Department of Energy
Washington, DC 20585

September 2, 2005

Memorandum For: Raymond L. Orbach, Director
Office of Science (SC-1)

James A. Rispoli
Assistant Secretary for
Environmental Management (EM-1)

Through: Ines R. Triay
Chief Operating Officer for
Environmental Management (EM-3)

From: Richard L. Dailey
Federal Project Director
Oakland Projects Office

Subject: ACTION: Approval of the Site Transition Plan (STP) for Lawrence Berkeley National Laboratory (LBNL)

Issue: None.

Background: In accordance with the Draft SC/EM Terms and Conditions for Site Transition and the Site Transition Framework EM has previously used, representatives from SC and EM Headquarters and Field Organizations developed a STP for LBNL. This STP identifies those items that must be completed and tracked to complete the EM cleanup mission and to enable the transition to occur from EM to SC.

Discussion: The attached STP dated August 30, 2005 for LBNL is submitted for your approval. The responsibility for the LBNL project will transition from EM-1 to SC-1 on October 1, 2006. A Critical Decision (CD) – 4 package will be submitted to document the completion of the EM cleanup mission and achievement of the objectives described in the STP for LBNL. The final acceptance of the LBNL project will be contingent upon the approval of the final CD-4 package.

Sensitivities: None.

Policy Impact: None.

Recommendation: Approve the STP for LBNL.

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Attachment

Approval: _____

Disapproval: _____

Date: _____

cc: Stephanie Short, SC-25.2
Leah Dever, SC-31
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Sandra Johnson, EM-3.4
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Site Transition Plan (STP)

Transition of the
Lawrence Berkeley National Laboratory
Long -Term Surveillance and Maintenance
from the Office of Environmental
Management to the Office of Science

August 30, 2005

Executive Summary

The primary objective of this transition plan for the Lawrence Berkeley National Laboratory (LBNL) is to identify the actions needed to transition the responsibility for Long-Term Surveillance and Maintenance (LTS&M) from the Office of Environmental Management (EM) Oakland Projects Office (OAK) to the Office of Science (SC) Berkeley Site Office (BSO). SC is the Program Secretarial Office (PSO) for LBNL, a multi-program national laboratory managed by the University of California (UC) for the Department of Energy (DOE). Based on the LBNL Long-Range Development Plan, land use at LBNL will remain institutional (i.e., a DOE research facility) for the foreseeable future. LBNL's Hazardous Waste Handling Facility (HWHF) operates under the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Permit, and all hazardous waste and hazardous constitu-ent investigations and corrective measures fall under the purview of this permit. The permit requires LBNL to investigate and address historic releases of hazardous waste and constitu-ents that may have occurred throughout the LBNL site. Since radionuclides and radioactive waste are not regulated under the Resource Conservation and Recovery Act (RCRA), a similar process was conducted following the Atomic Energy Commission/DOE regulations and requirements.

This Site Transition Plan (STP) explains the transition requirements that must be met and activities that must be completed so EM can transfer management of LTS&M at LBNL to SC beginning October 1, 2006. The STP also describes the sites, treatment systems, and monitoring system that will be transferred along with the administrative and execution responsibilities necessary to satisfy LTS&M require-ments. Activities that EM/OAK has completed include the RCRA Facility Assessment (RFA); the RCRA Facility Investigation (RFI); implementation of various Interim Corrective Measures (ICMs); the development of the Corrective Measures Study (CMS), including a Human Health Risk Assessment (HHRA) and Ecological Risk Assessment; Groundwater Monitoring Schedule; and Radionuclide Investigation. Remaining activities that EM/OAK will complete prior to transition include obtaining regulator approval of the CMS; imple-mentation of corrective measures, including completing remaining soil excavation, installing and testing remaining treatment systems, and implementing required institutional controls; and development of an LTS&M plan. There are no remaining EM activities related to the radionuclide investigation. However, there is long-term groundwater monitoring of the tritium plume associated with the former National Tritium Labeling Facility.

The LTS&M activities that SC/BSO will manage after transition are: 1) operate, maintain, and monitor approximately 12 groundwater treatment systems and approximately 175 groundwater monitoring and extraction wells; 2) maintain institutional controls and perform surveillance of soil cleanup areas; 3) participate & communicate with regulators/stake-holders, including future reviews under RCRA (typically performed every five years); and 4) perform final site closeout and regulatory closure when remedial actions

are completed (i.e., cleanup goals have been met and LTS&M is no longer required). Details of the LTS&M scope are contained in the LBNL project baseline.

Information has been provided by the Chicago Operations Office to the Chief Financial Officer (CFO) to support preparation of the Program Budget Decision (PBD) Document, in accordance with the site baseline. The baseline estimate for the LTS&M activities is between $1,700K and $1,900K annually or $17,656K for the next ten years [Fiscal Year (FY) 2007 to FY 2016). EM has requested the FY 2007 budget for LTS&M and if appropriated, will submit it with the PBD to transfer responsibility for the project to SC. SC will request all future budgets starting in FY 2008.

