuals and organizational units also have emergency- and ES&H-related responsibilities in buildings, including the Fire Department, the Business and Protective Services Department, the Construction and Maintenance Department, the Environment and Safety Hazards Control Department, and the Division Safety Committees and Safety Coordinators. In addition, in a memo of January 11, 1991, the Associate Laboratory Director for Administration assigned certain continuing ES&H oversight or "landlord" responsibilities to each Division Director for buildings for which his/her Division is the sole or principal occupant. The interfaces and levels of responsibility among these individuals and units will be delineated by this Task. The Task will also establish the interfaces between the Building Manager and employees, guests, and regulators. Formal appointment procedures will be reviewed and revised as necessary for Building Managers, and Deputy and Assistant Building Managers. Finally, the title "Building Manager" will be considered for a change to one (e.g., Building Safety Coordinator) that better reflects the emergency preparedness and ES&H focus of the position.

| Milestones: | *Schedule* |
|---|---|
| *Building manager Policy and Procedure drafted* | *Done:* 04/15/92 |
| *Building manager Policy and Procedure approved* | *Due:* 05/01/92 |
| *Building manager Policy and Procedure issued* | *Due:* 05/15/92 |
| *Bldg mgr Policy & Proc submitted for PUB-3000* | *Due:* 07/01/92 |

**TASK: T8636 Identify Bldg. Mgr. Qualifications, Position Desc.**

LBL will identify specific emergency preparedness and ES&H functions and responsibilities in LBL buildings that correspond to the general roles and responsibilities for Building Managers (and Deputies and Assistants) as established in Task T8635. This Task will review information on ES&H in buildings and on Building Managers, including Appendix C of the LBL Health and Safety Manual (PUB-3000), the Building Emergency Plans (e.g., PUB-519 for Building 90 ), Facility Notebooks, and the output of Task T4086. The Task will produce a list of requirements for Building Manager appointments and a position description that can be incorporated in whole or in part into the individual job descriptions of the Building Managers. The requirements and position description will cover as appropriate factors (a) applicable to all LBL buildings, (b) applicable to certain categories of buildings, such as those containing wet chemistry labs, and (c) unique to individual buildings.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for Building Mgr. appointment devel.* | *Due:* 12/01/92 |
| *Building Manager position description developed* | *Due:* 01/15/93 |
| *Building Manager information in LBL pubs. updated* | *Due:* 03/01/93 |
| *Building Manager functions/responsibilities listed* | *Due:* 08/01/93 |

**TASK: T8637 Appoint Building Managers** *Complete:* 02/20/92

This Task will review the qualifications of current Building Managers (and Deputies and Assistants) against the list of Requirements for Building Manager Appointments developed in Task T8636. The Building Managers (and Deputies and Assistants) will then be reappointed or new ones appointed as necessary.

| Milestones: | *Schedule* |
|---|---|
| *New candidates identified* | *Done:* 02/20/92 |
| *Qualifications of current Building Mgrs. reviewed* | *Done:* 02/20/92 |
| *Building Managers appointed* | *Done:* 02/20/92 |

**TASK: T8641 Identify Areas Not in Compliance**

LBL will identify areas of the Laboratory that are not in compliance with 29 CFR 1910, sub. S.

| Milestones: | *Schedule* |
|---|---|
| *Revision of PUB-3000, Chapter 8 completed* | *Done:* 06/01/92 |
| *Schedule for corrections established* | *Due:* 07/01/92 |
| *Assessment of compliance completed* | *Due:* 11/01/92 |
| *Review of 29 CFR 1910, sub. S completed* | *Done:* 08/01/92 |

**TASK: T8643 Install GFCI Protection**

LBL will establish a schedule to install GFCI protection around sinks, outdoor circuits and hoods at all LBL facilities.

| Milestones: | *Schedule* |
|---|---|
| *GFCI protection upgrades initiated* | *Due:* 02/01/93 |
| *Schedule for correction developed and approved* | *Due:* 04/01/93 |
| *Electrical safety subcommittee inspect. completed* | *Due:* 09/30/93 |

**TASK: T8647 Improve Training Program for Firefighters**

The training program for LBL fire fighters will be improved. The present policy is fragmented and in conflict with Laboratory Employee Development Policy. The content of the training program requires expansion, including a physical fitness component and safety training for the Assistant Chiefs.

| Milestones: | *Schedule* |
|---|---|
| *Interim Training Policy & Program Plan issued* | *Done:* 05/21/92 |
| *Revised Training Policy & Program plan drafted* | *Due:* 01/30/93 |
| *Reviews and Approvals completed* | *Due:* 02/30/93 |
| *Training Policy & Program Plan issued* | *Due:* 03/15/93 |
| *New training program initiated* | *Due:* 03/30/93 |

**TASK: T8650 Provide Proper Panel Labeling**

Electrical panels are not properly labeled and/or marked in many areas throughout the Laboratory. Doors on panels are not properly secured. Panel schedules are either non-existent or poorly maintained in many areas. Proper labeling will be provided through inspection and modification of the panels.

| Milestones: | *Schedule* |
|---|---|
| *Electrical panel inspection schedule completed* | *Done:* 12/01/91 |
| *Inspection schedule established, team assigned* | *Due:* 10/01/92 |
| *Electrical panels secured and labeled* | *Due:* 10/01/92 |

**TASK: T8654 Correct Baseline Life Safety & Other Deficiencies**

Life Safety deficiencies and other deficiencies discovered in the consultant-conducted baseline survey will be corrected. A correction plan will be developed and the schedule will be prioritized based on the hazard level of the discrepancy.

| Milestones: | *Schedule* |
|---|---|
| *Life Safety MELFS funding requested* | *Done:* 04/01/91 |
| *Correction plan developed and prioritized* | *Done:* 09/16/92 |
| *Life Safety MELFS funding approved* | *Done:* 10/01/92 |
| *Life safety correction contract placed* | *Due:* 12/15/93 |
| *All corrections completed* | *Due:* 04/01/95 |

**TASK: T8670 Revise Lockout/Tagout Procedure**

PUB-3000, Chapter 8, Appendix A Lockout/Tagout Procedure will be revised to be in compliance with 29 CFR 1910, Subpart S, Electrical Standard.

| Milestones: | *Schedule* |
|---|---|
| *Requirements reviewed* | *Done:* 10/30/91 |
| *Revision of lockout/tagout procedure drafted* | *Done:* 02/15/92 |
| *Procedure approved* | *Done:* 02/28/92 |
| *Lockout/tagout training materials developed* | *Done:* 08/17/92 |
| *Personnel trained in lockout/tagout procedure* | *Due:* 12/31/92 |

**TASK: T8671 QA/CO Self Assessment**

Maintenance of an adequate implementation of the new QA/CO framework can only be achieved through inspections and self assessment. The criteria for the evaluation of QA/CO will be promulgated as part of the guidelines for the self-assessment. In particular, divisions will be required to report on the implementation of Project Notebooks, Facility Notebooks and Function Notebooks as well as on their designated facilities requiring individual QA/CO plans. In addition to the self-evaluation performed by the divisions, external audits carried out by the IRAD will also be part of the self assessment. The costs associated with this task are only in connection with developing guidelines. The cost of carrying out the self-assessment has been included in the self-assessment tasks.

| Milestones: | *Schedule* |
|---|---|
| *Draft guidelines on QA/CO self-assessment* | *Done:* 06/19/92 |
| *Self assessment QA/CO checklist developed* | *Due:* 11/30/92 |
| *First full QA/CO self-assessment begins* | *Due:* 11/30/93 |

**TASK: T8672 QA/CO Full Implementation**

With the new framework for Quality Assurance and Conduct of Operations as established by the IQAP and the ICOP, and with the issuance of the Project Notebook, Facility Notebook and Function Notebook to all Laboratory projects, facilities and functions, the implementation phase will begin. Many concerns in the Tiger Team Assessment are addressed by the implementation of this new framework. Concerns that require specific tasks have been addressed by writing specific tasks, such as implementing a Facility Notebook for a particular facility. The costs for the full implementation are collected in this implementation task and not in the individual tasks. The IQAP and the ICOP require individual QA/CO plans for designated facilities, projects, or functions. The plans that are developed for these facilities will be implemented also as part of this task. The implementation task is complicated by the fact that it will commence before the QA/CO Support Office is fully established. Support for the divisions will be provided by the people across the Laboratory who developed the new framework. Divisions will be responsible for the implementation.

| Milestones: | *Schedule* |
|---|---|
| *Full implementation starts* | *Done:* 10/01/91 |
| *QA/CO program implemented* | *Due:* 09/30/92 |

**TASK: T8673 QA/CO Training**

As the new framework for Quality Assurance and Conduct of Operations is established, training on the implementation of this framework is necessary at all levels of the Laboratory. This task will commence with training of divisional QA/CO representatives and the leaders of the facilities, projects, or support functions that participate in the pilot projects to implement the Facility Notebook, the Project Notebook, and the Function Notebook. In addition, the leaders of "critical" facilities, projects and functions, who are required to develop individual QA/CO plans, will be trained to develop and implement those plans starting from the guidance given in the IQAP. After the pilot phase is complete, and the Notebooks begin to be implemented throughout the site, training of all facility supervisors, project leaders, and function leaders will take place. Finally, these leaders will train their employees in the use of the Notebooks and the overall QA/CO framework of the Laboratory. The training task is complicated by the fact that it will commence before the QA/CO Support Office is fully established. The initial training will be carried out by the people across the Laboratory who have been involved in developing the new QA framework. Gradually this task will be taken over by the QA/CO Support Office. Finally, the costs associated with QA/CO training have been estimated under this task for the entire Laboratory excepting those costs that are budgeted for the QA/CO Support Office.

| Milestones: | *Schedule* |
|---|---|
| *QA/CO training for pilot facilities* | *Done:* 05/30/91 |
| *QA/CO training on pilot projects/functions* | *Done:* 06/30/91 |
| *Completed QA/CO training of supervisors* | *Due:* 10/30/92 |
| *Training of staff completed* | *Due:* 01/30/93 |

**TASK: T8674 Establish QA/CO Support Office** *Complete:* 04/08/92

To provide technical help in the implementation of Quality Assurance and Conduct of Operations at the Laboratory, a QA/CO Support Office will be established in the Scientific and Technical Resources Division. In particular the Office will support the development and implementation of QA/CO plans for "critical" functions, facilities and projects. This office will also update the instructions and guidance provided in the Project Notebook, Facility Notebook and Function Notebook, and will provide assistance to the divisions on their implementation.

| Milestones: | *Schedule* |
|---|---|
| *Job posted for manager of the QA/CO Office* | *Done:* 11/19/91 |
| *Head of the QA/CO Support Office at the Laboratory* | *Done:* 04/08/92 |

**TASK: T8684 Formalize Occurrence Reporting System** *Complete:* 04/20/92

Revision to the Laboratory's Occurrence Reporting System will be made consistent with DOE Order 5000.3A. Revisions will be included in the Health and Safety Manual. Training on occurrence reporting will be provided to employees and revised policy will be formally distributed. Distribution of occurrence reports will be provided to all divisions as part of a Lessons Learned program (see Self-Assessment (SA)).

| Milestones: | *Schedule* |
|---|---|
| *Occurrence Reporting Policy revised* | *Done:* 07/31/90 |
| *Training on Occurrence Reporting* | *Done:* 01/21/91 |
| *Implementation completed* | *Done:* 02/15/91 |
| *Occurrence Reporting in LBID-1694 Rev* | *Done:* 04/20/92 |

**TASK: T8691 Substance Abuse Training Program** *Complete:* 08/21/91

The Personnel Department, in close cooperation with the EH&S training program staff, will develop a substance abuse training program for supervisors. A consultant will be retained to develop training materials, including a Supervisor Handbook for Substance Abuse Prevention, and a training program will be conducted and eventually incorporated into the overall LBL training program described in Task T2009.

| Milestones: | *Schedule* |
|---|---|
| *Issue Substance Abuse Policy* | *Done:* 01/22/91 |
| *Conduct Substance Abuse Supervisor Training* | *Done:* 08/21/91 |

**TASK: T8694 Establish Safety Related Systems Policy**

Issue a policy establishing the responsibility and authority for co-ordination of design, control, review, implementation and documentation of work associated with institutional safety related systems.

| Milestones: | *Schedule* |
|---|---|
| *Safety Systems Task Force established* | *Done:* 05/01/92 |
| *Policy drafted* | *Done:* 09/30/92 |
| *Policy issued for general use* | *Due:* 10/01/92 |

**TASK: T8696 Develop OSPs & COPs for Safety Related Systems**

Develop Operational Safety Procedures and Conduct of Operations Procedures for each safety related system which define the responsibility and authority of each Division and their interface relationships.

| Milestones: | *Schedule* |
|---|---|
| *Divisions Assign Staff to Prepare OSPs & COPs* | *Due:* 08/01/92 |
| *Issue Draft OSPs & COPs for Review & Approval* | *Due:* 09/01/92 |
| *Issue OSPs & COPs for Implementation* | *Due:* 09/30/92 |
| *Develop and Issue Safety Checklist* | *Due:* 12/30/92 |
| *Train All Responsible Personnel in New Procedures* | *Due:* 12/30/92 |

**TASK: T8707 Documentation Requirements for Facilities**

Include requirements in "Facility", "Project", and "Function" notebooks for the documentation of design, design reviews and facility modifications. The Notebooks have been introduced as a vehicle to centralize requirements placed on facilities, projects, and functions by Laboratory policies and regulations. They include quality assurance, and conduct of operations requirements. In particular they include requirements on documentation of design, design reviews, facility modification, maintenance and operations. This task is costed elsewhere in the development of the Notebook system.

| Milestones: | *Schedule* |
|---|---|
| *Draft instructions completed* | *Done:* 12/01/91 |
| *Requirements included in Final Notebook* | *Due:* 11/16/92 |

**TASK: T8718 Develop Laboratory Fire Safety Education Program**

Ongoing programs will be developed to educate Laboratory employees on fire safety. Special training for Building Managers will be included. Awareness programs for safe storage and use of flammable liquids will also be included.

| Milestones: | *Schedule* |
|---|---|
| *Education and training programs drafted* | *Due:* 01/30/93 |
| *Programs reviewed and approved* | *Due:* 02/30/93 |
| *Program initiated* | *Due:* 03/30/93 |

**TASK: T8719 Correct Deficiencies in Equip. Procurement & Use**

Deficiencies regarding equipment procurement, use and maintenance will be corrected.

| Milestones: | *Schedule* |
|---|---|
| *Rescue equipment inspections completed* | *Done:* 03/15/91 |
| *Rescue equipment study completed* | *Done:* 09/15/91 |
| *Purchase specifications revised* | *Done:* 01/22/92 |
| *Protective clothing maint./inspection initiated* | *Done:* 05/15/92 |
| *Ladder inspection program initiated* | *Done:* 05/28/92 |
| *Protective clothing standard issued* | *Done:* 05/15/92 |
| *Fire pump testing program initiated* | *Done:* 04/16/92 |
| *Ground ladders on second pumper installed* | *Done:* 10/05/92 |
| *Equipment inventory established* | *Due:* 01/30/93 |

**TASK: T8744 Blanket Order Controls** *Complete:* 08/15/92

This task will address the issue of control of acquisition of materials governed by the Blanket Order system. Such requestor acquisitions through an established Blanket Order bypass the normal purchasing Department screening and notification process. Procedures for the identification of critical items and control of their acquisition via the Blanket Order system will be developed. Areas of interest will be designated hazardous materials, controlled chemicals, and other safety-related items. This process will include language in the Blanket Order contracts, as well as control mechanisms within the program divisions generating the actual requests for materials. Costs for this Task are rolled up into Task 8672, the general Implementation Task for LBL's QA system.

| Milestones: | *Schedule* |
|---|---|
| *Development of Blanket Order Language* | *Done:* 04/10/92 |
| *Development of Requestor Programs* | *Done:* 08/15/92 |

**TASK: T8745 QA Elements for Materiel Mgmt. Function Notebook**

Guidelines for Function Notebooks must be fairly general to be applicable to all areas that must be covered by these Notebooks. There is a need to develop specific guidelines for several different Function Notebook areas to ensure that all the Concerns and Findings from the Tiger Team Report are satisfied. Responsibility for inspection of purchased goods rests with many areas of the Laboratory, from the initial specifier filling out the purchase requisition, to the purchasing department responsible for the proper language and specifications in the purchase order, to receiving, and finally to the shops where the actual inspections are performed. Procedures and guidelines will be developed to cover this process through all the above-listed stages. (See also Task 8747.) Training programs will be developed to assure that these procedures are properly understood by all those needing to follow them. An audit program will be developed to verify that inspections are properly performed. Costs for this task are rolled up into Task 8672, the general Implementation Task for the Notebook system.

| Milestones: | *Schedule* |
|---|---|
| *Development of Receiving Inspection Program* | *Due:* 02/01/93 |

**TASK: T8747 QA Elements for Purchasing Function Notebook** *Complete:* 08/19/92

Guidelines for Function Notebooks must be fairly general to be applicable to all areas that must be covered by these Notebooks. There is a need to develop specific guidelines for several different Function Notebook areas to ensure that all the Concerns and Findings from the Tiger Team Report are satisfied. In each of the topics given below, graded-approach criteria will be developed for appropriate application of QA principles. Areas to be addressed include requirements for oversight of subcontractor QA programs; development of procedures for evaluation of qualifications of suppliers, including QA criteria, and maintenance of lists of qualified suppliers; establishment proper procedures for control acquisition of hazardous materials; development of training and audit programs to ensure that buyers are properly equipped to serve as the first line of defense in the proper entry and control procedures of hazardous materials; development of programs to ensure that proper certification on materials is obtained, that training and dissemination of information occurs that will prevent the entry of counterfeit parts into the Laboratory; and procedures for specifying inspection and certification requirements for materials on Purchase Orders. Costs for this task are rolled up into Task 8672, the general Implementation Task for the Notebook system.

| Milestones: | *Schedule* |
|---|---|
| *Procedures for Training Buyers in ES&H Awareness* | *Done:* 09/03/91 |
| *Control of Counterfeit Parts* | *Done:* 03/19/91 |
| *Procedures for Audits for ES&H Concerns* | *Done:* 11/13/91 |
| *Oversight of Subcontractor QA* | *Done:* 05/29/92 |
| *Procedures for Inspection Requirements* | *Done:* 08/19/92 |
| *Procedure for Developing Qualified Supplier List* | *Done:* 08/19/92 |

**TASK: T8748 QA Elements of Instrument Calibration Funct. Ntbk.**

Guidelines for Function Notebooks must be fairly general to be applicable to all areas that must be covered by these Notebooks. There is a need to develop specific guidelines for several different Function Notebook areas to ensure that all the Concerns and Findings from the Tiger Team Report are satisfied. This task solidifies procedures in the Laboratory's instrument calibration program to improve the overall quality of the program. Elements of this program are located in various areas of the Engineering Division, spanning the range from the Instrument Shop for electrical measuring instrumentation, to the Main Shops, for mechanical measurement instruments. Radiation survey instruments are calibrated by EH&S in yet another area of the Instrument Calibration Program. While each of these areas will probably be developing its own Function Notebook, the procedures developed in this task will be written for inclusion in each of them. The Instrument Calibration Function Notebooks will contain procedures relevant to all the calibration activities at the Laboratory, to ensure commonality, and a uniform standard of quality for all areas. Specific procedures to be addressed in this Task are: development of central databases to ensure that all instruments requiring periodic recalibrations are properly tracked; development of standardized procedures for logging and tagging instruments calibrated, and for documenting calibration results; and establishment of procedures for notifying the instrument owner if his instrument arrived at the shop in an out-of-calibration state, so he can review any measurements that may have been performed with the instrument that are suspect and need re-doing. Costs for this task are rolled up into Task 8672, the general Implementation Task for the Notebook system.

| Milestones: | *Schedule* |
|---|---|
| *Procedures in Place for Central Tracking Database* | *Done:* 04/20/92 |
| *Documentation and Logging* | *Done:* 05/15/92 |
| *Notification of Out-of-Calibration Instruments* | *Due:* 12/30/92 |

**TASK: T8793 Revise PUB-3000 to Add Ladder Requirements** *Complete:* 06/26/92

LBL will revise the LBL Health and Safety Manual (PUB-3000) to add OSHA-compliant requirements for permanent ladders.

| Milestones: | *Schedule* |
|---|---|
| *Pub-3000 Revised* | *Done:* 06/26/92 |

**TASK: T8797 Complete Installation of B76 Water Treatment Unit** *Complete:* 01/01/90

This task addresses a specific finding from the 1989 TSA. The actual work, installation of the B76 Water Treatment Unit (including the Motor Pool), was completed and costed in FY1990.

| Milestones: | *Schedule* |
|---|---|
| *Physical installation completed* | *Done:* 09/01/89 |
| *Monthly monitoring started* | *Done:* 01/01/90 |

**TASK: T9016 Subcontractor & Vendor Compliance Checks** *Complete:* 03/01/91

Formalize documented subcontractor and vendor compliance checks for transportation safety.

| Milestones: | *Schedule* |
|---|---|
| *Subcontractor checks completed* | *Done:* 03/01/91 |

**TASK: T9017 Establish Subcommittee to Safety Review Committee**

LBL will establish the subcommittee to the Safety Review Committee that will be responsible for safety matters concerning packaging and transportation of hazardous materials.

| Milestones: | *Schedule* |
|---|---|
| *Charter established* | *Done:* 09/01/92 |
| *Subcommittee members appointed* | *Due:* 12/01/92 |

**TASK: T9029 Eye Protection in Laser Laboratories** *Complete:* 06/01/92

LBL will post signs near the equipment in laser laboratories reminding workers that eye protection is required whenever the laser is activated. Certification of eye examination before permitting any employee access to a laboratory with a Class 3 and 4 laser in operation will be required. Certification will be included in Facility Notebook.

| Milestones: | *Schedule* |
|---|---|
| *Eye protection signs posted in laser laboratories* | *Done:* 05/31/91 |
| *Medical exam certification added to Fac. Notebooks* | *Done:* 06/01/92 |

**TASK: T9031 Required Physician/Nurse Staffing Levels** *Complete:* 02/04/91

LBL review DOE Order 5480.8 regarding recommended staffing levels for physicians and nurses for a population of 3300.

| Milestones: | *Schedule* |
|---|---|
| *Review completed* | *Done:* 02/04/91 |

**TASK: T9032 Correct Medical Staffing Levels** *Complete:* 02/25/91

LBL will correct medical staffing levels in accordance with review findings. (See Task T9031.)

| Milestones: | *Schedule* |
|---|---|
| *Classifications and compensation reviewed* | *Done:* 02/11/91 |
| *Appropriate salary levels established* | *Done:* 02/18/91 |
| *Appropriate additional medical staff hired* | *Done:* 02/25/91 |

**TASK: T9049 Develop an LBL Maintenance Manual**

LBL will, considering maintenance related DOE Orders, Directives, LBL policy and practices, formulate an LBL Maintenance Manual which defines and incorporates the institutional maintenance performance standards, measurement criteria, and general implementing procedures which are to guide LBL divisions in their establishment, completion, or review and update of task related compliant maintenance programs. Other DOE facilities will be consulted for possible experience gained in manual development and application.

| Milestones: | *Schedule* |
|---|---|
| *Identify maint. program elements/needed controls* | *Done:* 06/01/92 |
| *Draft maint. program elements stats/criteria dev* | *Done:* 07/27/92 |
| *Div. maint. orgs. review of draft MM completed* | *Due:* 08/31/92 |
| *LBL Maintenance Manual finalized* | *Due:* 10/31/92 |
| *LBL Maint. Manual distribtion/update controlled* | *Due:* 12/31/92 |
| *Draft manual prepared* | *Due:* 03/15/93 |

**TASK: T9050 Identify Safety-Critical Equipment**

Equipment critical to the nullification or mitigation of potentially hazardous conditions will be identified and cataloged for purposes of proper maintenance. Include a system to identify subsequently installed equipment and ensure that it becomes a part of the designated equipment significant to safety inventory.

| Milestones: | *Schedule* |
|---|---|
| *Equipment identified.* | *Done:* 09/30/92 |
| *Equipment Identification Completed* | *Due:* 12/31/92 |

**TASK: T9052 Establish Egress Sign and Labeling Policy** *Complete:* 08/12/92

The laboratory will establish policies for an effective uniform approach to signing and labeling means of egress and maintenance of proper signing and labeling throughout the life of a facility.

| Milestones: | *Schedule* |
|---|---|
| *29 CFR 1910, Sub E, reviewed* | *Done:* 12/04/91 |
| *Policy on signs for means of egress drafted* | *Done:* 12/11/91 |
| *Review of draft completed* | *Done:* 02/28/92 |
| *Policy on means of egress signs approved* | *Done:* 08/12/92 |

**TASK: T9053 Survey Facilities Means of Egress**

LBL will survey all facilities for inadequate emergency lighting, inadequate marking of exits, and blocked or obstructed means of egress. Corrections needed will be prioritized based on risk and hazard analysis. New policy on signs for means of egress and correction of deficiencies in order of priority will be initiated. Costs are reflected in T2174.

| Milestones: | *Schedule* |
|---|---|
| *Survey completed* | *Due:* 10/30/92 |
| *Schedule for corrections established & initiated* | *Due:* 11/30/92 |
| *Deficiencies prioritized* | *Due:* 11/30/92 |

**TASK: T9055 OSPs to Identify Maintenance Requirements**

LBL Policy and Procedures and LBL Health & Safety Manual, PUB-3000, governing formulation of operational safety procedures will be modified to require identification of maintenance requirements where reliable operation and caretaking are critical to required safety functions. OSPs will be reviewed and updated during the annual review process to include maintenance requirements. The review and approval process for future OSPs will be modified to incorporate maintenance considerations.

| Milestones: | *Schedule* |
|---|---|
| *Maint. req included in OSP Policy/HSM PUB-3000* | *Done:* 06/30/92 |
| *Future OSP approval process modified for maint.* | *Done:* 07/19/92 |
| *OSP update completed to include maint requirements* | *Due:* 09/30/93 |

**TASK: T9056 Environmental Permits Process to ID Maint. Req.**

LBL will revise the environmental permits process so that facility/utility/system procedures and operating limits identify maintenance requirements to assure compliance with NESHAP, RCRA, CERCLA and other requirements.

| Milestones: | *Schedule* |
|---|---|
| *Maint. reqs. in env. permits policy & PUB-3000* | *Due:* 12/01/92 |
| *Existing env permits updatd including maint reqs* | *Due:* 03/01/93 |
| *Future env permits appr process modified for maint* | *Due:* 06/15/93 |

**TASK: T9057 Maint Reqs in Facilities/Projects & Function NB**

LBL conduct of operations QV/QA processes and associated Facility, Project and Function Notebooks will be modified to incorporate the processes of identification of maintenance requirements using a risk related graded approach. Where the need for significant formalized maintenance activities is determined, applicable maintenance program elements will be identified and a brief general conduct of maintenance described.