Upon the completion of all transition action items within this plan, a Critical Decision (CD)-4 package will be submitted documenting EM's completion and verifying the site is ready for transfer. Actions in the STP that remain at transfer are documented in the CD-4 package. The Under Secretary for Energy, Science and Environment must approve the CD-4 package before EM can close its project and SC can accept full responsibility for LTS&M.

Exhibit ES-1. Major Transition Milestones

Milestone	Date
Site Transition Plan approved by EM Assistant Secretary (EM-1) and SC Management Director (SC-1)	8/1/05
Finalize Corrective Measures Study (includes regulator approval)	9/14/05
LTS&M plan is approved	5/9/06
All Corrective Measures implemented	5/15/06
Transfer of all non UC generated records	8/1/06
CD-4 package approved by EM, SC, and DOE Office of Engineering and Construction Management (OECM).	9/15/06
Corrective Measures Implementation (CMI) closure report approved by regulators	9/26/06
SC accepts LBNL LTS&M activities	10/1/06

Exhibit ES-2. Transition Risks

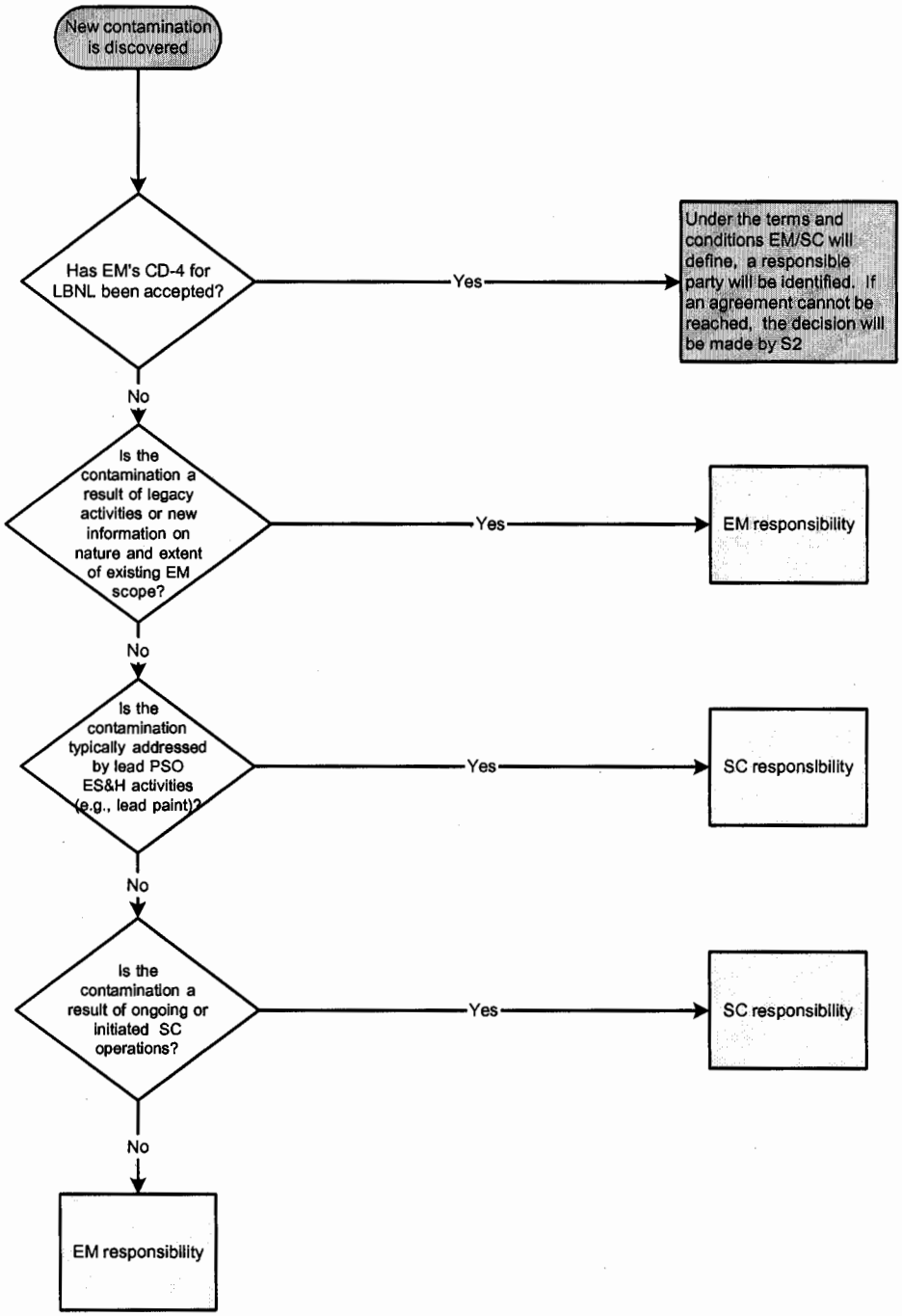
Risk #	Risk / Uncertainty	Likelihood of Occurrence/ Impact to SC	Elimination, Mitigation
1.1	Loss of project knowledge due to transfer from EM to SC	**Low/ Low**	This risk should not materialize because the Federal project manager currently working on the project is an SC employee on detail to EM. That employee is intimately familiar with the project and would most likely continue managing the project after transfer or be available at the Berkeley Site Office (BSO) for consultation. Contractor personnel also do not change with the transfer of the project. Therefore, there is a low likelihood of any significant impact. In addition, the BSO has had an additional representative involved with the EM program for a number of years. This SC employee also attends the monthly project meeting with LBNL project management staff and has familiarity with EM operations at LBNL.
1.2	California Department of Toxic Substances Control (DTSC) does not approve the corrective measures implementation report prior to transition	**Medium/ Low**	There is moderate risk that regulatory approvals will exceed the completion date. EM continues to work with DTSC and the other regulators to accelerate approval of documents. The impact to SC should be minimal because: • The Corrective Measures Implementation report is essentially a status report; therefore DTSC comments are likely to be limited. • The financial impact from comments is not expected to be substantive due to the nature of the report. • Transfer of the project to SC would occur as planned, but EM would retain responsibility to obtain approval of the report utilizing carry over funding. Terms and conditions have been formalized for the transition from EM to SC in the LBNL Site Transition Plan that defines the responsibilities of each organization. • Historically, there has been more than adequate carry over funding to execute the limited amount of scope that is anticipated for this task. • The FTE currently working on the