| Milestones: | *Schedule* |
|---|---|
| *Add facility specific maint instructions to NB* | *Due:* 07/01/92 |

**TASK: T9058 Estab Conduct of Maint Compliance Rev Resp/Pos**

The responsibilities and authorities of, or within, a position in the conduct of operations were defined and established. The QA/QV organization reviewed the conduct of maintenance activities for compliance with LBL Policy, and the LBL Maintenance Manual, and incorporated changes as necessary.

| Milestones: | *Schedule* |
|---|---|
| *Define LBL maint review requirements* | *Done:* 09/01/92 |
| *Estimate effort type(s) & quantity for reviews* | *Due:* 12/01/92 |
| *Estab criteria for maint activities measurements* | *Due:* 02/01/93 |

**TASK: T9061 Policy Memo Discussing Counterfeit Bolts** *Complete:* 05/17/91

Issue a policy and procedure memo which discusses counterfeit bolts, how high strength bolts should be specified and procured, and a Mechanical Engineering Department procedure to verify authenticity of materials, and specifically, of the certificates of high strengths bolts. The policy shall require seeking the assistance of the ME Department if the high strength bolts are critical to the safety and performance of the design. The policy shall reflect the requirements of a policy to be issued by DOE Headquarters.

| Milestones: | *Schedule* |
|---|---|
| *Policy and Procedure Memo Issued* | *Done:* 05/17/91 |

**TASK: T9062 Estab DOE 5700.6B Compliant Calibration Facilities**

The calibration facilities within the Engineering Division shall be brought into compliance with DOE Order 5700.6B including defining the format, content, maintenance, retention, review, and distribution of calibration records; maintaining current NIST traceable standards; documented calibration procedures; and maintenance of a recall database.

| Milestones: | *Schedule* |
|---|---|
| *Recall database established* | *Due:* 06/30/93 |
| *Standards updated* | *Due:* 06/30/93 |
| *Calibration record system completed* | *Due:* 06/30/93 |

**TASK: T9077 Design and Install Data Logging System**

Design and install a data logging system that meets requirements of ANSI N43.1 for survey result documentation. System will allow accelerator parameters such as beam strength and isotope types to be combined with radiation levels from surveys.

| Milestones: | *Schedule* |
|---|---|
| *Initial components of data logging system obtained* | *Done:* 10/01/90 |
| *Components of data logging system designed* | *Done:* 12/01/90 |
| *Data logging system installed and debugged* | *Done:* 07/01/92 |
| *Initial posting of data posted* | *Due:* 12/01/92 |

**TASK: T9079 Conduct Inventory and Leak Test Cntnd. Sealed Srcs** *Complete:* 11/30/91

Conduct an inventory of all LBL equipment that may contain sealed radiation sources, and leak test all sources during annual source inventories.

| Milestones: | *Schedule* |
|---|---|
| *Radiation source list verified* | *Done:* 09/01/91 |
| *Initial leak testing of sources completed* | *Done:* 11/30/91 |

**TASK: T9080 ER Guidance on Conduct of Operations**

Guidance on Conduct of Operations will be obtained from ER.

| Milestones: | *Schedule* |
|---|---|
| *Hold BES workshop* | *Done:* 05/06/91 |
| *Seek comments on accelerator order* | *Done:* 04/24/92 |
| *Finalize accelerator order* | *Due:* 12/01/92 |

**TASK: T9081 Develop Quantitative Measure of Hazard Potential**

Develop quantitative measure of hazard potential for radioactive materials in laboratories.

| Milestones: | *Schedule* |
|---|---|
| *Radioactive materials hazard potential evaluated* | *Done:* 09/01/92 |
| *Radioactive materials inventory posted* | *Due:* 12/30/92 |

**TASK: T9088 Limit Mods W/Safety Implications to Auth. Persons**

LBL Safety Committee to identify the generic facilities, utilities, systems, apparatus and equipment where uncontrolled modifications and/or inaccurate configuration information is likely to result in significant ES&H risks. Organizations, positions, and individuals who have legitimate responsibilities, qualifications and authorities to initiate and control physical and information modifications are to be identified. LBL policy/procedure and LBL Health and Safety Manual, PUB-3000, are to be modified to limit modifications to authorized personnel. Independent inspections requirements are to be defined. Information maintenance and distribution requirements are to be established.

| Milestones: | *Schedule* |
|---|---|
| *ID where mods controls are required for safety* | *Due:* 08/01/92 |
| *Establish mods verification/inspection reqmts.* | *Due:* 08/15/92 |
| *ID those authorized to perform modifications* | *Due:* 08/15/92 |
| *Formulate/distribute modification guidance policy* | *Due:* 09/01/92 |
| *Review PUB-3000* | *Due:* 12/15/92 |
| *Revise PUB-3000* | *Due:* 01/01/93 |

**TASK: T9091 Implement QA of Gamma Film and TLD Dosimeters**

Initiate blind QA testing of gamma film and TLD dosimeters, by implementing existing gamma dosimeter testing procedure, and developing and implementing a new TLD testing procedure.

| Milestones: | *Schedule* |
|---|---|
| *Gamma film testing procedure reviewed* | *Done:* 06/01/91 |
| *TLD testing procedure drafted* | *Done:* 12/03/91 |
| *Procedures incorporated into PDO notebook* | *Done:* 05/04/92 |
| *TLD testing procedure approved* | *Done:* 05/04/92 |
| *QA testing of dosimeters completed* | *Due:* 01/31/93 |

**TASK: T9093 Mods Coordination Responsibility & Authority**

Divisions are to review the LBL policies and procedures and updated LBL Health & Safety Manual to assure current understanding of requirements to control modifications and assure the ready availability of accurate operating and maintenance information for facilities, utilities, systems, apparatus and equipment incorporating or controlling significant ES&H risks. Divisions clearly interpret such policies and procedures to their personnel, limiting modifications to authorized individuals. The roles and responsibilities of individuals authorized to conduct modifications are to be clarified and organizational/position coordinating requirements for modifications, maintenance, and operations are to be defined.

| Milestones: | *Schedule* |
|---|---|
| *Communicate reqmts. for authorization of mods.* | *Due:* 12/01/91 |
| *Clarify roles & responsibilities for authorized* | *Due:* 01/15/92 |

**TASK: T9094 Establish Indep. Verification/Inspection of Mods.**

Establish independent verification of quality of work done on modifications to facilities, utilities systems, apparatus and equipment incorporating or controlling significant ES&H risks.

| Milestones: | *Schedule* |
|---|---|
| *ID application needs for mods verif./inspection* | *Due:* 12/01/91 |
| *Affirm understanding of mods verif./inspect. rqmts* | *Due:* 03/01/92 |
| *Establish facility specific verif/inspect criteria* | *Due:* 03/15/92 |
| *Identify and assign inspectors/verifiers* | *Due:* 04/01/92 |

**TASK: T9096 Procure Hand and Foot Monitors**

Procure new hand and foot monitors for use in radioisotope areas for egress monitoring.

| Milestones: | *Schedule* |
|---|---|
| *Additional hand and foot monitors evaluated* | *Done:* 03/01/91 |
| *Hand and foot monitors procured* | *Due:* 09/30/94 |

**TASK: T9098 ALARA Review of Exist. NTLF and Rad Ctrl. Proc.** *Complete:* 09/30/92

Review existing procedures for conformance with DOE ALARA guidelines.

| Milestones: | *Schedule* |
|---|---|
| *Procedures review completed* | *Done:* 05/08/92 |
| *Formal doc. of procedure review completed* | *Done:* 09/30/92 |

**TASK: T9099 Reevaluate NTLF Enclosures & Ventil. Exposure**

Reevaluate NTLF enclosures and ventilation equipment for means of decreasing personnel exposure potential.

| Milestones: | *Schedule* |
|---|---|
| *Reevaluation of NTLF enclosure completed* | *Due:* 06/01/93 |
| *Formal doc. of NTLF equip. evaluation completed* | *Due:* 09/01/93 |

**TASK: T9100 Develop Fire Department QA plan**

A formal Fire Department QA plan consistent with the new Laboratory Institutional QA Plan will be developed and incorporated in Section 8, Internal and External Measure of Quality, of the Fire Department Function Notebook developed in response to Task T2024.

| Milestones: | *Schedule* |
|---|---|
| *QA plan draft completed* | *Due:* 12/01/92 |
| *Reviews and approvals completed* | *Due:* 01/15/93 |
| *QA plan issued* | *Due:* 02/15/93 |

**TASK: T9103 Institutional Conduct of Ops. Implementation Plan**

The Institutional Conduct of Operations Implementation Plan provides the structure within which application and compliance of DOE Order 5480.19, Conduct of Operations, is carried out at the Lawrence Berkeley Laboratory. This Plan parallels the Institutional Quality Assurance Plan (Task T2021); the two documents work in concert to drive an integrated implementation of quality assurance and conduct of operations at the Laboratory. Specifically, the Institutional Conduct of Operations Implementation Plan (ICOIP) will: a) define the need for application of the Guidelines in 5480.19 according to the graded approach called for in the Order, b) establish criteria for categorizing facilities at the Laboratory, using metersticks such as risk and programmatic importance, c) establish the relationship between facility categorization and the level of application of guidelines that will be required, d) establish the steps each facility must take, once categorized, to come into compliance with the Order. For the greatest majority of Laboratory activities, the only step will be to generate a Facility Notebook (see Task 2022) following closely the guidelines given for completing this notebook. Some facilities will be required to go beyond this Notebook, and will have to analyze their operations in detail against the Guidelines of the Order. e) outline the procedures for documenting proper compliance with the Order. This will require completion of the appropriate number of applicability matrices called for in Section 5.c of the Order (detailed in companion Task 9110). f) detail a review and assurance program to ensure Notebooks and other documentation are properly prepared and implemented, g) define a program for periodic review of Notebooks and other documentation to ensure currency and relevance of these documents. h) provide for review and updating of the ICOIP itself.

| Milestones: | *Schedule* |
|---|---|
| *Architecture for graded approach program defined* | *Done:* 04/15/91 |
| *Facility Notebook guidelines reviewed* | *Done:* 01/17/92 |
| *Characterization criteria established* | *Done:* 11/01/91 |
| *Draft OAP written* | *Done:* 07/01/92 |
| *Review and assurance programs developed* | *Done:* 07/01/92 |
| *Final document approved by Director* | *Due:* 09/30/92 |

**TASK: T9104 Review PA System Coverage and Reliability** *Complete:* 02/10/91

LBL will review and investigate existing PA system to identify major problems of coverage and reliability.

| Milestones: | *Schedule* |
|---|---|
| *New PA system mod & maint procedures established* | *Done:* 01/01/91 |
| *PA system coverage survey completed* | *Done:* 02/10/91 |

**TASK: T9105 Revise Emergency Public Info Plan** *Complete:* 08/26/91

The Emergency Public Information plan will be revised to ensure compliance with DOE Order 5500.4A. Reporting criteria, directions, and preformatted emergency news releases for dissemination to the local news media during emergencies will be included in the revised plan.

| Milestones: | *Schedule* |
|---|---|
| *Preformatted message forms developed* | *Done:* 08/26/91 |
| *Reporting criteria and directions developed* | *Done:* 08/26/91 |

**TASK: T9110 Evaluate Notebook System Compliance with 5480.19**

Criteria for proper application of the "graded approach" called for in DOE Order 5480.19, Conduct of Operations are established in the Institutional Conduct of Operations Implementation Plan described in a separate Task. As called out in this and other Tasks, compliance with the provisions of the Order will take place by having Laboratory facilities complete Facility Notebooks, and where necessary, additional documentation going beyond the compliance levels called for in the guidelines for this Notebook. A necessary step called for in the Order (Section 5, Requirements) is documentation indicating applicability of specific Guidelines in 5480.19 to each facility, how the Guidelines are applied within Laboratory policies and procedures, and listed exemptions from the Guidelines. This document must be prepared for approval by the Head of the Field Element. This Task addressed the preparation of this documentation. As most of the Laboratory activities will be covered by the guidelines of the Facility Notebook, one analysis document will be prepared assessing these guidelines against the Guidelines of the Order. For those facilities that require implementation beyond the guidelines in the Facility Notebook, separate applicability matrices will be generated by the person preparing the documentation for each so-designated facility.

| Milestones: | *Schedule* |
|---|---|
| *Facility Notebook guidelines reviewed* | *Done:* 11/01/91 |
| *Applicability Matrix for Fac. Notebook completed* | *Done:* 01/17/92 |
| *Fac. requiring more stringent applic. identified* | *Done:* 07/01/92 |
| *Applicability Matrices for these fac. completed* | *Due:* 10/31/92 |
| *Package delivered to DOE/SF* | *Due:* 11/15/92 |
| *Package approved by DOE/SF* | *Due:* 12/15/92 |

**TASK: T9117 Develop Guidelines for X-ray Machines Testing** *Complete:* 11/01/91

Guidelines for testing of X-ray machines and documentation of these tests per ANSI N43.2. Such tests will be performed at 6 month intervals and test records will be maintained by EH&S.

| Milestones: | *Schedule* |
|---|---|
| *Testing guidelines completed* | *Done:* 06/01/90 |
| *Validation of current list of X-ray mach., comp.* | *Done:* 07/01/91 |
| *First resurvey & doc. of all X-ray machines, comp.* | *Done:* 11/01/91 |

**TASK: T9119 Document Existing PA System**

LBL will correct and update PA system documentation by a survey of all buildings.

| Milestones: | *Schedule* |
|---|---|
| *Documentation of PA system completed* | *Due:* 06/01/93 |

**TASK: T9122 Correct PA System Deficiencies**

LBL will correct PA system deficiencies.

| Milestones: | *Schedule* |
|---|---|
| *PA system in critical buildings upgraded* | *Due:* 01/15/93 |
| *PA system in less-critical buildings corrected* | *Due:* 10/01/93 |
| *Basic PA system revamp completed* | *Due:* 10/01/94 |

**TASK: T9129 Establish List of Acetylene Users; Sched. Inspect.** *Complete:* 12/01/91

LBL will establish and maintain a list of acetylene users and schedule an annual fire department inspection of each to ensure that operation is compliant with 29 CFR 1910.253.

| Milestones: | *Schedule* |
|---|---|
| *List of acetylene users established* | *Done:* 03/01/91 |
| *Inspection personnel trained in 29 CFR 1910.253* | *Done:* 03/01/91 |
| *Acetylene system inspection schedule established* | *Done:* 12/01/91 |
| *Acetylene system inspections initiated* | *Done:* 12/01/91 |

**TASK: T9131 Develop Division Charters**

Division charters will be developed. These charters will describe each division's missions, goals, programs (or functions), organizational structure, and interfaces with other divisions.

| Milestones: | *Schedule* |
|---|---|
| *Draft division charter guidance developed* | *Done:* 10/09/92 |
| *Charters drafted-trial phase* | *Due:* 10/15/92 |
| *Draft charters and guidance revised* | *Due:* 12/01/92 |
| *Division charters issued* | *Due:* 02/01/93 |

**TASK: T9135 Publish Procedure and Authority Directive** *Complete:* 06/15/92

LBL will publish a procedure and authority directive for the establishment or change to any LBL health and safety policy document.

| Milestones: | *Schedule* |
|---|---|
| *Safety policy modification directive published* | *Done:* 06/15/92 |

**TASK: T9141 National Electric Code Training Course** *Complete:* 11/22/91

LBL will provide an annual 3 day, in depth training class on the National Electric Code for its C&M Electricians, Plant Electrical Engineers, and Electronics Coordinators.

| Milestones: | *Schedule* |
|---|---|
| *NEC training course contracted* | *Done:* 10/03/91 |
| *First NEC training course conducted* | *Done:* 11/22/91 |

**TASK: T9144 Update Plant Engineering Design Mgmt. Manual** *Complete:* 07/15/92

Update a Plant Engineering Design Management Procedures Manual to include design, design reviews and testing of all nonexperimental equipment such as ventilation systems.

| Milestones: | *Schedule* |
|---|---|
| *Include ventilation systems in design manual* | *Done:* 06/08/92 |
| *Manuals updated, new procedure training initiated* | *Done:* 07/15/92 |

**TASK: T9147 Implement machine guarding strategy**

LBL will purchase (manufacture where required) machine guards, chip/splash shields and awareness barriers, and install these devices per (priority) need.

| Milestones: | *Schedule* |
|---|---|
| *Manufacture machine guards, Phase 1* | *Done:* 09/30/92 |
| *Purchase machine guards, Phase 1* | *Done:* 08/31/92 |
| *Install machine guards, Phase 1* | *Due:* 11/30/92 |
| *Manufacture machine guards, Phase 2* | *Due:* 08/31/93 |
| *Purchase machine guards, Phase 2* | *Due:* 08/31/93 |
| *Install machine guards, Phase 2* | *Due:* 09/15/93 |
| *Purchase machine guards, Phase 3* | *Due:* 08/31/94 |
| *Manufacture machine guards, Phase 3* | *Due:* 08/31/94 |
| *Install machine guards, Phase 3* | *Due:* 09/15/94 |
| *Manufacture machine guards, Phase 4* | *Due:* 08/31/95 |
| *Purchase machine guards, Phase 4* | *Due:* 08/31/95 |
| *Install machine guards, Phase 4* | *Due:* 09/15/95 |

**TASK: T9149 Train HEPA Filter Test Technician** *Complete:* 06/12/92

Train HEPA filter test technician for testing procedure developed in T5023.

| Milestones: | *Schedule* |
|---|---|
| *HEPA technician training completed* | *Done:* 06/12/92 |

**TASK: T9162 Initiate HEPA Filter Testing** *Complete:* 02/12/92

Initiate HEPA filter testing by surveying and developing list of onsite HEPA filters, and performing tests per procedure developed in T5023.

| Milestones: | *Schedule* |
|---|---|
| *List of HEPA filters onsite developed* | *Done:* 02/12/92 |
| *Testing HEPA filters started* | *Done:* 02/12/92 |

**TASK: T9164 Submit TSA 1990 Concern Closure Request to DOE** *Complete:* 06/18/92

LBL will verify closure of TSA 1990 concerns recommended by 1991 Tiger Team field verification through formal request to DOE.

| Milestones: | *Schedule* |
|---|---|
| *Closure request submitted to DOE* | *Done:* 06/01/91 |
| *Response to closure verification received* | *Done:* 06/18/92 |

**TASK: T9166 Interim Guidance for Continued Self-Assessment** *Complete:* 09/01/91

The Laboratory Director will provide interim guidance to the line management of the Laboratory establishing expectations for continuing activity consistent with the efforts carried out during preparation for the Tiger Team.

| Milestones: | *Schedule* |
|---|---|
| *Interim guidance* | *Done:* 09/01/91 |

**TASK: T9167 Performance Objectives** *Complete:* 06/29/92

Based on the general performance objectives established in the ISAPP, divisions will develop specific performance objectives for self-assessment. They will be assisted in this effort by the EH&S Division and the Independent Review and Assurance Department. These objectives will be consistent with checklists, criteria used in the Project, Facility, and Function Notebooks and applicable institutional objectives. These performance objectives will be referenced in the Division Self-Assessment Implementation Plans.

| Milestones: | *Schedule* |
|---|---|
| *OAA reviewed pilot div. performance objectives* | *Done:* 05/05/92 |
| *Draft division performance objectives of pilots* | *Done:* 05/05/92 |
| *Final review of division performance objectives* | *Done:* 06/29/92 |
| *Finalized division performance objectives* | *Done:* 06/29/92 |

**TASK: T9168 Divisional Self-Assessment Plans**

All divisions of the Laboratory will prepare self-assessment plans consistent with the guidance included in the LBL Self-Assessment Program Implementation Plan and LBL Self-Assessment Manual. The plans will be reviewed and approved by the Office of Assessment and Assurance against the SAPIP approved by the Laboratory Director.

| Milestones: | *Schedule* |
|---|---|
| *Draft divisional self-assessment plan for pilot* | *Done:* 07/22/92 |
| *OAA review of pilot divisional self-assess. plan* | *Done:* 07/22/92 |
| *Pilot divisional self-assessment plan completed* | *Done:* 07/31/92 |
| *Laboratory Director approval of SAPIP* | *Done:* 06/15/92 |
| *Draft divisional self-assessment plans* | *Due:* 10/30/92 |
| *OAA review* | *Due:* 11/02/92 |

**TASK: T9169 Self-Assessment Lessons Learned Program**

A Laboratory lessons learned program will be established. This program will draw on the Occurrence Reporting System, DOE information systems, and division self-assessment findings and corrective actions. It will promulgate information on a regular basis that will be determined. These reports will be initiated in FY 1992. Guidance is included in the LBL Self-Assessment Manual (SAM) for the line management organizations to establish lessons learned activities within the divisions. The guidance will also address requirements for transmitting lessons learned to the Laboratory-wide sytem when they have not been identified through the Occurrence Reporting System.

| Milestones: | *Schedule* |
|---|---|
| *Guidance to divisions* | *Done:* 09/24/92 |
| *First SA Lessons Learned Report and Meeting* | *Due:* 08/20/92 |

**TASK: T9172 Provide Firehouse and ECC Addition**

LBL will provide an addition to Building 48 (the Firehouse) to provide space for Fire Department management staff and inspectors, emergency preparedness program staff and command center communications.

| Milestones: | *Schedule* |
|---|---|
| *Firehouse addition preliminary design complete* | *Done:* 05/30/91 |
| *Title II construction documents complete* | *Done:* 12/18/91 |
| *Firehouse addition construction complete* | *Due:* 06/30/93 |

**TASK: T9174 Remove Non-treated Wood Where Prohibited**

| Milestones: | *Schedule* |
|---|---|
| *Plan and prioritize removal of non-compliant wood* | *Due:* 11/15/92 |
| *Remove and replace prohibited wood* | *Due:* 06/30/95 |

**TASK: T9179 Remove/Mitigate Non-compliant Electrical Cables**

Remove/mitigate non-compliant electrical cables.

| Milestones: | *Schedule* |
|---|---|
| *Removals/mitigations planned and prioritized* | *Due:* 10/30/92 |
| *Removals/mitigations completed* | *Due:* 06/30/95 |

**TASK: T9183 Verify TSA 1990 Concern Closure with DOE/HQ** *Complete:* 06/17/92

DOE/SF will verify closure of TSA 1990 concerns, per LBL request, through formal request to DOE/HQ Program office.

| Milestones: | *Schedule* |
|---|---|
| *Closure request submitted to DOE/HQ* | *Done:* 12/04/91 |
| *Response received from DOE/HQ* | *Done:* 12/10/91 |
| *DOE/HQ concern status transmitted to LBL* | *Done:* 06/17/92 |

**TASK: T9190 Evaluate QA Resource Requirements** *Complete:* 09/25/92

The requirements for professional QA resources will be defined, and the appropriate action to address the requirements will be taken.

| Milestones: | *Schedule* |
|---|---|
| *Required resources estimated* | *Done:* 04/10/92 |
| *QA requirements defined* | *Done:* 04/10/92 |
| *Required resources identified and obtained* | *Done:* 09/25/92 |

**TASK: T9195 Increase Resources & Staffing for ES&H Activities**

The Laboratory's requirement for increased staff and budget resources in ES&H activities has been recognized in both the FY90 and FY91 overhead budgets. This commitment will continue in future years. However, an increased competition for these skills throughout the country has led to slow recruitments. The Laboratory has begun a review of its immediate staffing needs as well as revised requirements in the next few years. The EH&S Division will summarize overall LBL ES&H needs to the Director in staffing and operations plans. Immediate needs will be met through subcontracting until permanent staff can be recruited. In order to respond rapidly to ES&H capital needs, LBL will review its FY91-FY92 GPP and GPE projects to reconsider priorities. The Laboratory will also emphasize the need for increased DOE support for GPP and GPE funds in FY93 and beyond. Specific costs for FY1993 GPE for the central ES&H organization are indicated in the Table. These are consistent with our FY1993 consolidated budget request. Other ongoing GPE and GPP needs are dealt with specifically in other tasks. (Costs for these staff members are included in the individual Tasks requiring increased staffing.)

| Milestones: | *Schedule* |
|---|---|
| *Subcontractor personnel staffing provided* | *Done:* 05/01/91 |
| *EH&S Division staffing & operations plan prepared* | *Done:* 06/01/91 |
| *FY93 GPP/GPE request submitted* | *Done:* 04/30/91 |
| *FY91 & FY92 GPP and GPE projects reviewed* | *Done:* 11/01/91 |
| *ES&H staffing status approved* | *Done:* 07/01/91 |
| *Recruitment for currently approved open positions* | *Done:* 06/15/91 |
| *Recruitment program completed* | *Due:* 09/30/93 |

**TASK: T9197 Site-Wide Safety Analysis Review**

Prepare a site-wide safety analysis review that includes each LBL facility. Task modified to incorporate T2132, which was deleted.

| Milestones: | *Schedule* |
|---|---|
| *Site-wide policy & guidance manual for SARs* | *Due:* 05/05/92 |
| *Review & approval of SAR program by LBL management* | *Due:* 06/01/92 |
| *SAR orientation and training of Division personnel* | *Due:* 07/01/92 |
| *Begin SARs for site-wide facilities* | *Due:* 09/01/92 |
| *Preparation of blanket consultant contract* | *Due:* 09/01/92 |
| *First annual report & sched. for remaining SARs* | *Due:* 07/01/93 |

**TASK: T9199 Revise MSS Charter and Membership** *Complete:* 01/17/92

LBL will revise the Mechanical Safety Subcommittee (MSS) to include review responsibility for auxiliary systems, such as ventilation and other support devices. We will expand the MSS membership to include appropriate Plant Engineering expertise required by the charter revision.

| Milestones: | *Schedule* |
|---|---|
| *MSS membership supplemented* | *Done:* 01/17/92 |
| *MSS Charter revision completed* | *Done:* 01/17/92 |

**TASK: T9207 Safety Evaluations of Experiment Proposals** *Complete:* 02/26/92

A Laboratory Policy will be issued requiring the inclusion of one document in the safety evaluation for an experiment proposal and procedures for authorizing conduct of experiments to the experiment proposers. This policy and implemntation requirements will formalize the review process in accordance with DOE Order 5482.1B.

| Milestones: | *Schedule* |
|---|---|
| *Policy drafted and distributed for review* | *Done:* 10/15/91 |
| *Policy approved for FTPAs and WFO* | *Done:* 02/05/92 |
| *Policy implemented by Divisions* | *Done:* 02/26/92 |

# Section 3. Management

*Concern* **MF-1**

**Lawrence Berkeley Laboratory does not adequately integrate environment, safety, and health planning and budgeting into strategic planning and program planning and budgeting.**

*Response* LBL's long range strategic plans are deficient in that they do not specifically integrate ES&H into the process and in that there is no formal system to determine relative importance of planning activities. Though general purpose capital project planning is strongly motivated by ES&H considerations, research programs and projects need to be reviewed early for ES&H requirements. Overhead budget planning should include ES&H risks and program/site vulnerabilities in setting priorities among various overhead budget functions.