Risk #	Risk / Uncertainty	Likelihood of Occurrence/ Impact to SC	Elimination, Mitigation
			project is an SC employee on detail to EM. That employee is intimately familiar with the project and could continue to facilitate completion of the report. • The University of California currently executes the restoration project for EM and manages the laboratory for SC; therefore there would be no contractual transition issues.
1.3	As an active facility, new areas needing remediation may be discovered, potentially creating more scope.	**Low/ High**	The likelihood of a new discovery is low because EM has completed the site investigation and characterization. SC, as the landlord, has implemented an Environmental Management System that includes monitoring to ensure ongoing operations are not contaminating the environment. Any new discoveries of contamination could have a high impact on either EM or SC since this would be unplanned work that the existing Baseline could not accommodate. EM and SC have created a decision framework that will be used to disposition any newly identified scope to either EM or SC as detailed in the LBNL Site Transition Plan. If agreement can not be reached, the issue will be raised to the Under Secretary for resolution.
1.4	Any corrective measure is not operational before 9/30/06 or a remedy fails.		The overall likelihood of a system not being operational by 9/30/06 is low. All groundwater treatment systems have been constructed and are currently operational. Many systems have been operational for a number of years and overall trends in contaminant levels are positive. There is a limited amount of additional construction that is required to fully implement the corrective measures proposed for LBNL. The remaining activities that warrant action do not present challenges that require innovative technologies. The proposed remedial technologies are proven, effective, and implement able. Additionally, contract staff has implemented these technologies at other locations within the site. The following summarizes the remaining corrective measures:

Risk #	Risk / Uncertainty	Likelihood of Occurrence/ Impact to SC	Elimination, Mitigation
		Low/ Medium	• Chemical oxidation has been proposed for implementation at B-71B, however the current efficacy of hydrogen release compound injection indicates that chemical oxidation may not be required. If chemical oxidation is required, it will be initiated in March 2006. Chemical oxidation has been completed at several locations at LBNL and pilot tested in this area and therefore probability of success is high. • In 2005 an additional collection trench is scheduled for installation at B-64 and excavation is planned at B-51L in 2005. Excavation is also planned at B-7 in May 2006. LBNL has completed numerous excavations in the past. Adequate characterization has been completed to delineate the extent of excavation required at both sites. Contingent funding is available if the extent of excavation exceeds the planned dimensions. LBNL has installed numerous trenches throughout the site; therefore the probability of success for this activity is also high. Based on the discussion above and due to the nature of the remedies and the duration required to evaluate effectiveness, it is highly unlikely that a remedy would fail or be deemed ineffective prior to transition. Effectiveness of soil remedial technologies can be measured during implementation of the remedy through confirmation sampling. Overall effectiveness of groundwater technologies typically require many years to evaluate. However, as discussed above, current trends are positive. Remedy failure after transition is addressed in the LBNL Site Transition Plan. The impact to Science will be moderate because; • Transfer of the project to SC would

Risk #	Risk / Uncertainty	Likelihood of Occurrence/ Impact to SC	Elimination, Mitigation
			occur as planned, but EM would retain responsibility to complete implementation of the corrective measures utilizing carry over funding. Terms and conditions have been formalized for the transition from EM to SC in the LBNL Site Transition Plan that defines the responsibilities of each organization. Once installed and operational, the system will be turned over to Science for LTS&M with only a short operating history. The risk of operational problems is low because these are not innovative technologies and have been implemented elsewhere on site. Significant remedy failures which require modification of the remedies outside of the capabilities of SC will be coordinated with EM.