*Related Concerns* MF-2 NEPA OA.1-2 OA.2-3 SA-1

*Tasks* T2048 (Completed) T2050 (Completed)

T2051

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*Concern* **MF-2**

**Lawrence Berkeley Laboratory has neither identified nor allocated sufficient resources to maintain the laboratory infrastructure and provide for sufficient environment, safety, and health staff.**

*Response* ES&H plans should be an integral part of planning and budget formulation and execution. LBL's ES&H professional staff has not been maintained at an adequate level in numbers, training, or equipment. As a result, the Laboratory has not been able to manage its activities so that they are in compliance with many Federal, local, and DOE requirements. National competition for ES&H skills will be a challenge to the Laboratory as it moves to upgrade its staff and achieve ES&H excellence. Early reviews of research proposals for ES&H requirements will assure that related costs are requested of sponsoring programs. Long-range overhead budget planning will be a critical element for examining the Laboratory's centralized ES&H needs.

*Tasks* T2049 (Completed)

T2051 T9177 T9177 T9195

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*Concern* MF-3

**Lawrence Berkeley Laboratory has not fully developed organizational roles, responsibilities, and authorities throughout all levels of the Laboratory to ensure that environment, safety, and health requirements are implemented in an effective and sustainable manner.**

*Response* As a first step towards fully developing organizational roles, responsibilities, and authorities, the Laboratory reorganized in December 1990 . The second step is to more completely develop organizational roles, responsibilities, and authorities throughout the organization to ensure that environment, safety, and health requirements are implemented in an effective manner. LBL is in the process of realigning its December 1990 reorganization to better meet the emerging requirements of environment, safety, and health issues, and to provi de clarity to organizational interrelationships, responsibilities, and accountabilities. Overlapping responsibilities and fragmented functional structures will be abolished with the realigned organization.

*Related Concerns* FR.1-1 OA.1-3 OS.1-1 RP.1-1 TCM/BMPF-1

*Tasks* T1049 (Completed)

T9131

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*Concern* MF-4

**Lawrence Berkeley Laboratory has not developed a comprehensive, integrated management plan or policy which addresses how line organizations acquire the environment, safety, and health (ES&H) expertise needed to meet their ES&H responsibilities.**

*Response* LBL is determined to provide essential ES&H expertise in support of projects, functions, and facilities. Additional needs are being assessed, and recruiting of new professionals with ES&H expertise is already under way. Laboratory-wide guidance will be provided to promote a more uniform effectiveness in acquiring and utilizing ES&H expertise.

*Related Concerns* OA.1-4

*Tasks* T4045 (Completed)

T9195

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*Concern* **MF-5**

**Individual environment, safety, and health roles, responsibilities, and authorities have not been clearly defined or formally communicated throughout Lawrence Berkeley Laboratory.**

*Response* Neither the roles, responsibilities, and authorities of individuals, nor the interfaces between line and support organizations have been well-defined by LBL management. The tasks listed below will provide much greater clarity and uniformity of communication of roles and responsibilities across the Laboratory by means of job descriptions and appraisals.

*Related Concerns* MF-3 MF-4

*Tasks* T2 (Completed) T3 (Completed)

T9131

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*Concern* **MF-6**

**The Department of Energy program office with primary responsibility for Lawrence Berkeley Laboratory has not formally defined or clearly communicated the environment, safety and health roles, responsibilities and authorities of the San Francisco Operations Office.**

*Response* A Management Agreement (MA) between the Office of Energy Research (ER) and the DOE Field Office, San Francisco (SF) has been drafted and revised based upon review and comments from both SF and ER. When finalized, the MA will delineate the respective roles and responsibilities of ER and SF, as well as identify practices to be used for implementing key management functions such as planning, budgeting, and reporting on ES&H, and QA matters at the field facilities. Based on the recent change in reporting relationships between SF and ER, an overall Memorandum of Agreement (MOA) delineating this relationship is in preparation. The MOA will define the overall roles and relationships between SF and ER, and finalization of the MA has been put on hold pending the MOA. SF will operate on the draft MA in the interim.

*Tasks* T9101

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*Concern* MF-7

**The Building Manager system, a key component of the Lawrence Berkeley Laboratory environment, safety and health program, evidences serious deficiencies in formality of operation, training, and understanding of responsibilities and authorities.**

*Response* There are a variety of functions associated with facility operations, including: emergency preparedness, worker safety, waste management, and maintenance. The Building Manager system (including Deputy and Assistant Building Managers) has considerable responsibilities for carrying out emergency response plans and other critical ES&H functions associated with building activities. These responsibilities are identified in PUB-3000 and Building Emergency Plans for individual buildings. Some, but not all, Building Managers have been assigned other functions that are necessary for facilities to operate in compliance with ES&H requirements. While the Building Manager system is a critical component of LBL's overall approach to emergency preparedness and ES&H, there are a number of deficiencies. The selection criteria, qualifications, tenure, method of evaluation, and reward system are not clearly specified. Little guidance is provided as to how Building Managers are to carry out their responsibilities, their training is inadequate, and there are no regularly scheduled meetings among Building Managers to share concerns and experiences. The interface is not clearly specified among a Building Manager and others with ES&H responsibilities for the building, including: ES&H professionals, Division Safety Committees and Safety Coordinators, Division Directors, employees, guests, and regulators. Finally, the title "Building Manager" is somewhat of a misnomer since the established responsibilities focus on emergency preparedness and ES&H, rather than on the overall management of the building and all its functions. A review and revision, as necessary, of the Building Manager system will be carried out.

*Related Concerns* EP.1-1 EP.1-2

*Tasks* T8637 (Completed)

T4086 T4094 T8635 T8636 T8638

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*Concern* MF-8 (COMPLETE)

**Lawrence Berkeley Laboratory has not clearly defined, documented, and communicated the nature, extent, and delegation of stop work authority throughout the organization.**

*Response* Decision authorities, including the authority to stop work, should be placed at the lowest levels of management or staff with the competence to make them. The LBL Health and Safety Manual, PUB-3000, and policy memoranda attempt to set forth the policy on Stop Work Authority. All employees are responsible for immediately stopping their work when it endangers persons or property. In addition, certain employees, by virtue of their position or responsibility (e.g., EH&S Division specialists, Fire Marshall, construction inspectors, building managers) have full stop work authority where the work endangers persons or property. These grants of authority do not address environmental concerns and the list of people with full stop work authority is not clearly defined. During the Tiger Team assessment it was revealed that some employees who have full stop work authority were not aware of it, did not understand how to exercise the authority, or did not know the source of their authority. LBL will address these deficiencies with a revised stop work policy and an effective instruction program.

*Tasks* T2025 (Completed) T2026 (Completed)

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*Concern* **MF-9**

**Lawrence Berkeley Laboratory has not established a sitewide policy that addresses environment, safety and health training and certification requirements nor has it implemented a systematic approach to training to ensure that these requirements are met in a timely and efficient manner.**

*Response* The Laboratory has an education and development program, administered by the Personnel Department, which encourages employees to enhance their job related-skills and improve their career opportunities. New employees receive an orientation which includes basic material on environment, safety, and health (ES&H). The Environment, Health, and Safety Division (EH&S) has developed a set of courses which address specific ES&H areas, and other divisions have developed education and training programs geared to the divisions' needs. However, the Laboratory does not have a comprehensive and systematic training program. Elements of such a program would include:

- A policy that clearly defines roles and responsibilities, including budgetary responsibilities. At present, there is inadequate coordination among the Personnel Department, EH&S, and individual divisions, and inadequate guidance as to the source of funding for training.
- Timely compliance with mandatory ES&H training and certification requirements, such as those set forth in DOE Orders.
- A systematic approach to analyzing and defining ES&H training requirements, with the requirements, style of training, and level of detail distinguishing among:
  —personnel with major ES&H job functions, such as EH&S personnel, building managers, and Division Saftey Coordinators;
  —managers and supervisors; and
  —personnel at the working level, such as laboratory researchers and technicians.
- Uniform training programs among the divisions with similar needs.
- A comprehensive training record system. At present, records are fragmented among the Personnel Department, EH&S, and individual divisions.

*Related Concerns* MF-10 TC.1-1/T90 TC.1-2/T90 TC.1-3 TC.1-4 TC.2-1/T90 TC.3-1/T90 TC.3-2/T90 TC.4-1 TC.5-1/T90 TC.8-1 TC.9-1 TC.9-2

*Tasks* T2007 T2008 T2009

*Concern* **MF-10**

**The Lawrence Berkeley Laboratory program for professional development of supervisors and managers does not include adequate environment, safety and health training.**

*Response* The Laboratory has an education and development program which encourages employees to enhance their job related-skills and improve their career opportunities. However, participation in the program is largely employee-initiated. The Laboratory does not have a systematic program for supervisors and managers that would: (1) train them to improve their position-related skills; (2) train them with respect to their ES&H responsibilities, or (3) update them on DOE ES&H requirements, successful practices at other DOE facilities, and lessons learned. In addition, the Laboratory's selection process for management positions does not systematically include ES&H skills in the requirements for the positions. In the Fall of 1990 the LBL Director appointed a Task Force on Organization to review the Laboratory's organization and make recommendations on a scientific management structure and scientist and engineer structure that would more effectively meet the needs of the institution. The Task Force reported preliminary findings and recommendations on December 12, 1990. A number of key objectives were identified, including several directly related to this Finding: a) having a consistent management structure across the Laboratory, b) providing formal training and development, and c) providing succession planning for key jobs. On February 19, 1991 the Director reconstituted the Task Force as the Working Group on Organization to carry forward the effort. This effort provides the overall framework for the Corrective Action for this finding. An interim training program will be established for managers and supervisors. This interim program will eventually be incorporated into the overall program described in MF-9.

*Related Concerns* MF-9

*Tasks* T2006 (Completed)

T2007 T2008 T2009 T9084

*Concern* **MF-11**

**Lawrence Berkeley Laboratory does not have a policies and procedures system which ensures that environment, safety and health requirements are developed and documented, and communicated to all levels of the organization.**

*Response* LBL lacks an over-all system of document control. The root cause is informality of operations. Consequently it can not ensure that environment, safety, and health requirements are developed, documented, and communicated to those who need them. The present LBL Health and Safety Manual (PUB-3000) is intended to cover all the activities of the Environment and Safety Hazards Control Department, although (as indicated by the name of the manual) the contents of the manual are devoted almost entirely to health and safety. There is no Environmental Policy Manual. As a result, the Laboratory does not have a manual which adequately addresses environmental matters. The two major policy and procedure documents are the Regulations and Procedures Manual (RPM, PUB-201) and the Health and Safety Manual. The RPM is controlled by individual book number and there is a documented process for submitting, approving, and issuing revisions. In addition, the PUB and LBID report systems control both documents. The Health and Safety Manual covers Operational Safety Procedures (OSPs). However the Laboratory does not otherwise have policies and procedures that specify when written procedures are required or how they are to be written. Two types of Administration Memoranda are used to supplement the RPM and the Health and Safety Manual (Policy and Procedure Memoranda and Personnel Action and Organization Activities Memoranda). Certain other Laboratory functions have detailed procedure documents which are not included in the PUB/LBID/Administrative Memorandum system. The office of the Associate Laboratory Director for Administration (ALDA) is the focal point for the Laboratory's response to DOE Orders, Announcements and Notices, including those addressing EH&S. However, the Laboratory does not have a formalized system which describes how DOE Orders or other ES&H requirements are translated into LBL-specific policies and procedures, and some recent Orders and ES&H requirements have not been implemented in a timely manner. This is addressed in MF-14. The Laboratory will improve existing or develop new systems as necessary for document control that will ensure that ES&H requirements are developed, documented, and communicated to all those in the organization who need to know them.

*Related Concerns* MF-14 MF-22

*Tasks* T1049 (Completed)

T2047 T3025 T3026 T9133

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*Concern* **MF-12 (COMPLETE)**

**The San Francisco Operations Office does not provide adequate direction to Lawrence Berkeley Laboratory regarding the applicability and implementation of environment, safety and health requirements.**

*Response* SF MD will be reviewed to determine what specific changes are necessary to assure that safety and health Orders are transmitted on a timely basis to all contractors. In addition, we will review and include reasonable time frames for the transmission of all orders to our contractors. The SF MD 1321.1B will be modified to provide for follow up action by the responsible division as to the review of contractor action plans.

*Tasks* T4117 (Completed)

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*Concern* **MF-13 (COMPLETE)**

**Lawrence Berkeley Laboratory (LBL) has not established a sitewide coordinated corrective action management system. As a result, LBL cannot assure that environment, safety, and health deficiencies will be addressed and reach appropriate closure.**

*Response* A formal sitewide corrective action management system should be in place to provide information that permits tracking and closure of ES&H deficiencies identified by Laboratory self-assessment and by external inspections and appraisals. Currently such a system does not exist at LBL. The Laboratory recognizes corrective action management as a critical element of establishing an effective self-assessment program. An on-going self-assessment program will identify the need for corrective actions at all levels of the Laboratory. Line management and senior Laboratory management will need a system that allows them to track progress on elimination of deficiencies. The LBL Self-Assessment Program will be developed as a complement to its integrated approach to Quality Assurance (MF-22) and Conduct of Operations (OP). The major goal of these management programs is to sustain, demonstrate, and document performance in both its research programs and its ES&H activities. The major elements required by an effective self-assessment program are 1) a multi-level review process based in the line management organizations with support, surveillance, and independent review by the professional ES&H organizations, 2) measurable performance objectives, 3) a corrective action tracking and management system, 4) a risk-based prioritization methodology, and 5) a lessons-learned program. The corrective action tracking and management system developed for the self-assessment program will satisfy this concern. (See MF-15 and SA-1.)

*Related Concerns* MF-13 MF-15 SA-1

*Tasks* T2054 (Completed)

*Concern* **MF-14**

**The Lawrence Berkeley Laboratory process for determination of the applicability of U.S. Department of Energy (DOE) Orders and requirements without consultation with DOE does not assure that appropriate DOE requirements are being implemented.**

*Response* LBL Administrative Memo of January 14, 1991, has modified the procedure for handling DOE Orders which provides that "Orders pertaining to health, safety, and the environment . . . are implemented." The concern is the possible latitude still afforded LBL to determine which DOE Orders are defined as ES&H Orders. The Office of the ALD,A is the focal point for distribution of DOE Orders. The Orders are received from SF and directly from HQ. They may or may not be received with a cover letter requesting implementation or feedback as stipulated in Contract 98. The Laboratory has no way of knowing if it has received all Orders considered to be applicable or if HQ and SF have informed each other of which ones have been sent to LBL. The present system for distributing DOE Orders is based on the Orders numbering system. Generally, the number series denotes specific subject matter, e.g. 54xx covers environment, safety and health. However, the number series are not mutually exclusive and Orders outside the 54xx series may contain ES&H requirements. The Orders are logged in the ALD,A's office and then distributed to the Division/Department responsible for the subject matter contained in the Order. They are also sent to Laboratory Counsel for contractual and legal review. A standardized set of review questions is sent with each Order. When requested by DOE, a response letter is prepared. The DOE Order log tracks the Orders to this point. There is no formalized implementation system, nor has responsibility for implementation been formally assigned. In consultation with SF, LBL will develop a process for identifying which DOE Orders will be treated as ES&H Orders. The Laboratory will also formally assign responsibility for implementing DOE Orders and will expand its tracking system to ensure that implementation takes place and that the disposition of each Order can be determined. These actions will assure that appropriate DOE requirements are being implemented.

*Tasks* T3025 T3026

*Concern* **MF-15**

**Lawrence Berkeley Laboratory does not have a fully staffed and functioning program of internal independent assessment of environment, safety and health activities.**

*Response* DOE Order 5482.1B and the Secretary's Guidance on Environment, Safety and Health (July 31, 1990) require contractors to establish a multidiscipline functional appraisal system to evaluate their ES&H programs. This guidance requires, as a minimum, functional area reviews. LBL has not established a systematic, continuing self-assessment program with all the elements necessary for success. An on-going Self-Assessment Program will be established. The LBL Self-Assessment Program will be developed as a complement to its integrated approach to Quality Assurance (MF-22) and Conduct of Operations (OP). The major goal of these management programs is to sustain, demonstrate, and document performance in both its research programs and its ES&H activities. An important element of the Self-Assessment Program will be training for self-assessment that reaches every member of the Laboratory; this training will ultimately be incorporated into the overall training program that must be put in place (MF-9, MF-10). As stated above, the major goal of the LBL Self-Assessment Program is to support and sustain a high level of performance in all its operations. Subsidiary goals of the program are to 1) generate ownership and commitment from the line management, 2) provide tools for oversight and direction at all levels of Laboratory management, 3) assure regulatory compliance, 4) develop cost-effective methods of review and analysis, 5) integrate the Laboratory program with SF and OER assessment and appraisal activities. The major elements required by an effective self-assessment program are 1) a multi-level review process based in the line management organizations with support, surveillance, and independent review by the professional ES&H organizations, 2) measurable performance objectives 3) a corrective action tracking and management system, 4) a risk-based prioritization methodology, and 5) a lessons-learned program. The tasks, which respond to this concern, address each of these elements. The Institutional Self-Assessment Program Plan (ISAPP) will describe the overall program and the interrelationship of the elements. Other tasks will address development of some of the elements of the program. Finally, the required triennial appraisal of the Laboratory's safety program will mark closeout of this concern. Implementation of the policy and guidance contained in the ISAPP will not begin until sometime in FY 1992. In order that the Laboratory maintain the effort begun during preparation for the Tiger Team. Interim guidance will establish expectations for continued activity and reporting by the line divisions.

*Tasks* T2050 (Completed) T2054 (Completed) T2057 (Completed) T9166 (Completed) T9167 (Completed)

T2058 T2061 T9168 T9169

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*Concern* **MF-16**

**The University of California (UC) has not provided adequate policy guidance and direction to Lawrence Berkeley Laboratory (LBL) concerning full implementation of DOE's environment, safety and health requirements, nor has UC conducted adequate oversight to ensure LBL's compliance with these requirements.**

*Response* The University has announced its intention to restructure corporate management responsibilities for the policy and oversight functions for LBL. The Senior Vice President for Administration has been given explicit responsibility for ES&H policy and oversight for the Laboratory. The President will establish a Council on the National Laboratories (UC) with a Committee having ES&H oversight and advisory responsibilities.

*Tasks* T2067

*Concern* **MF-17**

**There is no assurance by the San Francisco Operations Office or Lawrence Berkeley Laboratory (LBL) that DOE's environment, safety and health requirements are being applied to work performed by under Contract No. DE-AC03-76SF00098 in certain University of California Berkeley campus space.**

*Compliance Protocol* DOE 4300.2A

*Response* Since 1970, the Laboratory and the University of California at Berkeley have operated under a Memorandum of Understanding (MOU) concerning provision of ES&H services to LBL and campus employees in certain buildings on the Berkeley campus. This MOU is silent with respect to the status of DOE Orders and their relationship to the standards adhered to by the Campus. In addition, the MOU does not include provisions for oversight by LBL line management or ES&H review units. DOE/SF oversight is not addressed in the MOU.

*Related Concerns* MF-19

*Tasks* T2070

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*Concern* **MF-18**

**Work For Others (WFO) proposals do not receive appropriate environment, safety, and health consideration by Lawrence Berkeley Laboratory or the San Francisco Operations Office prior to their submission to prospective sponsors.**

*Compliance Protocol* DOE 5440.1C; DOE 5482.1B; SEN-15-90

*Response* The specific regulations provided to LBL by DOE establishing WFO project approval criteria (DOE Order 4300.2A and SF MD 4300.2) needed to be upgraded to include ES&H considerations. Changes will be made in the procedures for review, approval, and oversight of WFO projects to ensure proper attention to ES&H.

*Related Concerns* NEPA/CF-1 NEPA/CF-2

*Tasks* T4077 (Completed) T4118 (Completed) T4120 (Completed)

T2051 T3031 T4076 T4078 T4119

*Concern* **MF-19**

**The prime contract between the University of California and the Department of Energy (Contract No. DE-AC03-76SF00098) does not reflect the current emphasis on environment, safety and health.**

*Compliance Protocol* DOE 4300.2A

*Response* The University of California contract with the Department of Energy will be renegotiated in the next year and explicit provisions requiring compliance with DOE's environmental regulations and requirements will be considered. The Laboratory is represented on the University's contract negotiating team. This provides an opportunity for the Laboratory to work with the University and the Department to raise issues for consideration during the negotiations. Additional clauses, as required, will be included in the new contract to reflect current emphasis on environment, safety, and health.

*Related Concerns* MF-17

*Tasks* T1050

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*Concern* **MF-20 (COMPLETE)**

**The San Francisco Operations Office does not perform internal independent oversight of its National Environmental Policy Act compliance office activities.**

*Response* SF established the Office of Independent Internal Oversight just prior to SEN-15-90 to ensure SF's compliance with environmental, safety and security requirements. NEPA compliance was included within the scope of the responsibility of OIIO. We reviewed possible reassignments which would eliminate the NCO responsibility from OIIO without placing it in a position which would sacrifice its ability to independently review NEPA activities. Given our small operations office, there is no location which efficiently uses resources without creating conflicts either in compliance or in oversight. We have chosen the most advantageous course to ensure NEPA compliance and independent oversight. Since the vast majority of the NCO function is oversight of the line implementation and therefore does not require a second independent oversight, we believe we have met the intent of SEN-15-90 and have done so in a manner that provides independent oversight of virtually all NEPA activities. In addition, NEPA activities are covered by a system of checks and balances including PSO and EH reviews. Our assignment of the NCO function to OIIO is similar to the PSO's assignment of the NCO function to Assurance Offices and should be recognized as efficient use of resources. Therefore, systems which include reviews at the contractor facilities, at the operations office, by the PSO and by EH should provide full implementation of NEPA.

*Tasks* T9127 (Completed)

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*Concern* **MF-21**

**Department of Energy oversight of Lawrence Berkeley Laboratory environment safety and health activities is inadequate to ensure compliance.**

*Response* SF and OER recognize the need for increased oversight of activities at LBL. OER is preparing guidance for a comprehensive self-assessment program, which will include onsite self-assessment reviews by OER. SF proposes to increase its onsite presence at LBL, and to more formally define its oversight role in a Site Management Plan. The Site Manager function has been elevated to the Assistant Manager for Energy Programs to assure appropriate management focus.

*Tasks* T1123 (Completed)

T1124

*Concern* **MF-22**

**The Lawrence Berkeley Laboratory has not implemented an effective quality assurance program.**

*Compliance Protocol* DOE 5480.19; DOE 5700.6B

*Response* The Laboratory is operating under an Institutional Quality Assurance Plan (IQAP) approved in 1988. The previous TSA pointed out several deficiencies with this plan, and in response to the TSA, the Laboratory upgraded the IQAP in several draft forms reviewed by DOE/SF. The new drafts improved conformance with DOE Order 5700.6B and NQA-1, but left the same structure as the 1988 plan, with the IQAP calling for Divisional Quality Assurance Program Plans (QAPP's). One potential problem with maintaining this old structure was the fact that similar projects or facilities could end up operating under quite different quality assurance plans by virtue of belonging to different divisions. Also, each Divisional QAPP would necessarily be rather non-specific as it has to cover a broad range of scales, from potentially large facilities to small projects. In the Fall of 1990, Laboratory management determined that this framework would be unlikely to lead to an efficient and cost-effective implementation of DOE Order 5700.6B and NQA-1. The Laboratory was also aware of the preparation by DOE of a new rule, QA Rule 830.35, and associated safety guide. This new rule might require the system to be overhauled once more when the order was implemented. Furthermore, the Laboratory was in the process of developing implementation plans for DOE Order 5480.19 on Conduct of Operations, and it was felt that an integrated approach to Quality Assurance and Conduct of Operations would be necessary for any given project or facility. With this consideration in mind, the Laboratory has developed a new approach to the implementation of DOE Orders 5700.6B and 5480.1B that is represented by the tasks below. This approach was discussed during the Tiger Team Assessment, and the assessment concluded that: "The new LBL framework and approach to QA has the potential to become an excellent laboratory QA program, with line management having clear responsibility for the quality of ES&H as well as for research processes and products." (Draft Tiger Team Assessment, page 5-35)

*Related Concerns* QA/CF-1 QA/CF-2 QA/CF-3 QA/CF-4 QA/CF-5 QA/CF-6 QA/CF-7 QV.1-2 QV.1-3 QV.1-4 QV.2-1 QV.2-2 QV.3-2 QV.4-2 QV.5-1

*Tasks* T8674 (Completed)

T2021 T2022 T2023 T2024 T8671 T8672 T8673

*Concern* **MF-23**

**The San Francisco Operations Office is not providing sufficient quality assurance (QA) guidance and oversight to the Lawrence Berkeley Laboratory and has not adequately defined and implemented internal QA requirements.**

*Response* Oversight of contractor QA programs will be included in formal oversight plans being developed for all SF sites. QA oversight will be consistent with refined and updated QA Implementation Plans for each SF program, presently included in SF's QA Manual. SF will reassess its QA program to address both cross-cutting needs and the need for increased emphasis on line accountability for line implementation of QA programs. Part of the process will be to address resources necessary and how they are to be provided. This will include training of line staff, additional resources from Departmental Administration (DA) budget and/or program allocations, and utilization of support contractors, either at SF or HQ. Finally, the revised program will be documented in an updated SF QA Manual and SF MD.

*Related Concerns* QA/CF-7 QV.1-4

*Tasks* T1124 T2186

**TASK: T1049 Organizational Roles Throughout LBL** *Complete:* 10/01/91

All environment, safety, and health roles, responsibilities, and authorities will be identified by current organizational unit, personnel, and reporting relationships; organizational overlaps, fragmentation, and interdependences will be noted. This task will review all divisions, with particular attention to several portions of the current organization: Scientific and Technical Resources (EH&S Division); Administration (Personnel Department, Plant Engineering Department, Construction and Maintenance Department, and Material Management); Office of Planning and Assurance (IRAD); and Earth Sciences (well monitoring). Analyses of functional organizational units will be done, with particular emphasis on interfaces between programmatic divisions and support organizations.

| Milestones: | *Schedule* |
|---|---|
| *ES&H responsibilities analyzed* | *Done:* 09/31/91 |
| *Organizational recommendations implemented* | *Done:* 10/01/91 |

**TASK: T1050 DOE/UC Contract Change**

LBL/UC will to change Contract 98, Clause 28 to reflect full commitment to DOE's ES&H initiatives. The contract will be modified to include the word environment where appropriate in Clause 28 (cf. DOE/University of Chicago Contract for ANL).

| Milestones: | *Schedule* |
|---|---|
| *DOE/SF meeting* | *Done:* 09/30/91 |
| *DOE/SF,UC,LBL meeting* | *Done:* 03/16/92 |
| *Incorporate appropriate modif. in renewal contract* | *Due:* 11/30/92 |

**TASK: T1123 Increase Onsite Presence** *Complete:* 01/27/92

DOE/SF will propose an organizational change to place the Office of the Assistant Manager for Energy Programs and the Energy Research Division onsite at LBL.

| Milestones: | *Schedule* |
|---|---|
| *Reorganization package prepared* | *Done:* 03/18/91 |
| *Site office requirements defined* | *Done:* 04/30/91 |
| *Onsite position descriptions finalized* | *Done:* 11/30/91 |
| *Relocation of AMEP and ER to LBL* | *Done:* 01/27/92 |

**TASK: T1124 Develop Oversight Plan and Operations Protocols**

A Site Management Plan (SMP) defining all aspects of DOE oversight activities will be prepared. The SMP will incorporate the Laboratory Appraisal Plan, define performance indicators, and establish the bases for the frequency and level of physical oversight. One element of the SMP will be Operations Protocols.

| Milestones: | *Schedule* |
|---|---|
| *Interim protocols issued* | *Due:* 11/06/92 |
| *Interim SMP implemented* | *Due:* 11/06/92 |
| *Draft SMP issued* | *Due:* 11/06/92 |
| *Draft protocols to LBL* | *Due:* 11/06/92 |
| *Protocols finalized* | *Due:* 12/31/92 |
| *SMP finalized* | *Due:* 12/31/92 |

**TASK: T2 Include ES&H Responsibilities in Job Descriptions** *Complete:* 09/14/92

Job descriptions will be provided for each employee, and they will include ES&H responsibilities . Supervisors will review ES&H job descriptions with employees. Independent verification of employee Job Descriptions will be conducted to verify compliance with the task.

| Milestones: | *Schedule* |
|---|---|
| *Current job descriptions assessed* | *Done:* 03/15/91 |
| *Job description criteria prepared* | *Done:* 04/27/92 |
| *Job descriptions updated* | *Done:* 08/31/92 |
| *Ver. of imp. of EH&S resp. in job descrip. in SAM* | *Done:* 09/14/92 |

**TASK: T2006 Consistent Management Structure** *Complete:* 10/01/92

This Task captures an ongoing process which was generated by concerns of the Laboratory Director regarding LBL's scientific management organizational structure. A chief concern is the lack of uniformity among the Divisions. Among other objectives is the establishment of a more uniform structure with associated job descriptions and responsibilities. This structure will set the stage for developing ES&H and other training requirements and programs for managers. These latter activities are addressed in Task 2009, LBL Training Program.

| Milestones: | *Schedule* |
|---|---|
| *Establish Task Force on Organization* | *Done:* 09/01/90 |
| *Preliminary Report from Task Force* | *Done:* 12/18/90 |
| *Establish Criteria for New Structure* | *Done:* 03/04/91 |
| *Report provided to Laboratory Director* | *Done:* 12/20/91 |
| *Selection and implementation of recommendation* | *Done:* 10/01/92 |

**TASK: T2007 Training Responsibilities and Coordination**

The purpose of this task is to establish overall roles and responsibilities for training. This task is a necessary precursor to two others: T2008, Comprehensive Training Database, and T2009, LBL Training Program. At present, Laboratory-wide training and database activities are underway in the Personnel Department, EH&S Division, and Information and Computing Sciences Division. In addition, individual research divisions have training programs and record keeping activities. These activities are loosely coordinated. This group of tasks will: (1) Establish a central function for coordinating LBL's training activities, and define the responsibilities of that function; (2) Define the roles of existing Laboratory training activities, (3) Delineate the functional relationship among the central office function and other training activities, (4) Define responsibilities for (a) developing and (b) managing a comprehensive training data base, (5) Provide guidelines on financial responsibilities for training (i.e., research accounts vs. overhead accounts).

| Milestones: | *Schedule* |
|---|---|
| *Policy and Procedure Memorandum drafted* | *Done:* 03/12/92 |
| *Policy and Procedure Memorandum issued* | *Due:* 01/01/92 |

**TASK: T2008 Comprehensive Training Database**

The purpose of this Task is to develop a training database that is sufficiently comprehensive that other training databases and record-keeping activities are not needed. At present, Laboratory-wide data base activities are underway in the Personnel Department, EH&S Division, and Information and Computing Science Division. In addition, individual research divisions have record-keeping activities. These various activities serve specialized purposes, but they are duplicative to some extent and are counter-productive to (a) providing a complete picture for an individual employee, and (b) permitting an analysis of, for example, the Laboratory's compliance with a particular training requirement. Elements of the database will include: 1) For each employee: requirements, courses and other training completed, unsatisfied requirements, degrees, on-the-job training; 2) Covers all education and training, not just ES&H; 3) Covers all individuals requiring ES&H or other training, including participating guests, graduate students, and faculty members with joint appointments; 4) Auditable; 5) Flexible, with a wide variety of permitted inputs, outputs, and interfaces to other databases; and 6) Provides for specialized needs of the divisions. Task 2007, Training Responsibilities and Coordination, is a necessary precursor to this task. This Task will establish criteria for the database; the administrative structure for developing, controlling, and maintaining the database, and the database itself.

| Milestones: | *Schedule* |
|---|---|
| *Draft criteria and administrative structure* | *Done:* 03/12/92 |
| *Final criteria and administrative structure* | *Done:* 03/12/92 |
| *Selection of database system* | *Done:* 03/12/92 |
| *Test version of database* | *Done:* 10/01/92 |
| *Operational version of database* | *Due:* 01/01/93 |
| *Completed database* | *Due:* 06/01/93 |

**TASK: T2009 LBL Training Program**

The purpose of this task is to develop an LBL Training Program that meets the needs of the institution. At present, Laboratory-wide training activities are underway in the Personnel Department, EH&S Division, and Information and Computing Sciences Division. In addition, individual divisions have training activities. These various activities serve specialized purposes, but they are loosely coordinated and duplicative to some extent. More importantly, even in total they do not provide for an adequate overall training program. The Program will coordinate existing training activities, and develop additional activities as needed. Elements of the Program will include: 1) Identification of and timely compliance with training and certification requirements imposed by DOE Orders and regulatory agencies, 2) Training requirements corresponding to "good practice," 3) Option training—discretion of employee/supervisor, 4) Match LBL's requirements, method of training, and level of detail to: the hazard (for ES&H training), the risk to the institution, and the level of responsibility of the persons being training. The process will include distinguishing among: personnel with major ES&H job functions, such as EH&S personnel, building managers, and Division Safety Coordinators; managers and supervisors; and personnel at the working level, such as laboratory researchers and technicians, 5) Coordination among divisions to avoid duplicative efforts and provide uniform programs for divisions with similar needs, 6) Methods for evaluating the effectiveness of the Program. Included will be a method to evaluate the effectiveness and compliance of the line management's ES&H training. Tasks T2008 and T2006 need to proceed in parallel with this task. Many other tasks address specialized training to meet an identified ES&H need. These tasks will proceed according to their own schedule, but will eventually be incorporated into the overall LBL Training Program. This task will establish criteria for the Program; the organizational structure for developing, controlling, maintaining, and evaluating the Program, and the Program itself. The organizational structure includes the central function, and the coordination among the central function and existing training activities.

| Milestones: | *Schedule* |
|---|---|
| *Draft criteria and organizational structure* | *Due:* 12/01/92 |
| *Final criteria and organizational structure* | *Due:* 01/15/93 |
| *Organizational structure in place* | *Due:* 02/15/93 |
| *Draft program description* | *Due:* 06/15/93 |
| *Final program description* | *Due:* 12/15/93 |
| *Program initiated* | *Due:* 02/15/94 |

**TASK: T2021 Institutional Quality Assurance Plan**

The IQAP establishes the Quality Assurance Policy of the Laboratory and the organizational structure that implements it. A related document, the Institutional Conduct of Operation Plan (ICOP) establishes the Conduct of Operations Policy of the Laboratory and the organizational structure that implements it. The two documents work in concert to drive an integrated implementation of Quality Assurance and Conduct of Operations. The IQAP will have the following features, among others: a) it adopts a graded approach to NQA-1. b) it describes the 18 points of NQA-1 that must be considered in the development of individual second tier QA plans as required by DOE Order 5700.6 and it gives guidelines on their implementation, including the need for independent verification. c) it establishes criteria for the classification of facilities, projects or functions. The classification will be based on the degree to which a failure of Quality Assurance or Conduct of Operation would lead to major consequences for the Laboratory as a whole. These consequences could be programmatic consequences (e.g., suspension of operations of an accelerator for a period of several months), major environmental consequences (e.g., release of contamination off-site requiring extensive clean-up), or likely major injury or death (e.g., failure of personnel protection system in a high radiation accelerator enclosure). d) depending on the classification, it calls for the designated facilities, projects or functions to develop individual integrated Quality Assurance/Conduct of Operations Plans(QA/COP) along the lines established in IQAP and ICOP. e) it calls for the establishment of three Notebooks: the Facility Notebook, the Project Notebook and the Function Notebook to be used by facilities, projects and functions that are not designated to have individual QA/COP plans. These Notebooks are maintained by the facility supervisor, project leader or person responsible for a given function in the Laboratory. They contain both a uniform QA/COP plan as well as implementation instructions. The instructions in the notebooks are controlled. f) Quality Assurance and Conduct of Operations is implemented in research activities by the combined use of Facility Notebooks and Project Notebooks. For example, in the Physics Division the group collaborating in the Colliding Detector Facility at FNAL would have one Project Notebook defining QA/COP activities of the group. The group uses several facilities such as the assembly shop or electronic laboratories, the QAP/COP activities of which are defined in their Facility Notebooks. g) Quality Assurance and Conduct of Operations is implemented in support functions by the combined use of Facilities Notebook and the Functions Notebook. For example, the Motor Pool function would have a function book describing QA/COP for the operation and management of the Motor Pool, and Facilities Notebooks for each of the facilities used for servicing the vehicles. h) it calls for additional QA/COP plans when required by specific contractors. i) it calls for the staffing of a Quality Assurance/Conduct of Operations Support Office in the Scientific and Technical Resources Division to provide technical support in the development of QA/COPs and the implementation and use of the three Notebooks. j) it calls for the IRAD to verify the implementation of Quality Assurance and Conduct of Operations at the Laboratory.

| Milestones: | *Schedule* |
|---|---|
| *Draft OAP* | *Done:* 07/01/92 |
| *Criteria for classifying facilities* | *Done:* 07/01/92 |
| *Review completed* | *Done:* 08/01/92 |
| *IQAP signed by the Director* | *Due:* 10/30/92 |
| *Training on the IQAP* | *Due:* 12/01/92 |

**TASK: T2022 Development of Facility Notebook**

The Facility Notebook will describe the requirements for the operation of facilities and documents that those requirements have been fulfilled. It consists of guidance and instructions for sections to be filled out by the Facility staff. These sections include (i) a description of the Facility in terms of function and hazards, (ii) approved written procedures for normal operation, hazardous waste control, and abnormal conditions, (iii) what training consists of, and (iv) documentation of training and assessments. This document will provide increased assurance that all operations, even in low hazard areas, are conducted with sufficient formality and discipline to achieve compliance with ES&H requirements. It will embody requirements that arise from ES&H Orders, most importantly the Conduct of Operations Order 5480.19. Many other requirements, such as those established by the OSHA Chemical Hygiene Law, or DOE orders on record keeping will also be incorporated into the Facility Notebook. The Facility Notebooks in conjunction with either the Project Notebooks or the Function Notebooks will also cover the requirements of the Quality Assurance Order 5700.6B. The two-notebook approach was taken because a given scientific project or support function may utilize more than one facility or, conversely, two or more project or support functions may share a facility. A preliminary table of contents for the Facility Notebook is as follows: 1) Introduction 2) Facility Information 3) Emergency Procedures 4) Training 5) Facility-specific Policies - shall address User Groups of National Facilities 6) Materials and Waste Management 7) Written Operational Procedure 8) Inspections and Audits 9) Current Action Items. The Function Notebook and the Project Notebook provide companion information to assure coverage of all essential areas or topics.

| Milestones: | *Schedule* |
|---|---|
| *Facility Notebook issued—trial phase* | *Done:* 01/15/91 |
| *Implementation completed—50% trial phase* | *Done:* 03/01/91 |
| *Revised Facility Notebook issued for review* | *Done:* 06/01/92 |
| *Facility Notebook finalized* | *Due:* 09/15/92 |
| *Facility Notebooks issued to all facilities* | *Due:* 09/30/92 |

**TASK: T2023 Development of the Project Notebook**

The Project Notebook will describe the requirements for carrying out projects and documents that those requirements have been fulfilled. This document will provide increased assurance that all projects, including those that pose low hazards, are conducted with sufficient formality and discipline to achieve compliance with ES&H requirements. It will embody requirements that arise from DOE Orders, most importantly the Quality Assurance Order 5700.6B. The DOE orders have elements that correspond to good research practice and contain language that recognizes that procedural controls should be imposed on many different types of work, with the specific nature of those controls dependent on such factors as risk, cost, uniqueness, and frequency of use. The Project Notebook also incorporates requirements that are not covered by DOE Orders but that reflect LBL's successful record in achieving excellence in research, such as peer review, hiring and promotion policies. The Project Notebook is being developed in conjunction with the Facilities Notebook. The two-notebook approach was taken because a given scientific project may utilize more than one facility or, conversely, two or more projects may share a facility. The Project Notebook is tentatively organized into the following sections: 1) Research Program and Organization 2) Procedures and Processes 3) Staff Proficiency 4) Procurements 5) Designed Research Equipment and Facilities 6) Handling of Equipment and Materials 7) Handling of Data, Records and Reports 8) External Measures of Scientific Quality. The Facility Notebook provides companion information to assure coverage of all essential areas or topics.

| Milestones: | *Schedule* |
|---|---|
| *Project Notebook issued—trial phase* | *Done:* 09/30/91 |
| *Implementation completed in 50% of the trial phase* | *Done:* 01/15/92 |
| *Revised Project Notebook reviewed by management* | *Done:* 07/01/92 |
| *Project Notebook finalized* | *Due:* 08/01/92 |
| *Issue Project Notebooks to all projects* | *Due:* 09/01/92 |

**TASK: T2024 Development of the Function Notebook**

The Function Notebook describes the requirements for carrying out support functions and documents when those requirements have been fulfilled. Such support functions are for instance, Purchasing, Construction and Maintenance, Accounting, and so forth. They tend to be activities where traditional management controls can be fully effective. It embodies requirements that arise from DOE Orders, most importantly the Quality Assurance Order 5700.6B. The DOE Orders have elements that correspond to good practices and contain language that recognizes that procedural controls should be imposed on many different types of work, with the specific nature of those controls dependent on factors as risk, cost, uniqueness, and frequency of use. The Function Notebook is being developed in conjunction with the Facilities Notebook. The two notebook approach was taken because a given function may utilize none, one, or more facilities or, conversely, two or more functions may share a facility. The Function Notebook is tentatively organized into the following sections: 1) Program and Organization 2) Procedures and Processes 3) Staff Proficiency and Training 4) Procurements 5) Plant Modifications 6) Handling of Equipment and Materials 7) Handling of Record and Reports 8) Internal and External Measure of Quality. The Facility Notebook provides companion information to assure coverage of all essential areas and topics.

| Milestones: | *Schedule* |
|---|---|
| *Draft instructions issued* | *Due:* 04/01/92 |
| *Comments returned; trial functions identified* | *Done:* 05/01/92 |
| *Instructions revised; trial Notebooks distributed* | *Done:* 08/01/92 |
| *Trial phase completed* | *Due:* 10/01/92 |
| *Final revisions* | *Due:* 11/01/92 |
| *Final approval* | *Due:* 12/01/92 |
| *Function Notebooks issued.* | *Due:* 12/30/92 |

**TASK: T2025 Develop Revised Stop Work Authority Policy** *Complete:* 04/14/92

Develop a revised Stop Work Authority policy with clearly: 1) identifies the persons or positions which have stop work authority, 2) defines the level or degree of stop work authority for these persons or positions, and 3) lists procedures for exercising the authority.

| Milestones: | *Schedule* |
|---|---|
| *First Draft Completed* | *Done:* 12/05/91 |
| *First Draft Reviewed and comments received* | *Done:* 12/09/91 |
| *Second Draft Completed* | *Done:* 02/12/92 |
| *Second Draft Reviewed and Approved by DAC* | *Done:* 03/11/92 |
| *PPM issued Lab-wide* | *Done:* 04/14/92 |

**TASK: T2026 Instruct Employees to Exercise Stop Work Authority** *Complete:* 04/14/92

Instruct employees to exercise their stop work authority through wide distribution of the policy developed in Task T2025, and a Laboratory-wide campaign to reach all employees through division, department, and group ES&H meetings. New employees will be instructed as to stop work authority in the New Employee Orientation.

| Milestones: | *Schedule* |
|---|---|
| *Lab. Campaign Comp. & Ann. Reminder Prog. Init.* | *Done:* 04/14/92 |
| *Instruction incorporated in New Employee Orient.* | *Done:* 02/01/92 |
| *Distribute Policy and Procedure* | *Done:* 04/14/92 |

**TASK: T2047 Develop/Implement LBL Document Control System**

The purpose of this Task is to develop a document control system that will ensure that policies and procedures are disseminated to the people needing the information; that they are complete, accurate, and current; and that revisions are received and old versions removed from use. The development of this system will be the responsibility of the Associate Laboratory Director, Administration. Criteria will be established to define an adequate policy and procedure document control system for LBL. The present systems will be upgraded, or a new system developed, to meet the criteria. Criteria will be established for specifying which LBL policies and procedures will be included in the document control system. Each Administrative support function and Scientific and Technical Resources function that has elements of ES&H will be examined with respect to these criteria. The programmatic divisions will also be examined.

| Milestones: | *Schedule* |
|---|---|
| *Project plan concept approved* | *Done:* 08/14/91 |
| *Document Control Task Force appointed* | *Done:* 09/25/91 |
| *Consultant engaged* | *Done:* 11/14/91 |
| *Document control at other labs reviewed* | *Done:* 02/01/92 |
| *Relevant DOE Orders reviewed* | *Done:* 02/28/92 |
| *Survey of existing policy docs./systems conducted* | *Done:* 03/19/92 |
| *Survey data analyzed* | *Done:* 05/30/92 |
| *Hierarchy of control categories and policy drafted* | *Done:* 05/30/92 |
| *Applicable category for each document determined* | *Done:* 05/30/92 |
| *Pilot test in EH&S Division* | *Due:* 12/21/92 |
| *Pilot test results reviewed* | *Due:* 01/22/93 |
| *Doc. control policy & guid. approved & promulgated* | *Due:* 03/19/93 |
| *Audit plan developed* | *Due:* 06/01/93 |
| *Doc control system implemented for division docs.* | *Due:* 06/30/93 |
| *Periodic audits initiated* | *Due:* 07/01/93 |

**TASK: T2048 Integrate ES&H Strategy into Planning** *Complete:* 03/31/92

The Laboratory has recognized the need to incorporate a strategic perspective on ES&H issues and programs into its institutional and site planning processes. The revised long range site development plan, which will be submitted to DOE in March 1991, integrates ES&H considerations into its goals, objectives and resource projections. In the FY 1992–1997 Institutional Planning cycle, DOE guidance requires the inclusion of an ES&H strategy for excellence in both the Draft Plan and the Plan itself. The Laboratory's internal guidance will require that relevant ES&H issues be addressed for new initiatives. The strategy will be reviewed by ER and SF at the On-Site Visit. This strategy will guide other EH&S related plans required by DOE or the Laboratory. These plans include the Long Range ES&H Plan, the Environmental Monitoring Plan, the ERWM Five Year Plan and updates included in current Activity Data Sheets, and EH&S Division Staffing and Operations Plan. Milestones for these plans are not included under this task.

| Milestones: | *Schedule* |
|---|---|
| *Internal review of SDP completed* | *Done:* 02/28/91 |
| *SDP updated* | *Done:* 03/15/91 |
| *DOE approval of SDP* | *Done:* 04/01/91 |
| *Institutional Plan Guidance* | *Done:* 04/15/91 |
| *Draft Institutional Plan* | *Done:* 05/15/91 |
| *Institutional Plan on-site visit* | *Done:* 08/14/91 |
| *Final FY 92-97 Institutional Plan* | *Done:* 11/15/91 |
| *FY 92-97 Institutional Plan approved* | *Done:* 03/31/92 |

**TASK: T2049 Establish Long Range Overhead Budget Planning Proc** *Complete:* 07/17/92

The Laboratory has established a new process for overhead budget review. The Laboratory Director with the assistance of the Director's Action Committee (DAC) reviews the budget proposals of the overhead cost centers before the beginning of the fiscal year. In order to gain a long range perspective, the Chief Financial Officer (CFO) prepares a 10 year operating expense budget projection. Within the framework of this projection, different overhead rates are examined for overall impact on the Laboratory's scientific competitiveness and its ability to meet overhead management requirements. A mid-year review of overhead expenditures will take place in April of the fiscal year. For the FY1992 mid-year review, the overhead cost centers will be required to prepare a three year projection through FY1995 for their budgets. The CFO will provide guidance to the cost centers. In subsequent years these projections will be rolled forward at the time of the mid-year review. Within this process, the one-time and ongoing corrective actions arising from this plan and future assessments will be reviewed for funding.

| Milestones: | *Schedule* |
|---|---|
| *Ten-year operating budget projection presented* | *Done:* 08/07/91 |
| *FY1992 Overhead Budget Review Completed* | *Done:* 08/28/91 |
| *FY1992 Overhead Budget and rate established* | *Done:* 09/04/91 |
| *FY1992 Mid-year Review, overhead proj. completed* | *Done:* 07/17/92 |

**TASK: T2050 Develop Prioritization Methodology** *Complete:* 06/30/92

The Laboratory uses DOE's Capital Assets Management Process (CAMP) to prioritize its Multi-program Energy Laboratory Facilities support (MELFS) projects and has utilized a simpler methodology for prioritizing GPP and GPE projects. The ERWM Five Year Plan is based on yet another DOE compliance and risk based prioritization scheme. All of these methodologies build in a strong consideration of ES&H requirement and needs. To assure that available resources are first applied to activities of greatest importance a broadly applicable prioritization methodology will be developed and utilized. This will be used to prioritize potentially valuable ES&H initiatives, corrective actions from the Tiger Team, the Laboratory's capital and operating expense budgets and any future issues that arise as a result of internal and external reviews.

| Milestones: | *Schedule* |
|---|---|
| *Prototype methodology applied to findings/concerns* | *Done:* 03/30/91 |
| *Alternative prioritization methodologies reviewed* | *Done:* 05/31/91 |
| *Methodology for LBL customized* | *Done:* 07/31/91 |
| *LBL senior managers briefed* | *Done:* 08/31/91 |
| *Methodology for general capital projects.* | *Done:* 10/31/91 |
| *Methodology used for overhead budget* | *Done:* 06/30/92 |

**TASK: T2051 Implement an ES&H Review for FTP and WFO**

The Laboratory will develop an ES&H compliance review for new research programs and projects when they are being developed as Field Task Proposals (FTPs) or Work for Others (WFO) proposals. WFO proposals are already subject to a summary review that must be intensified. The FY1993 DOE budget submission guidance required an early review of LBL FTPs for NEPA compliance. In the future, an expanded process will be developed that addresses both FTPs and WFO proposals. The guidance will address the responsibilities of the Administration and EH&S Divisions and the approvals required for the review.

| Milestones: | *Schedule* |
|---|---|
| *ES&H issues identified* | *Done:* 06/11/91 |
| *Guidance for FY 1994 budget submission issued* | *Done:* 02/29/92 |
| *Guidance for WFO ES&H review process prepared* | *Due:* 12/15/92 |

**TASK: T2054 Develop LBL's Corrective Action Management System** *Complete:* 12/01/91

LBL will develop its Corrective Action Management System (CAMS) as a part the implementation of the LBL Institutional Self-Assessment (LISA) program.

| Milestones: | *Schedule* |
|---|---|
| *Corrective action tracking database developed* | *Done:* 03/31/91 |
| *Corrective Action Management System initiated* | *Done:* 12/01/91 |

**TASK: T2057 LBL Institutional Self-Assessment Program** *Complete:* 06/09/92

The LBL Institutional Self-Assessment Program (LISA) will establish the self-assessment policy of the Laboratory and the organizational responsibilities for implementing it. The LISA will be included as part of the LBL Self-Assessment Manual (SAM), providing the following features: a) The SAM will describe the multi-level review process and the responsibilities of the line divisions, the EH&S Division, the Safety Review Committee, and the Independent Review and Assurance Department. It will also provide a model for the development and approval of divisional self-assessment implementation plans. b) It will establish the broad performance objectives consistent with DOE guidance that the organizations of the Laboratory are expected to meet and it will describe the process by which performance objectives are to be tailored into specific objectives that meet the needs of each division. In particular, it will address the interrelationships between checklists and performance criteria embodied in the Project, Facility, and Function Notebooks. c) It will describe the Corrective Action Management System (CAMS). It will establish criteria for reports from the line organizations to the central system both with respect to level of deficiencies that must be reported and the frequency of reports. It will establish expectations for closeout of corrective actions. d) It will describe the methodology for prioritizing corrective actions. e) It will establish expectations for sharing lessons learned within the line organizations of the Laboratory and it will set forth criteria for communicating information related to lessons learned and experience training reports within the Laboratory as a whole. f) The SAM will also provide guidance for implementing Standard Review Guidelines, Self-Assessment training, conducting root cause analysis and reports, and preparing for independent verification and validation reviews.

| Milestones: | *Schedule* |
|---|---|
| *Draft SAPIP completed* | *Done:* 01/17/92 |
| *Interim SAPIP utilizing checklist* | *Done:* 04/10/92 |
| *Review Draft SAPIP* | *Done:* 02/14/92 |
| *Final SAPIP Approval* | *Done:* 06/09/92 |

**TASK: T2058 LBL Institutional Self-Assessment Program (LISA)**

Implementation of the SAPIP, the Self-Assessment Manual (SAM) and Divisions Self-Assessement Program Implementation Plan (DSAPIP) will begin with training for self assessment required for senior managers and designated supervisors and staff. In addition, the Laboratory will develop standard review procedures (SRP) and train designated supervisors and staff. Draft SAPIPs will be used as the basis to pilot the program. Independent function reviews will be conducted prior to issuing final procedures. (Costs for the on-going implementation of the LBL Self-Assessment Program are included in this task.)

| Milestones: | *Schedule* |
|---|---|
| *Draft DSAIPs reviewed for pilot implementation* | *Done:* 07/22/92 |
| *Pilot functional reviews* | *Done:* 07/21/92 |
| *Initial training for pilot implementation* | *Done:* 07/22/92 |
| *Training for implementation of the LBL SAM* | *Done:* 10/15/92 |
| *Laboratory-wide implementation of DSAPIPs begins* | *Due:* 11/15/92 |
| *Final DSAPIPs approved* | *Due:* 11/15/92 |

**TASK: T2061 Arrange Triennial Appraisal**

DOE/SF will arrange for the required triennial appraisal of LBL's programs including the Self-Assessment Program.

| Milestones: | *Schedule* |
|---|---|
| *OPD Requests Deferral of Triennial Review.* | *Done:* 04/30/91 |
| *DOE/SF to arrange for an External Review.* | *Due:* 06/30/92 |
| *Review to be Conducted* | *Due:* 07/31/92 |
| *Review Report from DOE/SF* | *Due:* 09/31/92 |