Exhibit ES-3. Decision Process to Determine Remediation Responsibility for Newly Discovered Release Sites at LBNL



Section

1.0 Introduction

The purpose of this STP is to transfer responsibility for managing LTS&M activities at LBNL from EM to SC. This document describes sites and facilities to be transitioned, expected long-term activities associated with those sites and facilities, and primary actions (those to be completed under the EM Program prior to the transfer, and those to be continued by SC following the transfer). The STP is organized consistent with the Site Transition Framework that EM has used to transition other sites and the Office of Science and Office of Environmental Management Terms and Conditions for Site Transition. It should be noted that the STP is a living document that will be updated periodically as EM and SC work toward the successful transition of LBNL.

Formal transfer of program budget target for FY 2007 between EM and SC will be accomplished via a PBD Document through the CFO. This PBD will be included with EM's FY 2007 budget request. Funding and future responsibility for LTS&M beyond FY 2007 will reside with SC. Estimated annual costs for monitoring and maintenance activities starting in FY 2007 are approximately $1.7M.

LBNL is scheduled to complete implementation of its EM cleanup mission performed under RCRA and the Atomic Energy Act (AEA) by the close of FY 2006. When all remedies have been implemented, EM proposes to transfer responsibility for long-term operation, monitoring and maintenance of groundwater and soil treatment systems, maintenance and monitoring of the site groundwater well network, maintenance of institutional controls, and compliance with requirements described in the RCRA permit for LBNL. EM intends to turn over responsibility for these LTS&M activities to the PSO responsible for LBNL, the Office of Science, in accordance with current DOE policy.

EM will transfer management of LTS&M at LBNL to SC beginning October 1, 2006 provided EM has successfully completed the implementation of corrective measures and the other actions identified in this plan. Any exceptions will be clearly identified in the CD-4 Package and receive concurrence from both EM and SC. This plan identifies the transferred sites, facilities and activities, and outlines administrative and execution responsibilities that are necessary to satisfy current and future requirements. Activities are further defined by decision documents (i.e., CMS and Radionuclide Investigation) and EM's Lifecycle Baseline. While specific mechanisms for managing LTS&M activities at LBNL are now under development, the intent is to integrate the LTS&M activities into LBNL's existing Environment, Safety & Health (ESH) Program and Environmental Management System to ensure a consistent and visible site-wide approach for the BSO to oversee. This will ensure that LTS&M issues are considered and improvements incor-porated, as necessary, as part of routine site operations and planning.

Due to the size and complexity of the environmental restoration activities at LBNL, a site transition team has been established to facilitate planning and a smooth hand-off of responsibilities. The members are:

Carl Schwab (BSO), Site Office Representative, Co-chair
Hemant Patel (OAK/EM), DOE Project Manager, Co-chair
Ron Pauer (LBNL), Contractor Representative
Iraj Javandel (LBNL), Contractor Project Manager
Mike Ruggerie (LBNL), Contractor Representative
Arnie Edelman (SC/HQ), SC Representative
Rich Dailey (EM/HQ), Federal Project Director

Attachment B lists all of the action items and provides a template for tracking the status. The status of the action items should be documented and included in a quarterly progress report to EM and SC Headquarters. The co-chairs are responsible for drafting the progress report, and initiating and coordinating any required changes to this STP.

Section

2.0 Site Transition Framework Areas

This section establishes conditions for each element of the Site Transition Framework.

Section 2.1 – Authorities and Accountabilities

All terms with the landowner and prime contractor (University of California) are included in the Management and Operating (M&O) contract and land leases for LBNL. On April 12, 1999 EM and SC entered into an agreement to transfer Waste Management (WM) responsibilities from EM to SC starting in FY2001. The WM Program consists of legacy and newly generated waste from research activities but does not include waste from environmental restoration activities. SC took over responsibility for the newly generated waste on October 1, 2000. Legacy waste consisted of transuranic (TRU) waste and the division of responsibilities for this waste was finalized on October 1, 2003. SC took responsibility for all mixed-TRU waste and EM took responsibility for the non-mixed TRU waste. The non-mixed TRU waste was shipped to Lawrence Livermore National Laboratory (LLNL) for certification and disposal at the Waste Isolation Pilot Plant. This action was completed on April 28, 2004.

Section 2.2 – Site Conditions

LBNL was never used as a waste disposal facility so there are no buried wastes on the site. All contamination is a result of releases that occurred during operations as a multi program research lab.

The RFA and subsequent investigations identified a total of 75 SWMUs and 88 Areas of Concern (AOC). During the RFI, a screening process was implemented to determine which soil units exceeded the screening criteria and should, therefore, be included in the HHRA because of potential risk to human health and which units would be excluded from any further action. The former units were designated for No Further Investigation (NFI) and the latter for No Further Action (NFA). Several Interim Corrective Measures (ICMs) were implemented during the RFI; primarily, excavating contaminated soil and installing groundwater and soil vapor extraction systems. Successful completion of ICMs resulted in those units designated as NFA. All NFI units were addressed in the HHRA.