**TASK: T2067 UC ES&H Reorganization**

The University of California will establish a new oversight organization for the national laboratories. One element of the reorganization will address ES&H oversight. This task will be supported through the UC management fee.

| Milestones: | *Schedule* |
|---|---|
| *HSEAC Charter revised* | *Done:* 11/21/91 |
| *Formation of Council on National Laboratories (UC)* | *Done:* 11/21/91 |
| *Announce ES&H Oversight Organization* | *Done:* 09/01/91 |
| *Charter for UC Pres. Council on Nat'l Labs drafted* | *Done:* 08/30/92 |
| *First meeting of UC Pres Council on Nat'l Labs* | *Due:* 11/30/92 |

**TASK: T2070 Revise LBL-UCB Memorandum of Understanding**

The Laboratory and the Berkeley campus have committed to revise the Memorandum of Understanding governing ES&H responsibility in campus facilities where LBL work is carried out. A Task Force has been formed of LBL and UCB members. The standards of ES&H performance and provisions for oversight by LBL and DOE/SF will be addressed explicitly. The inclusion of the work and facilities of LBL employees on campus in LBL programs for QA. Conduct of Operations and ES&H Self Assessment will also be addressed.

| Milestones: | *Schedule* |
|---|---|
| *Berkeley Campus ES&H standards reviewed* | *Done:* 05/30/91 |
| *MOU drafted* | *Done:* 02/10/92 |
| *Draft MOU reviewed by Campus* | *Done:* 06/05/92 |
| *Draft MOU reviewed by DOE/SF* | *Due:* 12/15/92 |
| *MOU approved by LBL, UCB, and DOE/SF* | *Due:* 02/01/93 |

**TASK: T2186 Implement QA Oversight Policy**

| Milestones: | *Schedule* |
|---|---|
| *Identified resources to implement policy* | *Due:* 12/13/91 |
| *QA plan/policy developed* | *Due:* 02/15/92 |
| *DOE/SF QA Manual revised* | *Due:* 08/15/92 |
| *QA oversight appraisals completed* | *Due:* 09/30/92 |

**TASK: T3 Include ES&H in Performance Evaluations** *Complete:* 05/01/92

Performance evaluations are conducted for each employee and will include an evaluation of ES&H performance. The performance evaluations will take the form of a performance appraisal for employees represented by a union, and a Performance/Progress Review (P2R) for non represented employees. ES&H performance criteria guidelines will be developed by the Personnel Department in conjunction with the EH&S Division.

| Milestones: | *Schedule* |
|---|---|
| *ES&H performance evaluation criteria prepared* | *Done:* 04/01/91 |
| *Performance evaluation guidance issued* | *Done:* 05/01/91 |
| *Performance evals. with EH&S criteria conducted* | *Done:* 08/01/91 |
| *ES&H perf. appraisal verification in Div. SA* | *Done:* 05/01/92 |

**TASK: T3025 Clarify Definition of ES&H Orders with SF**

The University Office of the President (UC-OP) will work with DOE/SF to develop an overall baseline definition of requirements pertaining to the Laboratories, including ES&H Orders.

| Milestones: | *Schedule* |
|---|---|
| *Task Group appointed* | *Done:* 11/08/91 |
| *Project plan approved* | *Done:* 12/03/91 |
| *Initial baseline requirements set defined* | *Done:* 02/11/92 |
| *Overall baseline requirements defined* | *Done:* 10/23/92 |
| *Requirements changes/additions process established* | *Due:* 01/01/93 |

**TASK: T3026 System for DOE Reqs. Distribution/Implementation**

Improve LBL's internal system for distribution and implementation of DOE requirements under the direction of the UC Office of the President (UC-OP).

| Milestones: | *Schedule* |
|---|---|
| *Responsibilities assigned* | *Due:* 01/01/93 |
| *Procedures modified* | *Due:* 02/01/93 |
| *Periodic audits* | *Due:* 08/01/93 |

**TASK: T3031 Issue WFO ES&H Review Guidance**

A new section to the Laboratory Contract and Grant Manual will be issued. This new section will set forth implementing procedures.

| Milestones: | *Schedule* |
|---|---|
| *WFO EH&S policy guidance developed* | *Due:* 11/30/92 |
| *Issue WFO EH&S Policy Guidance* | *Due:* 12/15/92 |

**TASK: T4045 Sitewide Guidance: Line Org. Use of ES&H Expertise** *Complete:* 01/21/92

LBL management, under the direction of the EH&S Division, will develop a centralized guidance framework for the utilization of ES&H expertise and the responsibilities of line organizations.

| Milestones: | *Schedule* |
|---|---|
| *Policy drafted* | *Done:* 01/21/92 |
| *Policy reviewed and approved* | *Done:* 01/21/92 |
| *Policy issued* | *Done:* 01/21/92 |

**TASK: T4077 Institute WFO Working Group (DOE)** *Complete:* 09/15/91

(For DOE Action) A DOE/SF WFO working group will be instituted, composed of all DOE/SF divisions that are involved with WFO. The root cause of inadequate communication among DOE/SF divisions regarding WFO will be addressed, so that cross-cutting issues can be resolved and DOE/SF internal policy can be clear and consistent.

| Milestones: | *Schedule* |
|---|---|
| *Charter developed* | *Done:* 09/15/91 |
| *Working group implemented* | *Done:* 09/15/91 |

**TASK: T4078 Annual WFO Appraisal to Include ES&H & NEPA (DOE)**

(For DOE Action): ES& H and NEPA considerations will be incorporated into the contract management division's annual WFO appraisal.

| Milestones: | *Schedule* |
|---|---|
| *Appraisal format modified* | *Due:* 09/01/92 |
| *Evaluation criteria determined* | *Due:* 09/01/92 |

**TASK: T4086 Develop Emerg Mgmt & Response Organization**

Using the requirements of the revised MEP, LBL will develop and staff, as necessary, a detailed Emergency Management and Response Organization including emergency command center personnel, response teams, support staff, and specialized field teams. A job task analysis will be performed to identify the responsibilities of each member of the organization.

| Milestones: | *Schedule* |
|---|---|
| *Emergency mgmt & response organization defined* | *Due:* 03/01/93 |
| *Job task analysis completed* | *Due:* 06/01/93 |
| *Staffing assignment completed* | *Due:* 06/30/93 |

**TASK: T4094 Develop and Document EP Training Program**

Using the requirements of the revised MEP, LBL will develop and document an emergency preparedness training program for each member of the Emergency Management and Response organization, including DOE/SF liaison, offsite response team and medical treatment facility, and support personnel, which addresses the following elements: (1) detailed lesson plans, (2) testing to assess the effectiveness and understanding of material, (3) documentation of training in an auditable manner, (4) implementation schedule, and (5) refresher training requirements.

| Milestones: | *Schedule* |
|---|---|
| *Auditable training documentation plan established* | *Done:* 08/03/92 |
| *EP training lesson plans completed* | *Due:* 12/01/92 |
| *Initial ERO training completed* | *Due:* 12/31/92 |
| *Effectiveness/understanding of training evaluated* | *Due:* 12/31/92 |
| *EP refresher training requirements established* | *Due:* 12/31/92 |
| *EP training implementation schedule established* | *Due:* 12/31/92 |

**TASK: T4117 Review and Modify SF MD 1321.1B** *Complete:* 10/18/91

Review SF MD 1321.1B and modify to provide for the timely transmission of DOE Orders to contractors and assure Responsible Division follow up and review of contractor implementation plans.

| Milestones: | *Schedule* |
|---|---|
| *DOE Order 1321.1B modified to Order 1321.1C* | *Done:* 10/18/91 |

**TASK: T4118 Revise SF MD 4300.2** *Complete:* 08/27/92

(For DOE Action) SF MD 4300.2 will be revised to incorporate ES&H considerations (including NEPA) in the proposal review process and to specify that ES&H compliance in ongoing WFO is an oversight responsibility of DOE.

| Milestones: | *Schedule* |
|---|---|
| *Revised SF MD drafted* | *Done:* 08/02/91 |
| *Draft MD circulated for comment* | *Done:* 08/02/91 |
| *Comments incorporated* | *Done:* 08/03/92 |
| *SF MD issued* | *Done:* 08/14/92 |
| *SF MD transmitted to laboratories* | *Done:* 08/27/92 |

**TASK: T4119 Provide ES&H Training to WFO Personnel (DOE)**

DOE will provide ES&H and NEPA training to DOE personnel involved with WFO.

| Milestones: | *Schedule* |
|---|---|
| *Training conducted* | *Done:* 05/01/91 |
| *Training budget determined* | *Done:* 04/30/91 |
| *Training needs assessed* | *Due:* 12/01/92 |
| *Individuals identified* | *Due:* 12/01/92 |

**TASK: T4120 Track Status of ES&H Actions for WFO (DOE)** *Complete:* 05/07/92

(For DOE Action) The capability to track ES&H/NEPA-required will be developed actions via an automated database system.

| Milestones: | *Schedule* |
|---|---|
| *Needed data resources determined* | *Done:* 05/07/92 |
| *Data elements identified* | *Done:* 05/07/92 |
| *Data entered* | *Done:* 05/07/92 |

**TASK: T8635 Establish ES&H and EP Roles and Responsibilities**

LBL will establish overall roles, responsibilities, and interrelationships for emergency preparedness and ES&H in LBL buildings in order to better delineate the position currently known as the Building Manager. The present Building Manager responsibilities are identified in PUB-3000 and Building Emergency Plans for individual buildings (e.g., PUB-519 for Building 90). Many other individuals and organizational units also have emergency- and ES&H-related responsibilities in buildings, including the Fire Department, the Business and Protective Services Department, the Construction and Maintenance Department, the Environment and Safety Hazards Control Department, and the Division Safety Committees and Safety Coordinators. In addition, in a memo of January 11, 1991, the Associate Laboratory Director for Administration assigned certain continuing ES&H oversight or "landlord" responsibilities to each Division Director for buildings for which his/her Division is the sole or principal occupant. The interfaces and levels of responsibility among these individuals and units will be delineated by this Task. The Task will also establish the interfaces between the Building Manager and employees, guests, and regulators. Formal appointment procedures will be reviewed and revised as necessary for Building Managers, and Deputy and Assistant Building Managers. Finally, the title "Building Manager" will be considered for a change to one (e.g., Building Safety Coordinator) that better reflects the emergency preparedness and ES&H focus of the position.

| Milestones: | *Schedule* |
|---|---|
| *Building manager Policy and Procedure drafted* | *Done:* 04/15/92 |
| *Building manager Policy and Procedure approved* | *Due:* 05/01/92 |
| *Building manager Policy and Procedure issued* | *Due:* 05/15/92 |
| *Bldg mgr Policy & Proc submitted for PUB-3000* | *Due:* 07/01/92 |

**TASK: T8636 Identify Bldg. Mgr. Qualifications, Position Desc.**

LBL will identify specific emergency preparedness and ES&H functions and responsibilities in LBL buildings that correspond to the general roles and responsibilities for Building Managers (and Deputies and Assistants) as established in Task T8635. This Task will review information on ES&H in buildings and on Building Managers, including Appendix C of the LBL Health and Safety Manual (PUB-3000), the Building Emergency Plans (e.g., PUB-519 for Building 90 ), Facility Notebooks, and the output of Task T4086. The Task will produce a list of requirements for Building Manager appointments and a position description that can be incorporated in whole or in part into the individual job descriptions of the Building Managers. The requirements and position description will cover as appropriate factors (a) applicable to all LBL buildings, (b) applicable to certain categories of buildings, such as those containing wet chemistry labs, and (c) unique to individual buildings.

| Milestones: | *Schedule* |
|---|---|
| *Requirements for Building Mgr. appointment devel.* | *Due:* 12/01/92 |
| *Building Manager position description developed* | *Due:* 01/15/93 |
| *Building Manager information in LBL pubs. updated* | *Due:* 03/01/93 |
| *Building Manager functions/responsibilities listed* | *Due:* 08/01/93 |

**TASK: T8637 Appoint Building Managers** *Complete:* 02/20/92

This Task will review the qualifications of current Building Managers (and Deputies and Assistants) against the list of Requirements for Building Manager Appointments developed in Task T8636. The Building Managers (and Deputies and Assistants) will then be reappointed or new ones appointed as necessary.

| Milestones: | *Schedule* |
|---|---|
| *New candidates identified* | *Done:* 02/20/92 |
| *Qualifications of current Building Mgrs. reviewed* | *Done:* 02/20/92 |
| *Building Managers appointed* | *Done:* 02/20/92 |

**TASK: T8638 Develop Building Manager Training**

Task T4094 will develop an Emergency Preparedness training program that includes Building Managers. This task will develop and implement a training program for Building Managers (and Deputies and Assistants) in areas of responsibility other than Emergency Preparedness, should such areas be assigned to Building Managers in Tasks T8635 and T8636. This task will review existing training requirements as stated in Appendix C of the LBL Health and Safety Manual (PUB-3000). The task will then develop training requirements and a training program. The training program will be carried out following the completion of the Building Manager appointments from Task T8637. This task will proceed on its own schedule, but will eventually be incorporated into the overall LBL Training Program established by Task T2009. Ongoing costs are included in T2009.

| Milestones: | *Schedule* |
|---|---|
| *Training requirements developed* | *Due:* 11/01/92 |
| *Training requirements to appointees matched* | *Due:* 01/01/93 |
| *Training program developed* | *Due:* 02/01/93 |
| *Information in LBL publications updated* | *Due:* 03/01/93 |
| *Initial training program completed* | *Due:* 04/01/93 |

**TASK: T8671 QA/CO Self Assessment**

Maintenance of an adequate implementation of the new QA/CO framework can only be achieved through inspections and self assessment. The criteria for the evaluation of QA/CO will be promulgated as part of the guidelines for the self-assessment. In particular, divisions will be required to report on the implementation of Project Notebooks, Facility Notebooks and Function Notebooks as well as on their designated facilities requiring individual QA/CO plans. In addition to the self-evaluation performed by the divisions, external audits carried out by the IRAD will also be part of the self assessment. The costs associated with this task are only in connection with developing guidelines. The cost of carrying out the self-assessment has been included in the self-assessment tasks.

| Milestones: | *Schedule* |
|---|---|
| *Draft guidelines on QA/CO self-assessment* | *Done:* 06/19/92 |
| *Self assessment QA/CO checklist developed* | *Due:* 11/30/92 |
| *First full QA/CO self-assessment begins* | *Due:* 11/30/93 |

**TASK: T8672 QA/CO Full Implementation**

With the new framework for Quality Assurance and Conduct of Operations as established by the IQAP and the ICOP, and with the issuance of the Project Notebook, Facility Notebook and Function Notebook to all Laboratory projects, facilities and functions, the implementation phase will begin. Many concerns in the Tiger Team Assessment are addressed by the implementation of this new framework. Concerns that require specific tasks have been addressed by writing specific tasks, such as implementing a Facility Notebook for a particular facility. The costs for the full implementation are collected in this implementation task and not in the individual tasks. The IQAP and the ICOP require individual QA/CO plans for designated facilities, projects, or functions. The plans that are developed for these facilities will be implemented also as part of this task. The implementation task is complicated by the fact that it will commence before the QA/CO Support Office is fully established. Support for the divisions will be provided by the people across the Laboratory who developed the new framework. Divisions will be responsible for the implementation.

| Milestones: | *Schedule* |
|---|---|
| *Full implementation starts* | *Done:* 10/01/91 |
| *QA/CO program implemented* | *Due:* 09/30/92 |

**TASK: T8673 QA/CO Training**

As the new framework for Quality Assurance and Conduct of Operations is established, training on the implementation of this framework is necessary at all levels of the Laboratory. This task will commence with training of divisional QA/CO representatives and the leaders of the facilities, projects, or support functions that participate in the pilot projects to implement the Facility Notebook, the Project Notebook, and the Function Notebook. In addition, the leaders of "critical" facilities, projects and functions, who are required to develop individual QA/CO plans, will be trained to develop and implement those plans starting from the guidance given in the IQAP. After the pilot phase is complete, and the Notebooks begin to be implemented throughout the site, training of all facility supervisors, project leaders, and function leaders will take place. Finally, these leaders will train their employees in the use of the Notebooks and the overall QA/CO framework of the Laboratory. The training task is complicated by the fact that it will commence before the QA/CO Support Office is fully established. The initial training will be carried out by the people across the Laboratory who have been involved in developing the new QA framework. Gradually this task will be taken over by the QA/CO Support Office. Finally, the costs associated with QA/CO training have been estimated under this task for the entire Laboratory excepting those costs that are budgeted for the QA/CO Support Office.

| Milestones: | *Schedule* |
|---|---|
| *QA/CO training for pilot facilities* | *Done:* 05/30/91 |
| *QA/CO training on pilot projects/functions* | *Done:* 06/30/91 |
| *Completed QA/CO training of supervisors* | *Due:* 10/30/92 |
| *Training of staff completed* | *Due:* 01/30/93 |

**TASK: T8674 Establish QA/CO Support Office** *Complete:* 04/08/92

To provide technical help in the implementation of Quality Assurance and Conduct of Operations at the Laboratory, a QA/CO Support Office will be established in the Scientific and Technical Resources Division. In particular the Office will support the development and implementation of QA/CO plans for "critical" functions, facilities and projects. This office will also update the instructions and guidance provided in the Project Notebook, Facility Notebook and Function Notebook, and will provide assistance to the divisions on their implementation.

| Milestones: | *Schedule* |
|---|---|
| *Job posted for manager of the QA/CO Office* | *Done:* 11/19/91 |
| *Head of the QA/CO Support Office at the Laboratory* | *Done:* 04/08/92 |

**TASK: T9084 ES&H Training for Managers/Supervisors**

The LBL Training Program Task (T2009) will develop a comprehensive training program that will coordinate existing programs and develop new ones to meet DOE and other requirements. The program will match requirements, methods of training, and level of detail to: the hazard (for ES&H training), the risk to the institution, and the level of responsibility of the persons being trained, including managers and supervisors. This task will provide training for managers and supervisors in identified ES&H areas of responsibility (e.g., OSHA, NEPA). For basic ES&H responsibilities, "managers and supervisors" will be treated as one category, rather than distinguishing among levels of management. This Task will proceed according to its own schedule, but will eventually be incorporated into the overall LBL Training Program established in T2009. Ongoing costs are included in T2009.

| Milestones: | *Schedule* |
|---|---|
| *Needs assessment completed* | *Due:* 10/01/92 |
| *Training program developed* | *Due:* 12/01/92 |
| *Training schedule established* | *Due:* 01/15/93 |
| *Training materials designed and produced* | *Due:* 02/15/93 |
| *Training program implemented* | *Due:* 03/01/93 |

**TASK: T9101 Memorandum of Agreement (MOA) Between ER and SF**

A management agreement between ER and SF will be established.

| Milestones: | *Schedule* |
|---|---|
| *Determine need for supplemental ES&H MA* | *Done:* 06/30/91 |
| *Issue MA in draft (if needed)* | *Done:* 07/30/91 |
| *Finalize MA (if needed)* | *Done:* 04/27/92 |
| *Finalize MOA* | *Due:* 06/30/92 |

**TASK: T9127 Review Possible Reassignment** *Complete:* 03/27/91

DOE/SF management will review the possibilities of reassigning the responsibilities of the NCO to another division without sacrificing its ability to independently review NEPA activities.

| Milestones: | *Schedule* |
|---|---|
| *Review reassignment* | *Done:* 03/27/91 |

**TASK: T9131 Develop Division Charters**

Division charters will be developed. These charters will describe each division's missions, goals, programs (or functions), organizational structure, and interfaces with other divisions.

| Milestones: | *Schedule* |
|---|---|
| *Draft division charter guidance developed* | *Done:* 10/09/92 |
| *Charters drafted-trial phase* | *Due:* 10/15/92 |
| *Draft charters and guidance revised* | *Due:* 12/01/92 |
| *Division charters issued* | *Due:* 02/01/93 |

**TASK: T9133 Develop Environmental Manual**

LBL will develop a manual that defines its policies regarding air, surface water, and ground water protection; waste management; relevant employee training; environmental monitoring; and oversight activities. The manual will delineate the applicability of Federal, State, and local environmental regulations and DOE orders to LBL operations. (See also MF-14.)

| Milestones: | *Schedule* |
|---|---|
| *Model manuals obtained* | *Due:* 11/01/92 |
| *Regulations and orders reviewed* | *Due:* 01/01/93 |
| *Applicability determined* | *Due:* 03/01/93 |
| *Policy developed* | *Due:* 04/01/93 |
| *Draft manual prepared* | *Due:* 04/01/94 |
| *Environmental manual reviewed* | *Due:* 06/01/94 |
| *Environmental Manual revised* | *Due:* 08/01/94 |
| *Environmental Manual issued* | *Due:* 09/01/94 |
| *Training program initiated* | *Due:* 09/30/94 |

**TASK: T9166 Interim Guidance for Continued Self-Assessment** *Complete:* 09/01/91

The Laboratory Director will provide interim guidance to the line management of the Laboratory establishing expectations for continuing activity consistent with the efforts carried out during preparation for the Tiger Team.

| Milestones: | *Schedule* |
|---|---|
| *Interim guidance* | *Done:* 09/01/91 |

**TASK: T9167 Performance Objectives** *Complete:* 06/29/92

Based on the general performance objectives established in the ISAPP, divisions will develop specific performance objectives for self-assessment. They will be assisted in this effort by the EH&S Division and the Independent Review and Assurance Department. These objectives will be consistent with checklists, criteria used in the Project, Facility, and Function Notebooks and applicable institutional objectives. These performance objectives will be referenced in the Division Self-Assessment Implementation Plans.

| Milestones: | *Schedule* |
|---|---|
| *OAA reviewed pilot div. performance objectives* | *Done:* 05/05/92 |
| *Draft division performance objectives of pilots* | *Done:* 05/05/92 |
| *Final review of division performance objectives* | *Done:* 06/29/92 |
| *Finalized division performance objectives* | *Done:* 06/29/92 |

**TASK: T9168 Divisional Self-Assessment Plans**

All divisions of the Laboratory will prepare self-assessment plans consistent with the guidance included in the LBL Self-Assessment Program Implementation Plan and LBL Self-Assessment Manual. The plans will be reviewed and approved by the Office of Assessment and Assurance against the SAPIP approved by the Laboratory Director.

| Milestones: | *Schedule* |
|---|---|
| *Draft divisional self-assessment plan for pilot* | *Done:* 07/22/92 |
| *OAA review of pilot divisional self-assess. plan* | *Done:* 07/22/92 |
| *Pilot divisional self-assessment plan completed* | *Done:* 07/31/92 |
| *Laboratory Director approval of SAPIP* | *Done:* 06/15/92 |
| *Draft divisional self-assessment plans* | *Due:* 10/30/92 |
| *OAA review* | *Due:* 11/02/92 |

**TASK: T9169 Self-Assessment Lessons Learned Program**

A Laboratory lessons learned program will be established. This program will draw on the Occurrence Reporting System, DOE information systems, and division self-assessment findings and corrective actions. It will promulgate information on a regular basis that will be determined. These reports will be initiated in FY 1992. Guidance is included in the LBL Self-Assessment Manual (SAM) for the line management organizations to establish lessons learned activities within the divisions. The guidance will also address requirements for transmitting lessons learned to the Laboratory-wide sytem when they have not been identified through the Occurrence Reporting System.

| Milestones: | *Schedule* |
|---|---|
| *Guidance to divisions* | *Done:* 09/24/92 |
| *First SA Lessons Learned Report and Meeting* | *Due:* 08/20/92 |

**TASK: T9177 Construct EM and IH Building**

Implementation of the Corrective Action Plan will require the addition of up to 38 new staff members to the EH&S Division. There are presently no facilities available to house these additional people. EH&S Division staff are currently housed in makeshift trailers and disparate spaces in several buildings. This results in inadequate instrumentation facilities and inefficiencies in communication and coordination. This task therefore proposes the construction of an Environmental Monitoring and Industrial Hygiene Building. This facility would provide the necessary laboratory and office space required to support an expanded EH&S function.

| Milestones: | *Schedule* |
|---|---|
| *Building conceptual design completed* | *Done:* 05/07/92 |
| *Subcontract process completed* | *Due:* 04/01/95 |
| *Construction completed* | *Due:* 10/01/96 |

**TASK: T9195 Increase Resources & Staffing for ES&H Activities**

The Laboratory's requirement for increased staff and budget resources in ES&H activities has been recognized in both the FY90 and FY91 overhead budgets. This commitment will continue in future years. However, an increased competition for these skills throughout the country has led to slow recruitments. The Laboratory has begun a review of its immediate staffing needs as well as revised requirements in the next few years. The EH&S Division will summarize overall LBL ES&H needs to the Director in staffing and operations plans. Immediate needs will be met through subcontracting until permanent staff can be recruited. In order to respond rapidly to ES&H capital needs, LBL will review its FY91-FY92 GPP and GPE projects to reconsider priorities. The Laboratory will also emphasize the need for increased DOE support for GPP and GPE funds in FY93 and beyond. Specific costs for FY1993 GPE for the central ES&H organization are indicated in the Table. These are consistent with our FY1993 consolidated budget request. Other ongoing GPE and GPP needs are dealt with specifically in other tasks. (Costs for these staff members are included in the individual Tasks requiring increased staffing.)

| Milestones: | *Schedule* |
|---|---|
| *Subcontractor personnel staffing provided* | *Done:* 05/01/91 |
| *EH&S Division staffing & operations plan prepared* | *Done:* 06/01/91 |
| *FY93 GPP/GPE request submitted* | *Done:* 04/30/91 |
| *FY91 & FY92 GPP and GPE projects reviewed* | *Done:* 11/01/91 |
| *ES&H staffing status approved* | *Done:* 07/01/91 |
| *Recruitment for currently approved open positions* | *Done:* 06/15/91 |
| *Recruitment program completed* | *Due:* 09/30/93 |

# Section 4. Self-Assessment

*Concern* **SA-1**

**The LBL self-assessment process is not yet institutionalized and lacks many of the elements of an effective self-assessment program. LBL carried out an acceptable self-assessment in preparation for the Tiger Team.**

*Compliance Protocol* DOE 5482.1B; S1-July 30, 1991

*Response* The Laboratory's self-assessment effort in preparation for the Tiger Team has not been incorporated into the Laboratory's management framework. The Laboratory recognizes the need to establish several high level management programs that will assist the managers at the Laboratory to maintain and assure their operations. The LBL Self-Assessment Program will be developed as a complement to its integrated approach to Quality Assurance (MF-22) and Conduct of Operations (OP). The major goal of these management programs is to sustain, demonstrate, and document performance in both its research programs and its ES&H activities. An important element of the Self-Assessment Program will be training for self-assessment that reaches every member of the Laboratory; this training will ultimately be incorporated into the overall training program that must be put in place (MF-9, MF-10). The tasks identified to implement an effective Self-Assessment Program are the same as those described for MF-15 and are repeated below.