The HHRA recommended that four areas of soil contamination and eleven areas of groundwater contamination should be further evaluated in the CMS. The contaminants of concern (COC) are volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). The Ecological Risk Assessment concluded that there were no hazards to ecological receptors. Enclosure 1 identifies the proposed corrective measures for the 15 units addressed in the CMS. EM plans to complete all corrective measures implementation and obtain regulatory

approval that all corrective measures are complete so only LTS&M activities remain after transition (see Section 2.6).

Although radionuclides and radioactive waste are not regulated under RCRA, evaluation of radiological constituents was included in the RFA to comply with the DOE mission to identify and cleanup areas of radionuclide and chemical releases at its facilities. There were seven SWMUs and one AOC that were related to radioactive substances and waste. These eight areas were investigated and no remedial actions (i.e., NFA) were required except for the Former National Tritium Labeling Facility. As specified in the Radionuclide Investigation, groundwater and surface water monitoring is required through 2008 based on past releases.

Action 2.2.a: Obtain DTSC approval of the CMS.
Assigned to: EM/OAK
Due date: September 14, 2005

Action 2.2.b: Obtain DTSC approval of the Corrective Measure Implementation (CMI) closure report.
Assigned to: EM/OAK and SC/BSO
Due date: September 26, 2006

2.2.1 Land Use

LBNL is in the process of preparing an updated Long-Range Development Plan which will address continuing and future use activities at LBNL through 2025. In general, it is reasonable and likely that LBNL will continue to operate as a DOE research lab for SC.

2.2.2 Soil Clean-Up

The end state for soil cleanups is all contaminated soil has been excavated and disposed of off site and that any access restrictions and/or institutional controls (See Section 2.4) required because of residual contamination have been implemented. EM will achieve this end state before the transition date.

EM submitted the revised draft RCRA CMS to the DTSC for approval on February 10, 2005. EM anticipates that no more than two soil locations will require CMI. As indicated in Table A2, excavation and off site disposal of VOC impacted soil will occur at the Building 7 Sump and Building 51L Groundwater Plume Source Area. The cleanup for all PCB impacted soil was completed prior to the HHRA.

Action 2.2.2.a: Complete all soil excavations required by the CMS.
Assigned to: EM/OAK
Due date: May 15, 2006

2.2.3 Ground Water Cleanup

The EM end state for groundwater cleanup is certifying that all treatment systems are operational, all monitoring systems are operational, operation and maintenance requirements are defined, and the groundwater exit strategy is defined (see Section 2.3). EM will achieve this end state before the transition date.

EM submitted the revised RCRA CMS to the DTSC for approval on February 10, 2005. EM anticipates eleven groundwater treatment systems will be operational at the end of FY 2006 with the objective of meeting California drinking water standards within 30 years. Table A1 identifies the groundwater units and the proposed corrective measures. Table A3 identifies the treatment systems and indicates whether the systems have been constructed, tested and are operating.

Investigation of groundwater contamination required the installation of several wells. The site groundwater monitoring schedule identifies which wells are needed and which are not and recommends abandonment for the latter.

Action 2.2.3.a: Complete the installation and testing of all groundwater treatment systems required by the CMS.
Assigned to: EM/OAK
Due date: May 15, 2006

Action 2.2.3.b: Complete destruction of all groundwater wells no longer needed, as designnated, and approved in the Groundwater Monitoring Schedule.
Assigned to: EM/OAK
Due date: May 15, 2006

Section 2.3 – Engineering Controls, Operating Maintenance Requirements, and Emergency/Contingency Planning

EM will define the requirements for operating the treatment systems, maintaining required institutional controls, and conducting the monitoring program in a LTS&M plan. The plan will include the results of a check list review of key documents by cleanup area (or SWMU/AOC) to ensure that the existing documentation describes conditions, exit strategies, operations and maintenance (O&M) requirements, O&M procedures, monitoring requirements, reporting requirements, and controls. The plan will include a conceptual site model (or models), including criteria for technical and administrative close-out of ongoing remedies. The plan also will briefly outline its relationship to other site management systems or documents, including the Baseline, Environmental Management System, Standards Based Management System, Future Land Use Plan, Site Institutional Plan, Site Environmental Monitoring Plan, and the Site Environmental Report.

Action 2.3.a: Issue and obtain approvals for an LTS&M Plan
Assigned to: EM/OAK
Due date: May 9, 2006

Section 2.4 – Institutional Controls, Real and Personal Property, and Enforcement Authorities

As proposed in the CMS and indicated in Table A1, institutional controls will be required to control the domestic use of groundwater. Land use controls will also be necessary because cleanup is based on industrial use. EM/OAK is responsible for negotiating the institutional controls and SC/BSO will be responsible to ensure these controls remain in effect for as long as needed (e.g., Maximum Contaminant Levels met). DTSC will implement any land and water use controls via a modification to the RCRA permit.

EM work has always been contained within the DOE/UC M&O contracts for LBNL, so all property records already reside with SC/BSO. Although LBNL doesn't track nuclear material in NMMSS by DOE program, a review of Nuclear Materials Management and Safeguards System (NMMSS) was conducted by LBNL personnel and the individual concluded that there is no nuclear material listed that would be the responsibility of EM.

(No anticipated EM or SC actions)

Section 2.5 – Regulatory Requirements and Authorities

LBNL's HWHF operates under a RCRA Hazardous Waste Facility Permit with SC being the lead DOE Headquarters' program for the RCRA permit. The permit requires that LBNL investigate and address historic releases of hazardous waste and constituents that may have occurred throughout the LBNL site. The Corrective Action Program consists of five primary components:

- RCRA Facility Assessment
- RCRA Facility Investigation
- Interim Corrective Measures
- Corrective Measures Study
- Corrective Measures Implementation

All of the EM hazardous waste cleanup work is being performed under RCRA and the transfer of responsibility discussed in this report does not affect the authorities under which cleanup is being performed. The lead regulatory agencies at the site are the California Department of Toxic Substances Control (DTSC), U. S. Environmental Protection Agency Region IX (EPA), Regional Water Quality Control Board San Francisco Bay (RWQCBSFB), U. S. Department of Energy (DOE), and City of Berkeley (COB). The State of California is authorized to administer RCRA compliance; therefore, there is limited US EPA involvement.

Currently, NNSA administers a joint RWQCB grant for the LBNL, LLNL and SLAC projects. LBNL's share is approximately $20,000 each year to compensate the RWQCB as the lead agency for the technical review of surface water and groundwater impacts. DTSC is similarly compensated for their work via the RCRA permit fees, which are paid directly by

LBNL. A decision must be made whether to continue the joint grant arrangement or issue individual grants for each project. SC should be a party to the decision.

Planned work on these sites and activities will have been approved and implemented to the satisfaction of the DTSC, RWQCBSFB and DOE by the time the transfer from EM to SC occurs. All remaining regulatory and managerial responsibilities and activities will become the responsibility of SC.

All radionuclide and radioactive waste investigations and remediation are performed under the authority of the AEA.

Action 2.5.a: Determine how to administer the RWQCB grant after transition (i.e., establish new grant or assume responsibility for existing grant).
Assigned to: SC/BSO
Due Date: June 1, 2006

Action 2.5.b: Transfer or terminate the RWQCB grant after transition.
Assigned to: EM/OAK
Due Date: August 1, 2006

Section 2.6 – Long-Term Surveillance and Maintenance Budget, Funding, and Personnel Requirements

A current and up-to-date site baseline for LTS&M activities has been provided to SC, including all assumptions, cost backup, and a schedule of required activities such as monitoring, maintenance, and reporting. Revisions may be proposed, subject to approved baseline change control procedures, after reviewing LTS&M requirements and final remedies prior to transfer.

The funds required for ongoing O&M at transferred sites are estimated in the baseline. See Table 2-1 for a summary of these costs. Information has been provided by the Chicago Operations Office to the CFO to support preparation of the PBD Document, in accordance with the site baseline. EM will request the FY 2007 budget for LTS&M and submit it with the PBD to transfer responsibility for the project to SC. SC will request all future budgets starting in FY 2008.

Table 2-1. LTS&M Baseline Costs, First Ten Years *(dollars in thousands)*

FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
$1,710	$1,748	$1,790	$1,833	$1,877
FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
$1,661	$1,701	$1,742	$1,784	$1,827

Estimated costs for the first ten years of LTS&M are based on approved life cycle baseline as of November 2004 and have been escalated. LTS&M activities will extend beyond ten years.

Action 2.6.a: Transfer FY 2007 budget to SC
Assigned to: EM Deputy Assistant Secretary for Business Operations.
Due date: September 30, 2006

Action 2.6.b: Review and concur to LTS&M portion (Section XI) of the baseline
Assigned to: SC/BSO.
Due date: September 30, 2005

Section 2.7 – Information and Records Management

EM work has always been contained within the DOE/UC M&O contracts for LBNL. SC manages the LBNL M&O contract and, thus, already has access to all DOE contractor records, site records, and property records. There are no classified records associated with the LBNL environmental restoration project.

LBNL maintains the Administrative Record that is available for public review. These records will continue to reside at LBNL. Maintenance of the administrative records will be SC/BSO's responsibility after transition. In addition, a set of important project decision documents, including other plans, approval letters, the site Land Use Plan, designs, O&M manuals, surveillance plans, and similar documents reside with LBNL. This latter set of documents consists of both paper copies and computer files.

OAK/EM and other third-party organizations or individuals have also generated project records. An inventory of those records should be created and the custody of the records transferred to the BSO. The current physical location of the records is in the Oakland Federal Building or the Federal Records Center-San Bruno.