*Related Concerns* EA.4-1 FR.1-1 FR.2-1 FR.3-1 FR.5-1 MF-10 MF-11 MF-13 MF-15 MF-2 MF-22 MF-9 OA.1-1/T90 OA.1-2/T90 OA.2-3 OA.5-2

*Tasks* T2050(Completed) T2054(Completed) T2057(Completed) T9166(Completed) T9167(Completed)

T2058 T2061 T9168 T9169

| | |
|---|---|
| *Concern* | **SA/CF-2** |
| | **The self-assessment process is not yet institutionalized and lacks many of the elements of an effective self-assessment program. The San Francisco Operations Office (SAN) carried out an acceptable self-assessment in preparation for the Tiger Team.** |
| *Compliance Protocol* | Self-assessment guidance, July 31, 1990 |
| *Response* | SF is in the process of institutionalizing a comprehensive self-assessment program to address all ES&H/QA functional areas and management issues, for the contractor and SF. |
| *Tasks* | T9035(Completed) T9036(Completed) |
| | T9205 |

**TASK: T2050 Develop Prioritization Methodology** *Complete:* 06/30/92

The Laboratory uses DOE's Capital Assets Management Process (CAMP) to prioritize its Multi-program Energy Laboratory Facilities support (MELFS) projects and has utilized a simpler methodology for prioritizing GPP and GPE projects. The ERWM Five Year Plan is based on yet another DOE compliance and risk based prioritization scheme. All of these methodologies build in a strong consideration of ES&H requirement and needs. To assure that available resources are first applied to activities of greatest importance a broadly applicable prioritization methodology will be developed and utilized. This will be used to prioritize potentially valuable ES&H initiatives, corrective actions from the Tiger Team, the Laboratory's capital and operating expense budgets and any future issues that arise as a result of internal and external reviews.

| Milestones: | *Schedule* |
|---|---|
| *Prototype methodology applied to findings/concerns* | *Done:* 03/30/91 |
| *Alternative prioritization methodologies reviewed* | *Done:* 05/31/91 |
| *Methodology for LBL customized* | *Done:* 07/31/91 |
| *LBL senior managers briefed* | *Done:* 08/31/91 |
| *Methodology for general capital projects.* | *Done:* 10/31/91 |
| *Methodology used for overhead budget* | *Done:* 06/30/92 |

**TASK: T2054 Develop LBL's Corrective Action Management System** *Complete:* 12/01/91

LBL will develop its Corrective Action Management System (CAMS) as a part the implementation of the LBL Institutional Self-Assessment (LISA) program.

| Milestones: | *Schedule* |
|---|---|
| *Corrective action tracking database developed* | *Done:* 03/31/91 |
| *Corrective Action Management System initiated* | *Done:* 12/01/91 |

**TASK: T2057 LBL Institutional Self-Assessment Program** *Complete:* 06/09/92

The LBL Institutional Self-Assessment Program (LISA) will establish the self-assessment policy of the Laboratory and the organizational responsibilities for implementing it. The LISA will be included as part of the LBL Self-Assessment Manual (SAM), providing the following features: a) The SAM will describe the multi-level review process and the responsibilities of the line divisions, the EH&S Division, the Safety Review Committee, and the Independent Review and Assurance Department. It will also provide a model for the development and approval of divisional self-assessment implementation plans. b) It will establish the broad performance objectives consistent with DOE guidance that the organizations of the Laboratory are expected to meet and it will describe the process by which performance objectives are to be tailored into specific objectives that meet the needs of each division. In particular, it will address the interrelationships between checklists and performance criteria embodied in the Project, Facility, and Function Notebooks. c) It will describe the Corrective Action Management System (CAMS). It will establish criteria for reports from the line organizations to the central system both with respect to level of deficiencies that must be reported and the frequency of reports. It will establish expectations for closeout of corrective actions. d) It will describe the methodology for prioritizing corrective actions. e) It will establish expectations for sharing lessons learned within the line organizations of the Laboratory and it will set forth criteria for communicating information related to lessons learned and experience training reports within the Laboratory as a whole. f) The SAM will also provide guidance for implementing Standard Review Guidelines, Self-Assessment training, conducting root cause analysis and reports, and preparing for independent verification and validation reviews.

| Milestones: | *Schedule* |
|---|---|
| *Draft SAPIP completed* | *Done:* 01/17/92 |
| *Interim SAPIP utilizing checklist* | *Done:* 04/10/92 |
| *Review Draft SAPIP* | *Done:* 02/14/92 |
| *Final SAPIP Approval* | *Done:* 06/09/92 |

**TASK: T2058 LBL Institutional Self-Assessment Program (LISA)**

Implementation of the SAPIP, the Self-Assessment Manual (SAM) and Divisions Self-Assessement Program Implementation Plan (DSAPIP) will begin with training for self assessment required for senior managers and designated supervisors and staff. In addition, the Laboratory will develop standard review procedures (SRP) and train designated supervisors and staff. Draft SAPIPs will be used as the basis to pilot the program. Independent function reviews will be conducted prior to issuing final procedures. (Costs for the on-going implementation of the LBL Self-Assessment Program are included in this task.)

| Milestones: | *Schedule* |
|---|---|
| *Draft DSAIPs reviewed for pilot implementation* | *Done:* 07/22/92 |
| *Pilot functional reviews* | *Done:* 07/21/92 |
| *Initial training for pilot implementation* | *Done:* 07/22/92 |
| *Training for implementation of the LBL SAM* | *Done:* 10/15/92 |
| *Laboratory-wide implementation of DSAPIPs begins* | *Due:* 11/15/92 |
| *Final DSAPIPs approved* | *Due:* 11/15/92 |

**TASK: T2061 Arrange Triennial Appraisal**

DOE/SF will arrange for the required triennial appraisal of LBL's programs including the Self-Assessment Program.

| Milestones: | *Schedule* |
|---|---|
| *OPD Requests Deferral of Triennial Review.* | *Done:* 04/30/91 |
| *DOE/SF to arrange for an External Review.* | *Due:* 06/30/92 |
| *Review to be Conducted* | *Due:* 07/31/92 |
| *Review Report from DOE/SF* | *Due:* 09/31/92 |

**TASK: T9035 Approve/Implement DOE/SF MD for Self-Assessment** *Complete:* 04/30/92

Currently, a policy Management Directive (MD) is in the Final Draft stage. The approved MD will include process and procedures for the implementation of an overall institutionalized self-assessment program.

| Milestones: | *Schedule* |
|---|---|
| *Draft Self-Assessment plan issued* | *Done:* 04/30/92 |
| *Tracking system developed* | *Done:* 10/04/91 |
| *DOE/SF MD and procedures finalized* | *Done:* 09/15/91 |
| *DOE/SF Self-Assessment Program finalized* | *Done:* 10/04/91 |
| *DOE/SF Self-Assessment Program implemented* | *Done:* 10/04/91 |

**TASK: T9036 Assign Self-Assessment Responsibilities at DOE/SF** *Complete:* 10/04/91

DOE/SF Management will designate the responsibilities of preparing the Management Directive (MD) for self-assessment as well as the implementation of the self-assessment process to the Office of the Assistant Manager for Facilities Management.

| Milestones: | *Schedule* |
|---|---|
| *Assign Self-Assessment Responsibilities to AMFM* | *Done:* 10/04/91 |

**TASK: T9166 Interim Guidance for Continued Self-Assessment** *Complete:* 09/01/91

The Laboratory Director will provide interim guidance to the line management of the Laboratory establishing expectations for continuing activity consistent with the efforts carried out during preparation for the Tiger Team.

| Milestones: | *Schedule* |
|---|---|
| *Interim guidance* | *Done:* 09/01/91 |

**TASK: T9167 Performance Objectives** *Complete:* 06/29/92

Based on the general performance objectives established in the ISAPP, divisions will develop specific performance objectives for self-assessment. They will be assisted in this effort by the EH&S Division and the Independent Review and Assurance Department. These objectives will be consistent with checklists, criteria used in the Project, Facility, and Function Notebooks and applicable institutional objectives. These performance objectives will be referenced in the Division Self-Assessment Implementation Plans.

| Milestones: | *Schedule* |
|---|---|
| *OAA reviewed pilot div. performance objectives* | *Done:* 05/05/92 |
| *Draft division performance objectives of pilots* | *Done:* 05/05/92 |
| *Final review of division performance objectives* | *Done:* 06/29/92 |
| *Finalized division performance objectives* | *Done:* 06/29/92 |

**TASK: T9168 Divisional Self-Assessment Plans**

All divisions of the Laboratory will prepare self-assessment plans consistent with the guidance included in the LBL Self-Assessment Program Implementation Plan and LBL Self-Assessment Manual. The plans will be reviewed and approved by the Office of Assessment and Assurance against the SAPIP approved by the Laboratory Director.

| Milestones: | *Schedule* |
|---|---|
| *Draft divisional self-assessment plan for pilot* | *Done:* 07/22/92 |
| *OAA review of pilot divisional self-assess. plan* | *Done:* 07/22/92 |
| *Pilot divisional self-assessment plan completed* | *Done:* 07/31/92 |
| *Laboratory Director approval of SAPIP* | *Done:* 06/15/92 |
| *Draft divisional self-assessment plans* | *Due:* 10/30/92 |
| *OAA review* | *Due:* 11/02/92 |

**TASK: T9169 Self-Assessment Lessons Learned Program**

A Laboratory lessons learned program will be established. This program will draw on the Occurrence Reporting System, DOE information systems, and division self-assessment findings and corrective actions. It will promulgate information on a regular basis that will be determined. These reports will be initiated in FY 1992. Guidance is included in the LBL Self-Assessment Manual (SAM) for the line management organizations to establish lessons learned activities within the divisions. The guidance will also address requirements for transmitting lessons learned to the Laboratory-wide sytem when they have not been identified through the Occurrence Reporting System.

| Milestones: | *Schedule* |
|---|---|
| *Guidance to divisions* | *Done:* 09/24/92 |
| *First SA Lessons Learned Report and Meeting* | *Due:* 08/20/92 |

**TASK: T9205 Develop Annual Self-Assessment Report**

Each year an annual Self-Assessment Report will be developed for DOE/SF. The annual DOE/SF Report will be reviewed by the Executive Staff, approved by the Field Office Manager, and submitted to DOE/HQ.

| Milestones: | *Schedule* |
|---|---|
| *Draft outline prepared* | *Done:* 12/31/91 |
| *Draft Annual Report issued* | *Due:* 12/01/92 |
| *Annual Self-Assessment Report approved* | *Due:* 02/01/93 |

# Appendices

# Appendix 1.
# Tasks Reported Closed Through the End of FY 1992

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T9098 | EH&S | 9/30/92 | 00/00/00 |
| T8755 | EH&S | 9/30/92 | 00/00/00 |
| T8751 | EH&S | 9/30/92 | 00/00/00 |
| T4009 | EH&S | 9/30/92 | 00/00/00 |
| T2156 | Operations | 9/30/92 | 00/00/00 |
| T2073 | EH&S | 9/30/92 | 00/00/00 |
| T1096 | EH&S | 9/30/92 | 00/00/00 |
| T1094 | EH&S | 9/30/92 | 00/00/00 |
| T1038 | EH&S | 9/30/92 | 00/00/00 |
| T9190 | DOE | 9/25/92 | 00/00/00 |
| T2076 | EH&S | 9/24/92 | 00/00/00 |
| T2074 | EH&S | 9/24/92 | 00/00/00 |
| T3020 | EH&S | 9/23/92 | 00/00/00 |
| T4005 | EH&S | 9/22/92 | 00/00/00 |
| T1074 | DOE | 9/21/92 | 00/00/00 |
| T8686 | EH&S | 9/17/92 | 00/00/00 |
| T4046 | EH&S | 9/15/92 | 00/00/00 |
| T4027 | EH&S | 9/15/92 | 00/00/00 |
| T4020 | EH&S | 9/15/92 | 00/00/00 |
| T9106 | EH&S | 9/14/92 | 00/00/00 |
| T2 | Admin | 9/14/92 | 00/00/00 |
| T4108 | EH&S | 9/11/92 | 00/00/00 |
| T2038 | Admin | 9/1/92 | 00/00/00 |
| T8759 | EH&S | 8/28/92 | 00/00/00 |
| T4118 | DOE | 8/27/92 | 00/00/00 |
| T1021 | Eng | 8/25/92 | 00/00/00 |
| T8747 | Admin | 8/19/92 | 00/00/00 |
| T8744 | EH&S | 8/15/92 | 00/00/00 |
| T4129 | EH&S | 8/14/92 | 00/00/00 |
| T2183 | EH&S | 8/13/92 | 00/00/00 |
| T9052 | EH&S | 8/12/92 | 00/00/00 |

Tasks are sorted inversely by completion date.

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T2106 | EH&S | 8/12/92 | 00/00/00 |
| T4137 | EH&S | 8/3/92 | 00/00/00 |
| T4031 | EH&S | 8/1/92 | 00/00/00 |
| T4011 | Facilities | 8/1/92 | 00/00/00 |
| T2056 | Operations | 8/1/92 | 00/00/00 |
| T1100 | EH&S | 8/1/92 | 00/00/00 |
| T1086 | EH&S | 8/1/92 | 00/00/00 |
| T9065 | EH&S | 7/22/92 | 00/00/00 |
| T2049 | Admin | 7/17/92 | 00/00/00 |
| T9144 | Facilities | 7/15/92 | 00/00/00 |
| T4139 | EH&S | 7/15/92 | 00/00/00 |
| T3023 | EH&S | 7/15/92 | 00/00/00 |
| T2085 | EH&S | 7/10/92 | 00/00/00 |
| T2050 | Operations | 6/30/92 | 00/00/00 |
| T9167 | Operations | 6/29/92 | 00/00/00 |
| T8793 | EH&S | 6/26/92 | 00/00/00 |
| T2102 | EH&S | 6/26/92 | 00/00/00 |
| T9124 | EH&S | 6/19/92 | 00/00/00 |
| T9164 | Operations | 6/18/92 | 00/00/00 |
| T9183 | DOE | 6/17/92 | 00/00/00 |
| T9135 | EH&S | 6/15/92 | 00/00/00 |
| T4102 | EH&S | 6/15/92 | 00/00/00 |
| T9149 | EH&S | 6/12/92 | 00/00/00 |
| T1018 | EH&S | 6/11/92 | 00/00/00 |
| T2057 | Operations | 6/9/92 | 00/00/00 |
| T1041 | EH&S | 6/8/92 | 00/00/00 |
| T4030 | EH&S | 6/2/92 | 00/00/00 |
| T9029 | EH&S | 6/1/92 | 00/00/00 |
| T4012 | EH&S | 6/1/92 | 00/00/00 |
| T4003 | EH&S | 6/1/92 | 00/00/00 |
| T1085 | Eng | 6/1/92 | 00/00/00 |

Tasks are sorted inversely by completion date.

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T1083 | AFRD | 6/1/92 | 00/00/00 |
| T1020 | EH&S | 6/1/92 | 00/00/00 |
| T1017 | EH&S | 6/1/92 | 00/00/00 |
| T5018 | EH&S | 5/29/92 | 00/00/00 |
| T2086 | Admin | 5/29/92 | 00/00/00 |
| T2169 | EH&S | 5/21/92 | 00/00/00 |
| T4014 | EH&S | 5/17/92 | 00/00/00 |
| T4013 | EH&S | 5/8/92 | 00/00/00 |
| T4120 | DOE | 5/7/92 | 00/00/00 |
| T5011 | EH&S | 5/1/92 | 00/00/00 |
| T4056 | DOE | 5/1/92 | 00/00/00 |
| T4025 | EH&S | 5/1/92 | 00/00/00 |
| T3 | Admin | 5/1/92 | 00/00/00 |
| T1027 | Facilities | 5/1/92 | 00/00/00 |
| T9035 | DOE | 4/30/92 | 00/00/00 |
| T5024 | EH&S | 4/30/92 | 00/00/00 |
| T1030 | Facilities | 4/30/92 | 00/00/00 |
| T9111 | OPD | 4/28/92 | 00/00/00 |
| T4072 | DOE | 4/27/92 | 00/00/00 |
| T1104 | EH&S | 4/24/92 | 00/00/00 |
| T8684 | EH&S | 4/20/92 | 00/00/00 |
| T2165 | Facilities | 4/20/92 | 00/00/00 |
| T2100 | Facilities | 4/20/92 | 00/00/00 |
| T2103 | Facilities | 4/17/92 | 00/00/00 |
| T2026 | Operations | 4/14/92 | 00/00/00 |
| T2025 | Operations | 4/14/92 | 00/00/00 |
| T2159 | EH&S | 4/10/92 | 00/00/00 |
| T2155 | Facilities | 4/10/92 | 00/00/00 |
| T2098 | EH&S | 4/10/92 | 00/00/00 |
| T1122 | DOE | 4/10/92 | 00/00/00 |
| T5005 | Admin | 4/9/92 | 00/00/00 |

Tasks are sorted inversely by completion date.

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T8674 | Operations | 4/8/92 | 00/00/00 |
| T2095 | EH&S | 4/7/92 | 00/00/00 |
| T3010 | Eng | 4/6/92 | 00/00/00 |
| T3008 | Eng | 4/6/92 | 00/00/00 |
| T8681 | EH&S | 4/1/92 | 00/00/00 |
| T2084 | Admin | 3/31/92 | 00/00/00 |
| T2048 | OPD | 3/31/92 | 00/00/00 |
| T1052 | DOE | 3/25/92 | 00/00/00 |
| T1031 | Facilities | 3/24/92 | 00/00/00 |
| T4106 | EH&S | 3/16/92 | 00/00/00 |
| T1026 | Eng | 3/14/92 | 00/00/00 |
| T4007 | EH&S | 3/13/92 | 00/00/00 |
| T2083 | ESD | 3/1/92 | 00/00/00 |
| T9207 | Operations | 2/26/92 | 00/00/00 |
| T2121 | AFRD | 2/24/92 | 00/00/00 |
| T8637 | EH&S | 2/20/92 | 00/00/00 |
| T8682 | EH&S | 2/18/92 | 00/00/00 |
| T1110 | EH&S | 2/18/92 | 00/00/00 |
| T1079 | EH&S | 2/15/92 | 00/00/00 |
| T1029 | Facilities | 2/15/92 | 00/00/00 |
| T4047 | EH&S | 2/13/92 | 00/00/00 |
| T9162 | EH&S | 2/12/92 | 00/00/00 |
| T2094 | Eng | 2/5/92 | 00/00/00 |
| T1118 | DOE | 2/4/92 | 00/00/00 |
| T8761 | EH&S | 1/28/92 | 00/00/00 |
| T1123 | DOE | 1/27/92 | 00/00/00 |
| T5008 | Admin | 1/23/92 | 00/00/00 |
| T4045 | EH&S | 1/21/92 | 00/00/00 |
| T9199 | Eng | 1/17/92 | 00/00/00 |
| T8604 | DOE | 12/31/91 | 00/00/00 |
| T9066 | EH&S | 12/15/91 | 00/00/00 |

Tasks are sorted inversely by completion date.

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T8603 | DOE | 12/6/91 | 00/00/00 |
| T5004 | Admin | 12/5/91 | 00/00/00 |
| T9129 | EH&S | 12/1/91 | 00/00/00 |
| T2054 | Operations | 12/1/91 | 00/00/00 |
| T1044 | EH&S | 12/1/91 | 00/00/00 |
| T1003 | EH&S | 12/1/91 | 00/00/00 |
| T9079 | EH&S | 11/30/91 | 00/00/00 |
| T2104 | Facilities | 11/27/91 | 00/00/00 |
| T1024 | Facilities | 11/27/91 | 00/00/00 |
| T9141 | Facilities | 11/22/91 | 00/00/00 |
| T5014 | EH&S | 11/22/91 | 00/00/00 |
| T5006 | EH&S | 11/20/91 | 00/00/00 |
| T2045 | EH&S | 11/15/91 | 00/00/00 |
| T1019 | EH&S | 11/7/91 | 00/00/00 |
| T9117 | EH&S | 11/1/91 | 00/00/00 |
| T9040 | DOE | 11/1/91 | 00/00/00 |
| T4135 | EH&S | 11/1/91 | 00/00/00 |
| T4121 | EH&S | 11/1/91 | 00/00/00 |
| T4075 | DOE | 10/30/91 | 00/00/00 |
| T1022 | AFRD | 10/23/91 | 00/00/00 |
| T4117 | DOE | 10/18/91 | 00/00/00 |
| T4058 | DOE | 10/17/91 | 00/00/00 |
| T1073 | DOE | 10/17/91 | 00/00/00 |
| T9068 | EH&S | 10/15/91 | 00/00/00 |
| T9036 | DOE | 10/4/91 | 00/00/00 |
| T2115 | Admin | 10/2/91 | 00/00/00 |
| T4068 | DOE | 10/1/91 | 00/00/00 |
| T4001 | EH&S | 10/1/91 | 00/00/00 |
| T1049 | Directorate | 10/1/91 | 00/00/00 |
| T8763 | EH&S | 9/30/91 | 00/00/00 |
| T1129 | EH&S | 9/30/91 | 00/00/00 |

Tasks are sorted inversely by completion date.

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T1120 | DOE | 9/30/91 | 00/00/00 |
| T4077 | DOE | 9/15/91 | 00/00/00 |
| T9166 | Operations | 9/1/91 | 00/00/00 |
| T8687 | EH&S | 9/1/91 | 00/00/00 |
| T4042 | EH&S | 9/1/91 | 00/00/00 |
| T4041 | EH&S | 9/1/91 | 00/00/00 |
| T3006 | Facilities | 9/1/91 | 00/00/00 |
| T2117 | Facilities | 9/1/91 | 00/00/00 |
| T1011 | Eng | 9/1/91 | 00/00/00 |
| T1001 | EH&S | 9/1/91 | 00/00/00 |
| T9105 | OPD | 8/26/91 | 00/00/00 |
| T1010 | Eng | 8/23/91 | 00/00/00 |
| T8756 | EH&S | 8/21/91 | 00/00/00 |
| T8691 | Admin | 8/21/91 | 00/00/00 |
| T9069 | EH&S | 8/18/91 | 00/00/00 |
| T4105 | EH&S | 8/9/91 | 00/00/00 |
| T5021 | EH&S | 8/1/91 | 00/00/00 |
| T5013 | EH&S | 8/1/91 | 00/00/00 |
| T4067 | DOE | 8/1/91 | 00/00/00 |
| T1005 | EH&S | 8/1/91 | 00/00/00 |
| T4111 | Eng | 7/19/91 | 00/00/00 |
| T4127 | EH&S | 7/2/91 | 00/00/00 |
| T2027 | EH&S | 7/1/91 | 00/00/00 |
| T1061 | EH&S | 7/1/91 | 00/00/00 |
| T4010 | EH&S | 6/7/91 | 00/00/00 |
| T2029 | EH&S | 6/7/91 | 00/00/00 |
| T1057 | EH&S | 6/7/91 | 00/00/00 |
| T4055 | EH&S | 6/1/91 | 00/00/00 |
| T1090 | EH&S | 6/1/91 | 00/00/00 |
| T1080 | EH&S | 6/1/91 | 00/00/00 |
| T9061 | Eng | 5/17/91 | 00/00/00 |

Tasks are sorted inversely by completion date.

This period: 10/1/89-9/30/92

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T2053 | Operations | 4/30/91 | 00/00/00 |
| T8606 | DOE | 4/15/91 | 00/00/00 |
| T1006 | EH&S | 4/15/91 | 00/00/00 |
| T1072 | DOE | 4/10/91 | 00/00/00 |
| T1071 | DOE | 4/10/91 | 00/00/00 |
| T2037 | Admin | 4/1/91 | 00/00/00 |
| T9127 | DOE | 3/27/91 | 00/00/00 |
| T5019 | EH&S | 3/15/91 | 00/00/00 |
| T9016 | Admin | 3/1/91 | 00/00/00 |
| T4065 | DOE | 3/1/91 | 00/00/00 |
| T2161 | ICSD | 3/1/91 | 00/00/00 |
| T2017 | EH&S | 3/1/91 | 00/00/00 |
| T3007 | Eng | 2/28/91 | 00/00/00 |
| T9032 | EH&S | 2/25/91 | 00/00/00 |
| T1128 | Facilities | 2/19/91 | 00/00/00 |
| T9104 | Eng | 2/10/91 | 00/00/00 |
| T2019 | Eng | 2/10/91 | 00/00/00 |
| T9031 | EH&S | 2/4/91 | 00/00/00 |
| T2018 | Operations | 2/4/91 | 00/00/00 |
| T2133 | Operations | 1/31/91 | 00/00/00 |
| T2154 | AFRD | 5/1/90 | 00/00/00 |
| T8797 | Facilities | 1/1/90 | 00/00/00 |

Tasks are sorted inversely by completion date.

# Appendix 2.
# Corrective Action Plan Project Management Plan

Lawrence Berkeley Laboratory
1 Cyclotron Road Berkeley, California 94720
(415) 486-4000 • FTS 451-4000

Associate Laboratory Director Office for Operations
Bldg. 50A Room 5104 Ext. 6120

July 9, 1992
214-92-HTF

Mr. Scott L. Samuelson
Director, Energy Research Division
San Francisco Field Office
U.S. Department of Energy
1333 Broadway
Oakland, CA 94612

Dear Mr. Samuelson: Scott

Enclosed is a copy of the final Lawrence Berkeley Laboratory Tiger Team Corrective Action Plan Project Management Plan. This plan incorporates your suggestions, reflects current approval levels, and references the monthly report LBL will provide to DOE-SF on CAP status and statistics.

I appreciate your comments on the draft plan, and your assistance in developing appropriate review and approval mechanisms.

Sincerely yours,

Klaus

Klaus Berkner
Associate Laboratory Director
for Operations

Enclosure

# LAWRENCE BERKELEY LABORATORY

# TIGER TEAM CORRECTIVE ACTION PLAN

# PROJECT MANAGEMENT PLAN

Office of Assessment and Assurance

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# I. EXECUTIVE SUMMARY

## A. Goals

This project management plan describes the structure, procedures and control systems which are employed in the management of the Corrective Action Plan (CAP). This plan was developed by the Office of Assessment and Assurance of the Lawrence Berkeley Laboratory (LBL) and incorporates management concepts that complement the existing Corrective Action Plan database. This plan approaches the Corrective Action Plan as a single large project, and increases Lawrence Berkeley Laboratory's efficiency in implementing the tasks of the Tiger Team Assessment. The overall goals of this plan are to:

- Implement a formalized process-oriented system to address the three underlying root causes identified by the Tiger Team (management style, ability to meet ES&H requirements, and DOE's commitment to ES&H).

- Provide an integrated and cohesive approach towards executing the completion of all tasks.

- Facilitate the completion of the Corrective Action Plan Tasks in an efficient and organized manner, with involvement of all levels of management.

- Meet the Planned Progress Schedule and Budget of closing the Corrective Action Plan Findings and Concerns.