Action 2.7.a: Develop an inventory of all non UC/LBNL generated records.
Assigned to: EM/OAK
Due Date: April 1, 2006

Action 2.7.b: Identify the location for the physical transfer of the non UC/LBNL generated records.
Assigned to: SC/BSO
Due Date: May 1, 2006

Action 2.7.c: Transfer records/custody of records to SC.
Assigned to: EM/OAK
Due Date: September 30, 2006

Section 2.8 – Public Education, Outreach, Information, and Notice Requirements

SC/BSO will be responsible for integrating the ongoing LTS&M into their public outreach program.

Section 2.9 – Natural, Cultural, and Historical Resource Management Requirements

SC/BSO, as lead PSO for the LBNL, is already responsible for natural, cultural, and historical resource management requirements.

Section 2.10 – Business Functions including Contractor Pensions and Benefits

EM work has always been contained within the DOE/UC M&O contracts for LBNL. SC manages the LBNL M&O contract and, thus, already has all pension, health, and welfare

benefit plan information. There are no contract termination actions and no termination of DOE requirements. There is no pending litigation.

Section

3.0 Critical Decision 4

3.1 Verification of Readiness

The verification of readiness to transition the project from EM to SC is the completion of the actions listed in Section 2 and the submittal of the CD-4 package. SC should perform a walkthrough to ensure conditions are acceptable. OAK shall ensure the scope of work in the baseline has been completed. Once the budget request has been approved by Congress and the CD-4 package is signed, the site is officially transferred from EM to SC. Attachment 19 to the Oakland EM Project Management and Control Guidance provides the template and associated instructions for CD-4 packages.

Action 3.1.a: Perform a preliminary readiness review and submit a draft CD-4 Package.
Assigned to: EM/OAK and SC/BSO
Due Date: June 14, 2006

Action 3.1.b: Verify conditions on site are ready for transfer.
Assigned to: SC/BSO
Due Date: September 14, 2006

Action 3.1.c: Verify EM completion scope of work has been completed.
Assigned to: EM/OAK
Due Date: September 14, 2006

Action 3.1.d: Submit final CD-4 package for concurrence by SC and to EM-1 for review and approval.
Assigned to: EM/OAK
Due Date: September 21, 2006

3.2 Post Transition EM Activities

OAK/EM will be responsible for preparing a project closeout report after the CD-4 package has been submitted and approved.

3.2.1 Contract Closeout

EM work has always been contained within the DOE/UC M&O contracts for LBNL; therefore, EM contract closeout is not required.

3.2.2 Closeout Report

OAK is responsible for preparing the Preliminary Closeout Report.

3.2.3 Final Records Transfer

EM will be working on obtaining approval of the CMI closure report until September 2006. EM will retain records required to complete this activity and transition the records to SC/BSO shortly after transition. It is assumed that all of these records will go to the BSO and not a Federal Records Center.

Action 3.2.3.a: Complete final transfer of project records needed to complete the CMI closure report.
Assigned to: EM/OAK
Due Date: October 31, 2006.

Action 3.2.3.b: Provided there are EM controlled records in the Federal Records Center, EM has notified NARA in writing of the change in custodianship for any EM records stored at their facilities. EM will be responsible for completing and providing copies of SF-135's and SF-258's to SC.
Assigned to: EM/OAK
Due Date: October 31, 2006.

Section 4

References

There have been hundreds of documents issued as part of the environmental restoration project at LBNL. The following are considered the most significant because they provide the best information on the investigation of and risks from radiological and chemical releases, and the corrective measures taken or to be taken to reduce the risks to acceptable levels.

1. Summary of Radionuclide Investigations for Lawrence Berkeley National Laboratory Environmental Restoration Program, September 2003
2. RCRA Facility Assessment at the Lawrence Berkeley Laboratory, Environmental Restoration Program, September 30, 1992
3. Draft Final RCRA Facility Investigation Report for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, September 2000
4. Ecological Risk Assessment for Radionuclides for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, January 2002
5. Ecological Risk Assessment for Chemicals for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, December 2002
6. Human Health Risk Assessment for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, May 2003
7. Draft Corrective Measures Study for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, July 2004
8. Proposal for Revised Groundwater Monitoring Schedule for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, May 2005
9. Life-Cycle Baseline, Environmental Management Project, Lawrence Berkeley National Laboratory, September 2003
10. Memorandum from R. Nolan to J. Hirahara and J. Davis, dtd May 22, 2000, DOE/OAK Waste Management Transition Plan for LBNL
11. Memorandum from H. DeGraca to R. Nolan, dtd October 31, 2003, Allocation of Responsibility for Removal of Transuranic (TRU) Waste at LBNL