## B. Objectives

Three underlying root causes are the primary focus of the Corrective Action Plan. Eight strategic elements were developed to address these root causes. In an integrated fashion, over 330 Findings and Concerns that include more than 400 tasks were developed from these eight strategic elements (with multiple combinations of tasks) to address any specific finding. This created a comprehensive, yet complex project to coordinate. The specific objectives of this plan are to:

- Develop and maintain an overall schedule of tasks, such that relationships between tasks and closing of findings and concerns can be managed.

- Use this schedule as a management tool to plan the work involved in any task. Prioritize and re-schedule, if necessary, the completion of tasks where conflicts exist (i.e., disconnects, where

the start of one task is impacted or delayed by the completion of another.)

- Provide a communication system which keeps management at all levels informed of progress.

- Incorporate a review and approval process within Lawrence Berkeley Laboratory and with DOE/SF.

- Establish a process for tracking and reporting of schedule and costs through a monthly update form. This allows for an analysis of changes to schedule and costs.

## II. ROLES & RESPONSIBILITY

Management and staff from the institutional and line management units of DOE, the University of California, and the Lawrence Berkeley Laboratory worked jointly to develop the Tiger Team Corrective Action Plan and are also deeply involved in its implementation.

### A. Department of Energy

The Department of Energy (DOE) is responsible for ensuring that Lawrence Berkeley Laboratory addresses Tiger Team findings and closes out concerns in a timely and effective way. DOE also provides direct funding for some projects: Environmental Restoration and Waste Management (EM), General Plant Projects (GPP), and Multiprogram Energy Laboratory Facilities Support (MELFS).

The DOE/HQ Office of Nuclear Physics has landlord responsibility and oversight of LBL's Corrective Action Plan. For day-to-day oversight, the DOE/SF Director, Office of Energy Research, reports to the DOE/SF Manager, who has established a LBL Site Office. The Site Office receives monthly reports, tracks programs, and verifies closure of concerns.

DOE/SF also has Task Masters to address concerns and findings for their Tiger Team identified deficiencies, and they are responsible for reporting their progress on monthly Task Master Update Forms to LBL's Office of Assessment and Assurance. LBL tracks DOE/SF's tasks as part of its overall project management responsibilities, and issues monthly status reports to the DOE/SF Director, Office of Energy Research.

## B. Lawrence Berkeley Laboratory

The Lawrence Berkeley Laboratory addresses ES&H and other program requirements, including DOE Orders, guidelines, and applicable Federal, State, and local regulations through lines of management responsibility. The Laboratory organization chart is shown in Attachment 1. The Operations area, whose organization is shown in Attachment 2, has the majority of the Corrective Action Plan responsibilities. The Office of Assessment and Assurance in the Operations area has overall responsibility for the project management and tracking of the CAP. This organization is shown in Attachment 3. The roles and responsibilities of the various groups involved are described below:

The Laboratory Director has overall responsibility for the Corrective Action Plan and the allocation of Lab-wide resources. The Director has delegated the implementation of the Corrective Action Plan to the Associate Laboratory Director for Operations, who is responsible for the Accelerator and Fusion Research, Environment, Health and Safety, Engineering, and Information and Computing Sciences Divisions, as well as the Construction and Maintenance and Plant Engineering Departments. These units are responsible for the majority of Tasks in the CAP.

Within the Operations Directorate, the Office of Assessment and Assurance (OAA) has overall responsibility for the project management, tracking and reporting of the Corrective Action Plan. OAA is responsible for developing, implementing and maintaining systems which ensure steady progress and timely completion of tasks. OAA staff review CAP tasks and milestones to identify linkages and dependencies, and propose solutions to any scheduling problems identified. In addition, OAA will periodically assess the completion of milestones and tasks as part of its independent assurance mission. OAA is responsible for preparing internal reports and quarterly reports for DOE-SF. OAA also prepares an annual revision of the Corrective Action Plan which reflects current funding and scheduling plans.

Division Directors are responsible for line management oversight of CAP tasks involving their divisions, and for ensuring that these tasks are properly managed by the Task Masters. Changes in cost or schedule, and final completion of a task must be approved by the Division Director. Attachment 4 is an example of an update/change control form that requires a Division Director's signature.

Task Masters are responsible for the budgeting, scheduling, and completion of tasks. In some cases, Milestone Masters have been

delegated responsibility for completion of specific milestones for each task. Task Masters ensure that the Milestone Masters complete their milestones on schedule. Task Masters are the first point of contact for questions concerning tasks, and have an important role in identifying and resolving problems resulting from funding, staffing inadequacies, or dependencies to other tasks.

## III. PROJECT DESCRIPTION

### A. General

In June 1989, Secretary of Energy James D. Watkins mandated the strengthening of safety, environmental protection, and waste management activities at DOE's production, research, and testing facilities. "Tiger Teams" were appointed to conduct on-site ES&H assessments at DOE facilities to ensure compliance with applicable Federal, State, and local regulations and DOE Orders.

A Tiger Team assessment was conducted at LBL and DOE/SF from January 14, 1991 through February 15, 1991, and included 61 specialists from DOE offices and contracting organizations. Three subteams were formed (Environment, Safety and Health, and Management), which developed findings and concerns.

The Tiger Team identified deficiencies in the Environment, Health, and Safety program of LBL, and in the oversight of LBL by DOE/SF and DOE/OER Identified were eighty six (86) findings by the Environment subteam, 136 concerns by the Health and Safety subteam, and 23 findings by the Management subteam. The Health and Safety subteam also reviewed 94 concerns of the 1989 Technical Safety Appraisal (TSA), and referenced any new findings to the TSA concerns.

In total, 339 findings and concerns were identified. Lawrence Berkeley Laboratory and DOE/SF developed 409 tasks, which included 1570 milestones, to correct the findings and concerns, and to address and eliminate the underlying root causes. The actual implementation and completion of the tasks involves 91 Task Masters from ten divisions of the Laboratory, as well as DOE/SF. The Task Masters are not only responsible for completing each individual task, but also for tracking and reporting its progress.

The Corrective Action Plan encompasses a multitude of variables, from root causes, findings and concerns, through Task Masters, Milestone Masters, and task relationships. This Project Management

Plan summarizes the process to complete each task and close concerns in a coordinated and efficient approach.

## B. Scope of Work

The Corrective Action Plan is a five-year program that was jointly developed (and will be implemented) by DOE/OER, DOE/SF, LBL, and the University of California. The total cost and plan for completing all the tasks, and closing of the respective concerns are shown in Attachment 5.

The program to complete the tasks is based on projections provided by the Task Masters, with guidance from LBL management and DOE/SF. On an annual basis, direction is provided by LBL's Director's Action Committee (DAC), which allocates the overhead funding to accomplish the completion of these tasks.

## C. Criteria and Standards

The standards by which all the tasks have been developed are in compliance with DOE Orders, State and Federal regulations. The tasks are also developed in accordance with DOE/SF, DOE/OER, LBL, and University of California guidelines. All tasks and concerns have been reviewed and approved by DOE/OER.

The criteria under which the Tiger Team assessment was conducted is in accordance with the Tiger Team Guidance Manual (2/90), the "Performance Objectives and Criteria for TSA at DOE facilities and sites" (6/90), and generally accepted audit techniques.

## D. Findings and Concerns

The Tiger Team assessment report contained the findings and concerns of the three assessment subteams assigned to the areas of Environment, Safety and Health, and Management.

The Environment subteam identified each issue as a "compliance finding." These identified conditions that may not satisfy applicable ES&H regulations, DOE Orders, internal ES&H site operating standards, enforcement actions, agreement with regulatory agencies, or permit conditions.

The Safety and Health subteam used a slightly different reporting format that maintained consistency and integrity with the Technical Safety Appraisal process. Each issue was identified as a concern, supported in turn by findings. A concern addressed a situation that

reflected less than full compliance with DOE health and safety requirements or mandatory safety standards, threatened to compromise safe operations, or would substantially enhance the excellence of a particular situation, even though that part of the operation was judged to have a currently acceptable margin of safety.

The Management subteam identified findings pertaining to the effectiveness of the management process relevant to ES&H programs. These findings were derived from analyses of key management areas that affect ES&H activities, taking into consideration DOE policy and Orders, generally accepted management principles, and industry standards.

### E. LBL Response Strategy

Lawrence Berkeley Laboratory's strategy for dealing with the Tiger Team findings, concerns and root causes consisted of developing strategic elements which address one or more of the underlying root causes. Attachment 6 depicts this strategy, and Attachment 7 sets forth the relationship between the eight strategic elements and the identified root causes of deficiencies in ES&H performance. Attachment 8 from the Corrective Action Plan lists the significant corrective action objectives for each strategic element; it is under these objectives that individual tasks were developed. These tasks address all of the findings and concerns of the Tiger Team and roll up to the strategic elements and root causes.

## IV PROJECT MANAGEMENT

In order to manage the implementation of all the tasks and to ensure completeness, this Project Management Plan combines a tracking and reporting database with planning and scheduling concepts. This plan consists of: (A) Tracking, (B) Change Control, (C) Management Procedures, (D) Task/Concern Closure, and (E) Reporting. The goals of this strategy are to:

- Focus management's attention on the completion of the Corrective Action Plan tasks.
- Provide a process for communication and coordination of tasks between management and Task Masters.
- Highlight those tasks where the allocation of resources is critical.

- Provide a system to identify and implement alternative solutions to scheduling conflicts.

## A. Tracking

Tracking of the Corrective Action Plan is the responsibility of the Office of Assessment and Assurance. Using computer programming support from the Information and Computing Sciences Division, OAA has developed a relational database covering all aspects of the Corrective Action Plan. This database, known as LCATS (Laboratory Corrective Action Tracking System), utilizes *4th Dimension* software in a Macintosh environment. The LCATS is a sophisticated and complex system which is programmed to automatically generate forms which are distributed to Task Masters on a monthly basis. The Task Masters use the forms to provide information on cost and schedule, which is used to update the LCATS.

## B. Change Control

A Change Control Process has been established to manage schedule and budget changes. Revisions of task budgets and milestone dates may be requested on the monthly update forms to reflect changes in guidance or resource availability.

Changes in scope are managed through a change order process. Task Masters complete a change order form (Attachment 9) to request extensions of Task completion dates, and/or changes in Task description. These are submitted to the Office of Assessment and Assurance for review, and determination of approval level required.

Division Directors approve intermediate milestones. The Office of Assessment and Assurance reviews requests for changes in Task completion dates and submits them for approval at the appropriate level. The ALD for Operations approves changes on task completion dates of less than six months.

The DOE/SF Director, Office ofEnergy Research, approves task deletions, changes of task descriptions and schedule changes of more than six months. DOE/HQ, Director of the Office of Nuclear Physics, reviews tasks whose completion dates are changed by one year or more (see table in Attachment 10).

The Corrective Action Plan is updated annually to reflect progress to date, and current knowledge of funding availability and its impact on scheduling. The revised CAP, when approved by DOE/HQ, Director of

the Office of Nuclear Physics, will establish a new baseline for budget and schedule for that current fiscal year.

## C. Management Procedures

To ensure completeness, the project management process uses the LCATS database as the primary source of information. The overall purpose is to build on this database to develop information needed to manage the CAP (i.e., task dependencies). In the management of any project, relationships/dependencies between tasks are critical to identify and understand. This process involves several or all of the following:

- Prioritize task groupings to analyze task interdependencies (e.g., groupings of tasks could be based on those tasks significant to a specific Task Master, concern group, or those tasks significant to a specific program of the Laboratory). Depending upon the complexity of these groupings, they could involve one or several Task Masters, or a division. An example of a task grouping is shown in Attachment 11 (Concern Grouping SA-1, Self Assessment).

- If necessary, meet with the Task Masters impacted by these dependencies to verify coordination issues. Highlight current disconnects (where the start of one task is impacted or delayed by the completion of another task) and upcoming dependencies as "hot spots" or potential problem areas.

- Review "hot spots" with OAA to determine level of review (high impact/low impact) and modifications required to the cost or schedule.

- After identifying that "hot spots" do require a change to cost or schedule, alternative solutions are developed to address the issue, such that there is, at worst, minimal impact to the cost or schedule, or ideally a mitigation of the problem.

- Review alternate solutions with OAA and the impacted Task Masters. Obtain concurrence on action to be taken by all parties involved, obtain required change approval (Section 2). Formalize the solution by making the adjustments to the cost and/or schedule in the LCATS database.

- As the completion of tasks is entered into the LCATS system, use the historical dependency data developed to continuously

monitor the progress of remaining tasks to determine if future changes will introduce any significant impact.

The Project Management software used in the Macintosh environment is *Micro-Planner X-Pert*. This serves as the management tool to analyze schedule and task relationships. Dependency information is created and presented in this format. Routines have been developed so that the LCATS database can down-load information into this program. The interface created between the database and the project management program provides a powerful tool to both manage the update and reporting functions, as well as the schedule changes due to task updates and adjustments.

## D. Task/Concern Closure

Final acceptance and closing of tasks are documented and signed by Division Directors after task completion by Task Masters.

The completion of all tasks required for the closing of concerns is tracked by the Office of Assessment and Assurance. Concern and Finding closures are then transmitted to ALD Operations for approval, and finally to DOE/SF for verification.

Reviews of specific Findings and/or Concerns requested by DOE/SF Director, Energy Research Division, are scheduled with the Office of Assessment and Assurance. Upon verification of the Finding/Concern closure, the DOE/SF Director, Energy Research Division, issues a confirming letter of acceptance to LBL.

## E. Reporting

The LCATS is also used to generate reports. A monthly report (Attachment 12) is prepared for distribution to Division Directors and Laboratory management, and the DOE/SF Director, Energy Research Division. This report summarizes milestone and task completion, costs spent to date, and changes to cost and schedule. A detailed attachment (Attachment 13) provides complete information on the summary data. An additional attachment (Attachment 14) identifies milestones with completion dates scheduled to occur in the following three months. The monthly reporting calendar is shown in Attachment 15.

Monthly statistical reports are prepared for DOE-SF. These are also automatically generated by the LCATS. This report describes the current status of all Corrective Action Plan tasks and provides detailed

information on completed tasks and tasks which have slipped (see Attachment 16).

## V. QUALITY ASSURANCE

The Office of Assessment and Assurance is responsible for the overall Corrective Action Plan management and implementation. Through the project management process, the Office provides assurance that the Corrective Action Plan is implemented in accordance with the Tiger Team Assessment. The Quality Assurance process involves a range of personnel and departments, and consists of: (1) Quality Control, and (2) Oversight.

### A. Quality Control

- DOE/SF Energy Research Division staff review the progress of tasks as described in the LBL monthly reports and provide any clarification and guidance needed. On an annual basis, DOE/SF will review the Corrective Action Plan progress with DOE/HQ, Office of Nuclear Physics.

- Division Directors review and approve task progress and provide the necessary management, direction, and resources to ensure that the tasks are proceeding as planned.

- The Office of Assessment and Assurance reviews the monthly update information provided by the Task Masters and approved by the Division Directors, prior to its input into the LCATS database. Questions that are raised are taken back to the Task Masters for clarification; this is accomplished within the time-frame of the monthly reporting calendar. This provides a tertiary level of check for the entire management system. It is at this level where any inconsistencies, discrepancies, or disconnects are reviewed monthly from the perspective of the overall Corrective Action Plan. Significant deviations from the baseline are brought to the attention of the ALD for Operations.

- The LBL Budget Office is responsible for the coordination of budget proposal preparation and submission. All budget submissions are reviewed for accuracy and completeness.

- Task Masters plan and complete their assigned tasks, and provide the primary effort to ensure that the work is accomplished and documented in accordance with the appropriate DOE Orders and regulations, as well as with Federal, State, local, and LBL guidelines. Through the monthly reporting

system, the progress and cost updates are submitted to the Division Director, (or to the Department Directors if responsibility has been delegated to them) for review and approval.

## B. Oversight

Oversight and verification is provided at each step of the Quality Control process. Overall review of the Corrective Action Plan is provided by the Office of Assessment and Assurance. This occurs during Division, ES&H, and management reviews as well as periodic reviews of specific tasks on a random basis.

# VI. ATTACHMENTS

Check here for no activity this month ☐

sk ID T8673 QA/CO Training

Linked Concerns: MF-22 OP.2-2

Costs

| FY | Cost Type | Original Projected Cost | Total Cost to Date | | Adjusted Projected Cost | |
|---|---|---|---|---|---|---|
| | | | Cummulative | Add'l this period | Current | New |
| 91 | Program | 60,000 | 40,000 | _____ | 40,000 | _____ |
| 92 | Program | 40,000 | 2,000 | _____ | 60,000 | _____ |

lestone

Projected Completion Dates: Original Current

3673.836 QA/CO training for pilot facilities

* Milestone Completed 5/30/91 *

3673.837 QA/CO training on pilot projects/functions

* Milestone Completed 6/30/91 *

8673.839 Completed QA/CO training of supervisors 12/30/91 10/30/92

__ Complete Date complete _____

__ Reschedule New projected completion date _____

Reason for rescheduling _____

Additional resources required to complete on schedule

_____

__ On Schedule

Additional comments _____

8673.840. Training of staff completed 3/30/92 1/30/93

__ Complete Date complete _____

__ Reschedule New projected completion date _____

Reason for rescheduling _____

Additional resources required to complete on schedule

_____

__ On Schedule

Additional comments _____

OPERATIONS DIRECTOR SIGNATURE FOR TASK T8673:

_____

**Table 1-1. Combined implementation and ongoing costs by FY for all LBL Tasks ($M, in FY1992 dollars)**

| FY | Program ES&H Activities | Existing ES&H Support | New ES&H Activities | ERWM | GPP | GPE | MEL-FS | Total |
|---|---|---|---|---|---|---|---|---|
| 90 | .02 | .16 | 0 | 0 | .22 | 0 | .41 | .81 |
| 91 | .78 | 1.31 | 1.05 | 2.98 | .20 | .28 | 2.21 | 8.81 |
| 92 | 2.07 | 3.14 | 4.18 | 2.70 | .89 | .61 | 1.91 | 15.50 |
| 93 | 1.68 | 2.12 | 4.68 | 2.20 | 1.26 | .69 | .65 | 13.28 |
| 94 | 1.67 | 1.70 | 4.41 | .91 | 1.24 | .50 | 3.60 | 14.03 |
| 95 | 1.67 | 1.70 | 4.22 | .90 | 1.04 | .50 | 5.95 | 15.98 |
| 96 | 1.67 | 1.71 | 4.52 | .83 | 1.00 | .50 | 4.00 | 14.23 |
| Total | 9.56 | 11.84 | 23.06 | 10.52 | 5.85 | 3.08 | 18.73 | 82.64 |

*Total Implementation Cost* $53.79
*Total Ongoing Cost* $28.83

**Table 1-2. CAP Planned Progress**

| Year | Number of Concerns Closed* | Percent of Actions Completed |
|---|---|---|
| 1991 | 47 | 14 |
| 1992 | 193 | 71 |
| 1993 | 56 | 87 |
| 1994 | 31 | 96 |
| 1995 | 9 | 99 |
| 1996 | 3 | 100 |

*Includes open 1990 TSA concerns

Figure 4-1.
LBL TIGER TEAM CORRECTIVE ACTION PLAN

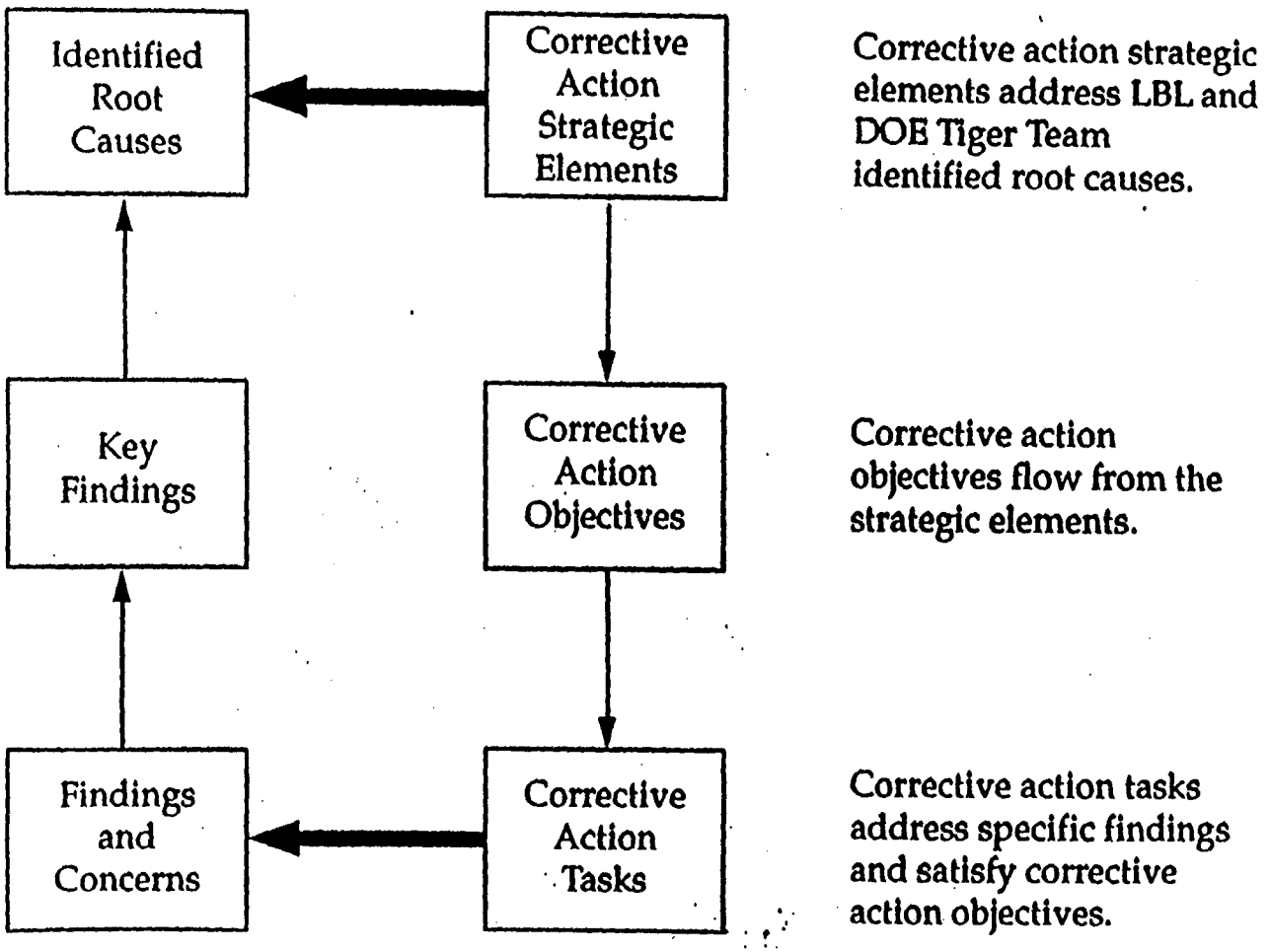
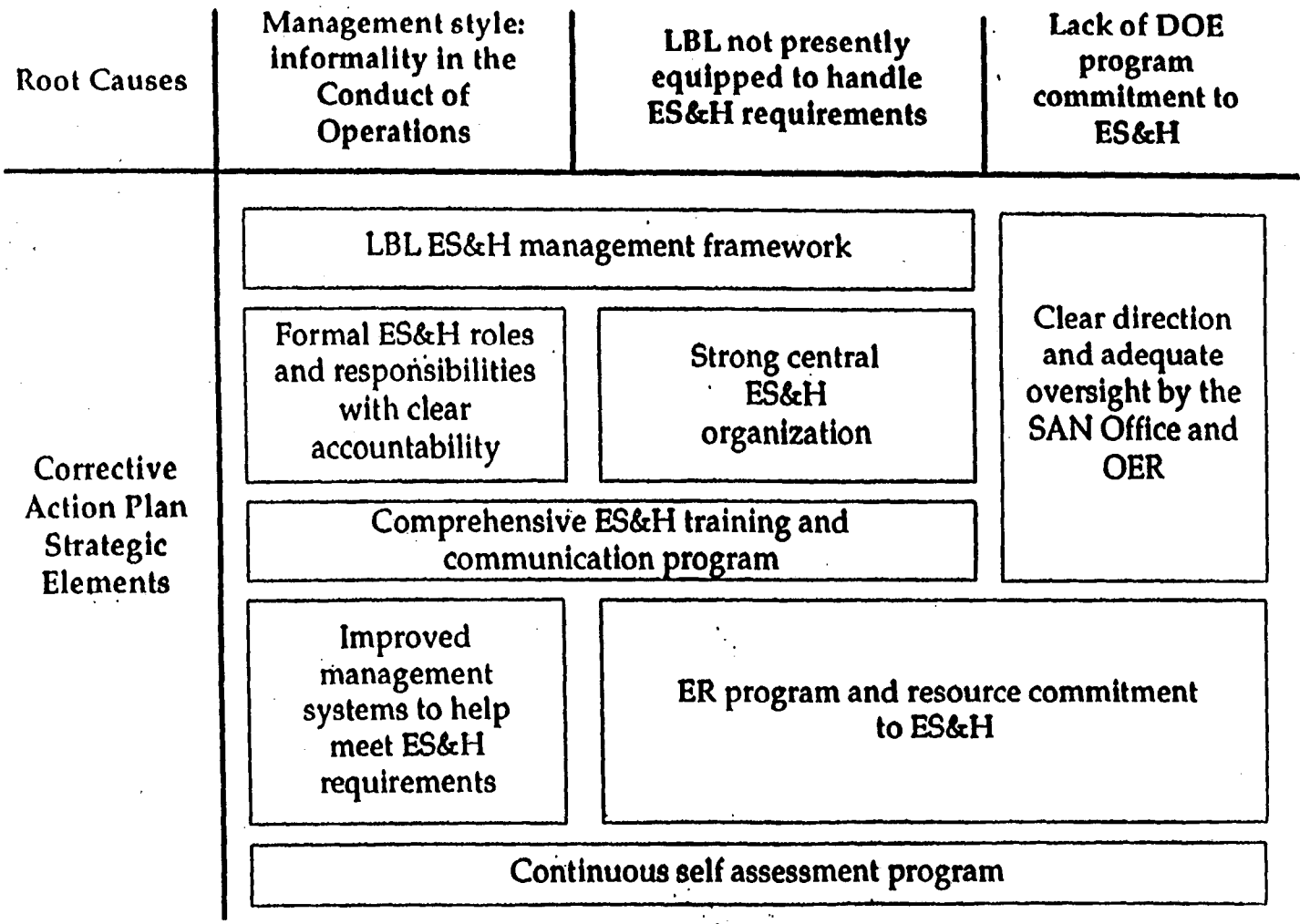


Figure 4-2.
ROOT CAUSES AND CORRECTIVE ACTION PLAN STRATEGIC ELEMENTS




ATTACHMENT 7

Table 4-1.
CORRECTIVE ACTION PLAN
STRATEGIC ELEMENTS AND OBJECTIVES

| | |
|---|---|
| ES&H management framework | Establish integrated ES&H program including:<br>—Measurable goals and objectives<br>—Policy statements and implementing procedures<br>—Apply graded approach to Conduct of Operations<br>—Implement QA program in ES&H areas |
| Formal ES&H roles, responsiblities and clear accountability | Define clearly job responsibilities and expectations<br><br>Strengthen performance appraisal process to be more comprehensive and stricter on ES&H performance<br><br>Formalize organizational relationships |
| Strong central ES&H organization | Identify functions performed by the centralized ES&H organization<br><br>Define interfaces with line organizations<br><br>Provide adequate resources to carry out these functions<br><br>Bring hazardous waste handling activities into compliance<br><br>Improve environmental monitoring program<br><br>Improve occupational safety and health programs |
| Comprehensive ES&H training and communication program | Assessment of training needs for all levels of the Laboratory<br><br>Prepare training materials<br><br>Provide adequate training<br><br>Update tracking system |

**Table 4-1 (continued).**
**CORRECTIVE ACTION PLAN**
**STRATEGIC ELEMENTS AND OBJECTIVES**

| | |
|---|---|
| Augmented management systems to help meet ES&H requirements | Incorporate ES&H strategy in long range planning processes<br><br>Implement graded approach to QA and Conduct of Operations<br><br>Upgrade corrective action management system<br><br>Improve document control system<br><br>Improve Emergency Preparedness System |
| Multi-level self-assessment program | Define responsibilities for multi-level self-assessment program<br><br>Use measurable performance objectives/performance indicators<br><br>Establish risk-based prioritization methodology<br><br>Establish trend analysis activity<br><br>Broaden lessons-learned program |
| Direction and oversight by SAN and ER | Clarify guidance to SAN and LBL<br><br>Improve oversight activities |
| ER program and resource commitment to ES&H | Clarify ES&H responsibilities of ER program offices<br><br>Improve integration of Laboratory ES&H planning into ER budget process |

IP Change Order

ORRECTIVE ACTION PLAN TASK CHANGE ORDER FORM — DESCRIPTION OF CHANGE

ask Master: Ken Rivera — Division: DOE — Extension

Date: 7/8/92 — Task ID: T1076 — Change Order #: T1076.C1

☐ **DELETE TASK:**

☐ **CHANGE TASK DESCRIPTION:**

**Current Task Description:**

DOE/SF is fully committed to achieving and maintaining an emergency program that is effective and in compliance with applicable DOE Orders. DOE/SF will: (1) Prepare and issue a new Memorandum of Agreement (MOA) delineating the emergency preparedness responsibility of the AMEMS, AMEP and AMDP. (2) Establish a DOE/SF emergency response organization. The organization will support emergencies within DOE/SF and those areas specified in the MOA. (3) Develop a DOE/SF Master Emergency Plan and Implementing Procedures. (4) Develop an internal audit system to ensure compliance with applicable DOE Orders and directives.

**Proposed Task Description (attach additional sheets as needed)**

☐ **CHANGE TASK SCHEDULE:**

| | | CURRENT SCHEDULE | REVISED |
|---|---|---|---|
| T1076.1 | MOA finalized | 3/30/92 | |
| T1076.1814 | DOE/SF emergency organization established | 5/29/92 | |
| T1076.1815 | Audit procedures were developed & implemented | 4/30/92 | |
| T1076.2 | DOE/SF Master Plan developed and issued | 4/30/92 | |

**JUSTIFICATION (include budget impact if relevant)**

ORRECTIVE ACTION PLAN TASK CHANGE ORDER FORM — SUMMARY & APPROVALS

ısk Master: Ken Rivera | Division: DOE | Extension:

Date: 7/8/92 | Task ID: T1076 | Change Order #: T1076.C1

**OAA IMPACT SUMMARY (for OAA use only):**

**APPROVALS:**

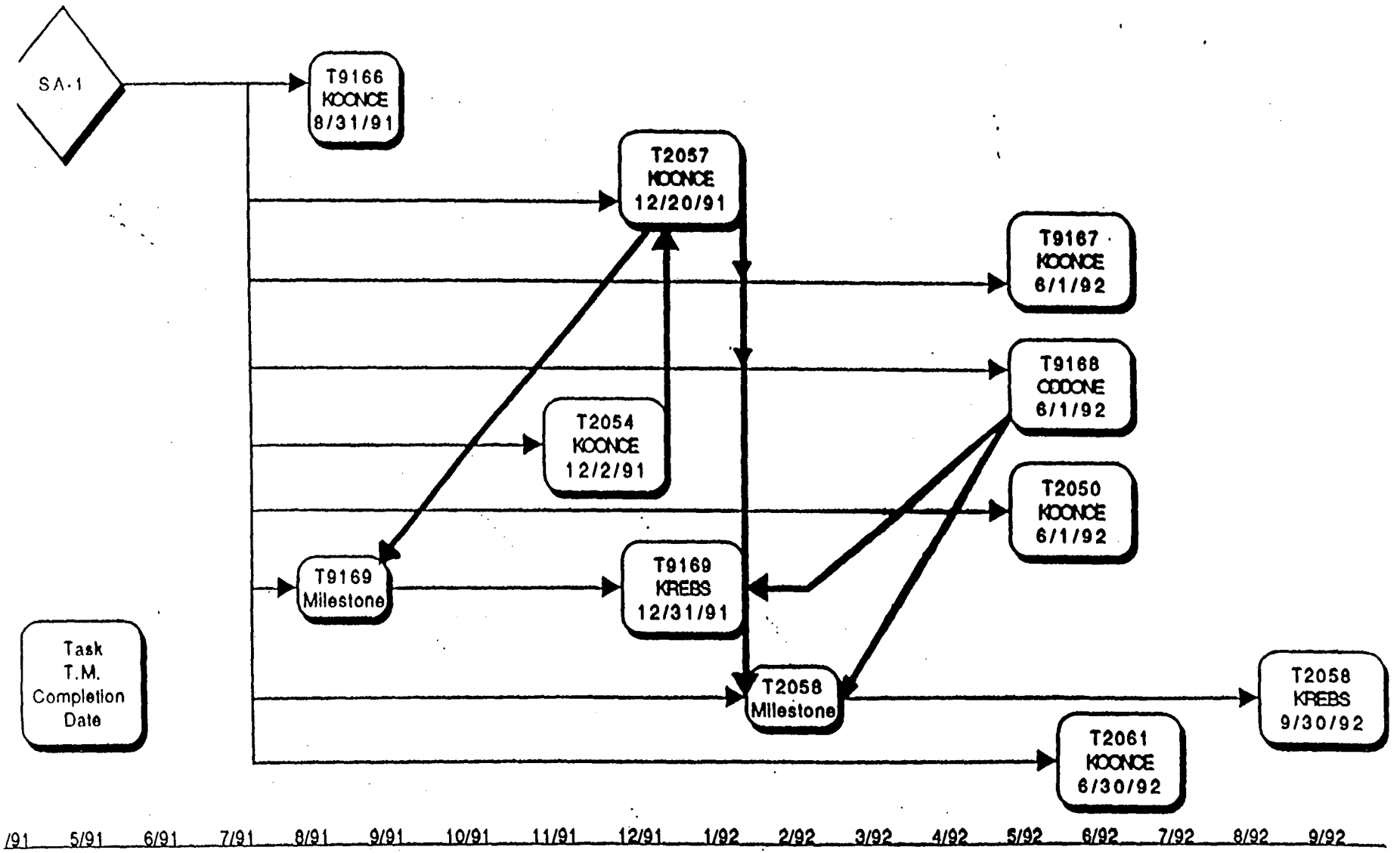
| | | | |
|---|---|---|---|
| Division Director (all changes) | Date | DOE-SF Director, Energy Research (reschedule > 6 months, changed or deleted task) | Date |
| ALD, Operations (all changes) | Date | DOE-HQ, Director, Office of Nuclear Physics (reschedule > 1 year) | Date |

# CHANGE CONTROL REVIEW AND APPROVAL

| Task Change | Approval By |
|---|---|
| < 6 months | LBL, ALD Operations |
| 6–12 months; deleted task; changed task description | DOE/SF Director, Office of Energy Research |
| >12 months | DOE/HQ, Director, Office of Nuclear Physics |

ATTACHMENT 10

# SAMPLE: SELF ASSESSMENT DEPENDENCIES & LINKAGES




ATTACHMENT 11

ATTACHMENT 12

Memorandum

Lawrence Berkeley Laboratory
Office of Assessment and Assurance
Building 50A Room 5117 Ext 4200

January 23, 1992

**To:** David McGraw
EH&S

**From:** Buck Koonce

**Subject:** Corrective Action Monthly Report

Attached is:
(1) the current milestone and cost change activity listing for Task Masters in your division. The listing is done by department (when available), within department by Task Master, and within task by milestone activity for the period covered. Completed, overdue, and re-scheduled milestones are listed. Task cost estimate changes are also listed.
(2) a list of all milestones overdue and due in the next 90 days, sorted by due date.

Shown below on this sheet is a summary of your division assignments--completed tasks and milestones and overdue milestones--and a summary of the milestone and cost change activity listing for your division for the period covered.

If you have questions or need assistance, please call Heather Freeman at ext. 5161.

TOTAL ASSIGNMENTS

| TASKS | MILESTONES |
|---|---|
| Assigned: 182 | Assigned: 728 |
| Complete: 38 | Complete: 266 |

ACTIVITY FOR PERIOD: 9/30/1989 - 12/20/1991

Milestone Activity

| Type | Count |
|---|---|
| Add Comment | 23 |
| Completed | 250 |
| MS OVERDUE | 30 |
| New Task master | 9 |
| Re-Schedule | 124 |
| Rev. Cost Est. | 71 |

Change in Cost Estimates

| FY and Type | Amount of change |
|---|---|
| 91 ERWM | 36,000 |
| 91 Overhead | 98,400 |
| 91 Program | 3,000 |
| 92 ERWM | 91,000 |
| 92 GPE | 26,000- |
| 92 Overhead | 156,262 |
| 92 Program | 128,000- |
| 93 Overhead | 200,000 |

Note: Milestone totals include all milestones of tasks with Task Masters in your division, including those with milestone masters in other divisions. (It is the responsibility of the Task Master to ensure that all milestones are complete.) An overdue milestone is one whose due date is past but has not been noted as completed or rescheduled, i.e., there should have been activity and was not.

rtment:

| ter | ID | Action | From | To | Task/Milestone/Reason for change/Resources needed/Comments |
|---|---|---|---|---|---|
| ey | T1001.1303 | Completed | | | Prepare Waste Minimization Plan: Waste minimization specialist hired<br>Completed as of 8/1/91 |
| ley | T1001.1304 | Completed | | | Prepare Waste Minimization Plan: Waste Minimization Plan prepared<br>Completed as of 8/15/91 |
| ley | T1001.1305 | Completed | | | Prepare Waste Minimization Plan: Waste Minimization Plan reviewed<br>Completed as of 8/20/91 |
| ley | T1001.1306 | Completed | | | Prepare Waste Minimization Plan: Waste Minimization Plan revised<br>Completed as of 9/1/91 |
| ley | T1001.1307 | Completed | | | Prepare Waste Minimization Plan: Waste Minimization Plan approved<br>Completed as of 9/1/91 |
| ley | T1001.1311 | Re-Schedule | 11/1/91 | 9/1/92 | Prepare Waste Minimization Plan: Waste Minimization Plan implemented<br>REASON: ? |
| tley | T1001.1 | Completed | | | Prepare Waste Minimization Plan: Regulations reviewed<br>Completed as of 6/15/91 |
| tley | T1001 | Rev. Cost Est | 62500 | 0 | Prepare Waste Minimization Plan<br>Overhead |
| rtley | T1001 | Rev. Cost Est | 0 | 63000 | Prepare Waste Minimization Plan<br>ERWM |
| rtley | T1003.1317 | Completed | | | Develop Waste Characterization Program: Existing Waste Analysis Plan reviewed<br>Completed as of 8/1/91 |
| rtley | T1003.1318 | Completed | | | Develop Waste Characterization Program: Waste Characterization Plan prepared<br>Completed as of 8/30/91 |
| rtley | T1003.1319 | Completed | | | Develop Waste Characterization Program: Waste Characterization Program plan reviewed<br>Completed as of 7/15/91 |
| rtley | T1003.1320 | Completed | | | Develop Waste Characterization Program: Waste Characterization Program plan approved<br>Completed as of 9/1/91 |
| rtley | T1003.1321 | Completed | | | Develop Waste Characterization Program: Waste Characterization Program plan implemented<br>Completed as of 12/1/91 |
| rtley | T1003.1512 | Completed | | | Develop Waste Characterization Program: Waste Characterization Program plan revised<br>Completed as of 8/1/91 |
| rtley | T1003.1 | Completed | | | Develop Waste Characterization Program: Regulations reviewed<br>Completed as of 6/7/91 |

ATTACHMENT 13

EH&S LCATS Milestones Due in next 90 days 01/23/1992-04/22/1992

| er | ID | | Due | | Task/Milestone |
|---|---|---|---|---|---|
| ides | T8719.940 | Overdue | 3/1/91 | | Correct Deficiencies in Equip. Procurement & Use: Rescue equipment inspections completed |
| | T3019.1 | Overdue | 9/1/91 | | NDE Training Program: QC/NDE Program need assessed |
| | T3019.2 | Overdue | 9/10/91 | | NDE Training Program: QC/NDE Training Program prepared |
| zow | T2085.1605 | Overdue | 9/15/91 | | Standard QA/QC Requirements for ES&H Subcontractor: QA/QC provisions provided |
| | T3019.3 | Overdue | 9/15/91 | | NDE Training Program: QC/NDE Training Program initiated |
| er | T8742.1043 | Overdue | 11/15/91 | | Environmental Monitoring Plan : Environmental Monitoring Plan implemented |
| er | T1040.984 | Overdue | 12/1/91 | | Environmental Protection Plan Update: Environmental Protection Plan revised |
| enhous | T1081.1 | Overdue | 12/12/91 | | External and Internal Radiation Exposure Doc.: Radiation exposure recording procedures approved |
| er | T1040.985 | Overdue | 12/15/91 | | Environmental Protection Plan Update: Environmental Protection Plan approved |
| er | T1041.572 | Overdue | 12/15/91 | | Long Range Environmental Plan Preparation/Update: Requirements in DOE Order 5400.1 reviewed |
| epping | T9066.1356 | Overdue | 12/15/91 | | Certification Plan Preparedness with Hanford: Coordination confirmed |
| enhous | T9091.1430 | Overdue | 12/15/91 | | Implement QA of Gamma Film and TLD Dosimeters: TLD testing procedure drafted |
| dner | T4013.1258 | Overdue | 12/16/91 | | Develop Correct and Proper OSHA Log Procedures: Members appointed to OSHA Log Review Committee |
| leimer | T4016.1029 | Overdue | 12/17/91 | | Environmental ALARA Policy: ALARA Requirements of DOE Order 5400.5 reviewed |
| Graw | T8637.720 | Overdue | 12/18/91 | | Appoint Building Managers: New candidates identified |
| tley | T2076.2 | Overdue | 12/19/91 | | QA Guidance for Hazardous Waste Generators: Hazardous waste generators trained |
| hmidt | T1097.1 | Overdue | 12/20/91 | | Prepare Internal Dosimetry Procedures: Internal dosimetry procedure documents reviewed |
| hmidt | T1100.1 | Overdue | 12/20/91 | | Prompt Response: WBC Operation |
| epping | T4026.1 | Overdue | 12/20/91 | | Radiological Workplace Assessment: Write workplace radiological assessment protocol |
| rtley | T9106.1509 | Overdue | 12/20/91 | | Update Implementation Plan: Implementation plan revised |
| uer | T1040.986 | Overdue | 12/30/91 | | Environmental Protection Plan Update: Environmental Protection Plan implemented |
| epping | T4031.1447 | Overdue | 12/30/91 | | Interim Survey Procedural Corrections: Procedure for monitoring/tagging of items complete |
| auffer | T1065.1 | Overdue | 1/1/92 | | Develop Occupational Medical Plan (OMP): LBL documents centralized; LLNL documents reviewed |
| auffer | T1067.1 | Overdue | 1/1/92 | | Develop Occupational Medical QA Plan: Current OMQAP and analogous documents reviewed |
| chleimer | T4015.557 | Overdue | 1/1/92 | | Environmental Management Report: DOE Orders reviewed |
| chleimer | T4027.1 | Overdue | 1/1/92 | | Calibration of Workplace Air Samplers: Procedures revised |
| osen | T9149.1698 | Overdue | 1/1/92 | | Train HEPA Filter Test Technician: HEPA technician training completed |
| artley | T8681.1526 | Overdue | 1/3/92 | | Contingency Plan for WAAs/SAAs: Contingency plans revised |

ATTACHMENT 14

# Monthly Report Schedule

**LAWRENCE BERKELEY LABORATORY**
**PROJECT MANAGEMENT**
**MONTHLY REPORT SCHEDULE**
**CORRECTIVE ACTION PLAN**

| Task | Work Day | 1st Rpt. | Qtrly JAN | FEB | MAR | Qtrly APR | MAY | JUN | Qtrly JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Distribute monthly update forms to TM | 6 | 11/15 | 1/9 | 2/10 | 3/9 | 4/8 | 5/8 | 6/8 | 7/9 | 8/10 | 9/9 |
| Completed update form, certified by Division Director if necessary, returned to OAA | 14 | 12/6 | 1/22 | 2/21 | 3/19 | 4/20 | 5/20 | 6/18 | 7/21 | 8/20 | 9/21 |
| OAA: data from update forms entered | 17 | 12/13 | 1/27 | 2/26 | 3/24 | 4/23 | 5/26 | 6/23 | 7/24 | 8/25 | 9/24 |
| Prepare and Distribute CAP Monthly Report | 20 | 12/20 | 1/30 | 2/28 | 3/27 | 4/28 | 5/29 | 6/26 | 7/29 | 8/28 | 9/29 |
| End of Month | Varies | 12/31 | 1/31 | 2/28 | 3/31 | 4/30 | 5/29 | 6/30 | 7/31 | 8/31 | 9/30 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

ATTACHMENT 15

7/7/92 LBL Corrective Action Plan: Category II Concerns Status BOOESF

This period: 6/1/92-6/30/92

| Concern ID | Watkins End Date | Current End Date | 93 Revised End Date | Slip (in days) | Status |
|---|---|---|---|---|---|
| WS.4-1 | 03/01/92 | 04/07/92 | 03/01/92 | 37 | Tasks Complete |
| RP.8-3 | 07/01/92 | 04/24/92 | 07/01/92 | -68 | Tasks Complete |
| PT.5-1/T90 | 06/01/92 | 06/01/92 | 06/01/92 | 29 | Overdue |
| IH.2-2 | 06/01/92 | 06/01/92 | 06/01/92 | 29 | Overdue |
| FP.2-1/T90 | 06/01/92 | 06/01/92 | 06/01/92 | 29 | Overdue |
| IH.2-4 | 06/01/92 | 08/15/92 | 06/01/92 | 75 | On Schedule |
| OS.5-1/T90 | 09/30/92 | 09/30/92 | 09/30/92 | 0 | On Schedule |
| OS.2-2 | 08/01/92 | 10/01/92 | 08/01/92 | 61 | On Schedule |
| RP.10-2 | 04/01/93 | 04/01/93 | 04/01/93 | 0 | On Schedule |
| RP.5-3 | 09/30/94 | 09/30/93 | 09/30/94 | -365 | On Schedule |

End dates are computed based on the latest date among all linked tasks.
Current end date: for completed tasks, the actual end date is considered; otherwise the projected end date is used.
93 revised end date: based on date as of 10/01/91.
"Overdue" refers to a concern with a current end date less than the end date of this period.
"Slip" refers to the difference between the current and revised end date in the case of incomplete, but not overdue concerns.
"Slip" refers to the difference between revised and period end date in the case of incomplete, overdue concerns.
"Slip" refers to the difference between revised and actual date due in the case of complete tasks.

7/7/92

# LBL Corrective Action Plan: CAP Statistics

CDOESF

| | This Period 6/1/92-6/30/92 | Cumulative To Date 6/30/92 |
|---|---|---|
| Tasks planned complete | 33 | 257 |
| Tasks actually complete | 1 | 136 |
| Tasks rescheduled | 30 | 162 |
| Tasks completed on planned schedule | 0 | 80 |
| Tasks completed behind planned schedule | 1 | 56 |
| Tasks overdue--not rescheduled | 10 | 28 |
| Tasks overdue--rescheduled | 7 | 29 |

"Planned" refers to schedule as of 10/01/91.
"Rescheduled" refers to the projected date due adjusted to be later than the date due as of 10/01/91.
"Overdue" refers to incomplete tasks with a projected date less than the end date of this period.

| Task ID | Responsible Division | Completion Date | DOE SF Validation Date |
|---|---|---|---|
| T9135 | EH&S | 6/15/92 | 00/00/00 |
| T2169 | EH&S | 5/21/92 | 00/00/00 |
| T4013 | EH&S | 5/8/92 | 00/00/00 |
| T4120 | DOE | 5/7/92 | 00/00/00 |
| T4056 | DOE | 5/1/92 | 00/00/00 |
| T4025 | EH&S | 5/1/92 | 00/00/00 |
| T3 | Admin | 5/1/92 | 00/00/00 |
| T1027 | C&M | 5/1/92 | 00/00/00 |
| T5024 | EH&S | 4/30/92 | 00/00/00 |
| T1030 | Plant | 4/30/92 | 00/00/00 |
| T9111 | OPD | 4/28/92 | 00/00/00 |
| T4072 | DOE | 4/27/92 | 00/00/00 |
| T1104 | EH&S | 4/24/92 | 00/00/00 |
| T8684 | EH&S | 4/20/92 | 00/00/00 |
| T2100 | Plant | 4/20/92 | 00/00/00 |
| T2103 | Plant | 4/17/92 | 00/00/00 |
| T2026 | Operations | 4/14/92 | 00/00/00 |
| T2025 | Operations | 4/14/92 | 00/00/00 |
| T2159 | EH&S | 4/10/92 | 00/00/00 |
| T2155 | Plant | 4/10/92 | 00/00/00 |
| T2098 | EH&S | 4/10/92 | 00/00/00 |
| T1122 | DOE | 4/10/92 | 00/00/00 |
| T5005 | Admin | 4/9/92 | 00/00/00 |
| T8674 | Operations | 4/8/92 | 00/00/00 |
| T2095 | EH&S | 4/7/92 | 00/00/00 |
| T3010 | Eng | 4/6/92 | 00/00/00 |
| T3008 | Eng | 4/6/92 | 00/00/00 |
| T8681 | EH&S | 4/1/92 | 00/00/00 |
| T2084 | Admin | 3/31/92 | 00/00/00 |
| T2048 | OPD | 3/31/92 | 00/00/00 |
| T1052 | DOE | 3/25/92 | 00/00/00 |

Tasks are sorted inversely by completion date.

LBL Corrective Action Plan: Slipped and/or Past Due Tasks



This period: 6/1/92-6/30/92

| Task ID | Priority | Planned Due Date | Current Due Date | Slip (in days) |
|---|---|---|---|---|
| T1077 | A | 8/1/92 | 10/1/92 | 61 |
| T2173 | A | 5/1/92 | 10/30/92 | 182 |
| T2174 | A | 11/15/92 | 4/30/93 | 166 |
| T3019 | A | 9/15/91 | 7/31/92 | 320 |
| T4003 | A | 6/1/92 | 6/1/92 | 29 |
| T4005 | A | 6/1/92 | 6/1/92 | 29 |
| T4009 | A | 6/1/92 | 8/15/92 | 75 |
| T4031 | A | 12/15/91 | 6/15/92 | 198 |
| T4089 | A | 4/1/92 | 4/1/93 | 365 |
| T4102 | A | 6/15/92 | 6/15/92 | 15 |
| T4103 | A | 4/1/92 | 7/30/92 | 120 |
| T5020 | A | 2/1/92 | 6/1/93 | 486 |
| T8647 | A | 6/1/92 | 9/30/92 | 121 |
| T8718 | A | 6/1/92 | 3/30/93 | 302 |
| T9091 | A | 2/1/92 | 9/1/92 | 213 |
| T1016 | B | 4/1/92 | 7/30/92 | 120 |
| T1074 | B | 11/30/91 | 5/30/92 | 213 |
| T2022 | B | 2/1/92 | 9/1/92 | 213 |
| T2023 | B | 6/1/92 | 9/1/92 | 92 |
| T2049 | B | 4/15/92 | 8/15/92 | 122 |
| T2051 | B | 12/15/91 | 9/15/92 | 275 |
| T2057 | B | 12/20/91 | 5/5/92 | 193 |
| T2083 | B | 9/30/92 | 1/15/93 | 107 |
| T2085 | B | 9/15/91 | 6/5/92 | 289 |
| T2086 | B | 12/30/91 | 3/31/92 | 183 |
| T2106 | B | 9/30/92 | 10/1/92 | 1 |
| T3003 | B | 2/15/93 | 2/15/95 | 730 |
| T3020 | B | 4/1/92 | 9/30/92 | 182 |
| T4012 | B | 6/1/92 | 6/1/92 | 29 |
| T4059 | B | 1/15/92 | 5/15/92 | 167 |
| T4060 | B | 1/30/92 | 5/30/92 | 152 |
| T4071 | B | 2/28/92 | 7/31/92 | 154 |

Tasks are sorted by priority

7/7/92

# LBL Corrective Action Plan: Change Orders this Period

FOOES

This period: 6/1/92-6/30/92

| Task ID | Change Order ID | Type of Change |
|---|---|---|
| T1018 | T1018.C1 | Reschedule |
| T1021 | T1021.C1 | Reschedule |
| T1074 | T1074.C1 | Reschedule |
| T1100 | T1100.C1 | Reschedule |
| T2023 | T2023.C1 | Reschedule |
| T2049 | T2049.C1 | Reschedule |
| T2051 | T2051.C1 | Reschedule |
| T2072 | T2072.C1 | Reschedule |
| T2085 | T2085.C1 | Reschedule |
| T2138 | T2138.C1 | Reschedule |
| T2165 | T2165.C1 | Reschedule |
| T3031 | T3031.C1 | Reschedule |
| T4009 | T4009.C1 | Reschedule |
| T4020 | T4020.C1 | Reschedule |
| T4030 | T4030.C1 | Reschedule |
| T4057 | T4057.C1 | Reschedule |
| T4060 | T4060.C1 | Reschedule |
| T4066 | T4066.C1 | Reschedule |
| T4074 | T4074.C1 | Reschedule |
| T4108 | T4108.C1 | Reschedule |
| T4125 | T4125.C1 | Reschedule |
| T8718 | T8718.C1 | Reschedule |
| T8719 | T8719.C1 | Reschedule |
| T8755 | T8755.C1 | Reschedule |
| T9065 | T9065.C1 | Reschedule |
| T9077 | T9077.C1 | Reschedule |
| T9091 | T9091.C1 | Reschedule |
| T9103 | T9103.C1 | Reschedule |
| T9144 | T9144.C1 | Reschedule |
| T9172 | T9172.C1 | Reschedule |