Section

5.0 ACRONYMS

AEA	-	Atomic Energy Act
AOC	-	Areas of Concern
BSO	-	Berkeley Site Office
CD	-	Critical Decision
CFO	-	Chief Financial Officer
CMI	-	Corrective Measure Implementation
CMS	-	Corrective Measures Study
COC	-	Contaminants of Concern
DOE	-	Department of Energy
DTSC	-	Department of Toxic Substances Control
EM	-	Office of Environmental Management
EPA	-	Environmental Protection Agency
ES&H	-	Environment, Safety and Health
FY	-	Fiscal Year
HHRA	-	Human Health Risk Assessment
HWHF	-	Hazardous Waste Handling Facility
ICM	-	Interim Corrective Measure
LBNL	-	Lawrence Berkeley National Laboratory
LTS&M	-	Long-Term Surveillance and Maintenance
M&O	-	Managing and Operating
NFA	-	No Further Action
NFI	-	No Further Investigation
NMMSS	-	Nuclear Material Management and Safeguards System
O&M	-	Operations and Maintenance
OAK	-	Oakland Projects Office
OECM	-	Office of Engineering and Construction Management
PBD	-	Program Budget Decision
PCB	-	Polychlorinated Biphenyls
PSO	-	Program Secretarial Office
RCRA	-	Resource Conservation and Recovery Act
RFA	-	RCRA Facility Assessment
RFI	-	RCRA Facility Investigation
RWQCBSFB	-	Regional Water Quality Control Board San Francisco Bay
SC	-	Office of Science
STP	-	Site Transition Plan
SWMU	-	Solid Waste Management Unit
UC	-	University of California
VOC	-	Volatile Organic Compounds

Attachment A

Table A1 LBNL Groundwater Units Identified in the CMS

Unit Number/ CMS Section	Description	Residual Contamination	Proposed Corrective Measure	Institutional Controls	Operation and Maintenance	Monitoring	Compliance
AOC 9-13 Section 4.3.1	Building 51/64 Groundwater Solvent Plume	VOCs	In situ soil flushing combined with groundwater capture in source area. Monitored Natural Attenuation for downgradient portion of plume. Continue surface water (subdrain effluent) capture and treatment until groundwater discharge to surface water is shown to be below detectable levels.	DU	GWETS	TS, MWs	DW, SW
Section 4.3.2	Building 51L Groundwater Solvent Plume	VOCs	Excavation and off site disposal of saturated and unsaturated zone soils in the plume source zone. Monitored Natural Attenuation for remaining plume area. Reroute or line storm drain to prevent migration of groundwater COCs to surface water.			MWs	
AOC 1-9 Section 4.3.3	Building 71B lobe of the Building 71 Groundwater Solvent Plume	VOCs	The following combination of corrective measures alternatives is recommended for the plume source area: 1)excavation and off site disposal of accessible shallow unsaturated zone soil, 2) limited in situ chemical oxidation of unsaturated zone soils adjacent to the building foundation, and 3) in situ soil flushing. For contaminated groundwater adjacent to the source area, enhanced bioremediation using Hydrogen Release Compounds (HRC) is the recommended measure. In addition, surface water hydrauger effluent capture and treatment will continue until groundwater discharge to surface water is shown to be below detectable levels.	DU	GWETS TS	TS, MWs	DW, SW

Unit Number/ CMS Section	Description	Residual Contamination	Proposed Corrective Measure	Institutional Controls	Operation and Maintenance	Monitoring	Compliance
AOC 2-4 Section 4.3.4	Building 7 Lobe of the Old Town Groundwater Solvent Plume	VOCs	The following combination of corrective measures alternatives is recommended for the different areas of the plume: 1)soil excavation (as described under AOC 2-5) for the plume source area, 2) continued in situ soil flushing combined with groundwater capture for plume core area, 3) Monitored Natural Attenuation in downgradient area, and 4) continued groundwater capture and treatment within and at downgradient edge of plume until groundwater concentrations are reduced to levels where down-gradient migration of COCs above applicable MCSs or beyond the plume boundary would not occur without controls.	DU	GWETS	TS, MWs	DW
AOC 10-5 Section 4.3.5	Building 52 Lobe of the Old Town Groundwater Solvent Plume	VOCs	In situ soil flushing in contami-nated source area. Continued capture and treatment at down-gradient lobe boundary until groundwater discharge to surface water is shown to be below detectable levels.	DU	GWETS	TS, MWs	DW, SW
AOC 10-5 Section 4.3.6	Building 25A Lobe of the Old Town Groundwater Solvent Plume	VOCs	In situ soil flushing in contaminant source area and Monitored Natural Attenuation for reminder of lobe area.	DU	GWETS	TS, MWs	DW
Section 4.3.7	Support Services Area (Building 69A Area)	VOCs	Monitored Natural Attenuation			MWs	
AOC 4-5 Section 4.3.8	Solvents in Groundwater South of Building 76	None	No Action (COC concentrations are below risk-based MCSs and groundwater characteristics do not meet criteria of SWRCB Resolution 88-63 – *Sources of Drinking Water Policy*).				

Unit Number/ CMS Section	Description	Residual Contamination	Proposed Corrective Measure	Institutional Controls	Operation and Maintenance	Monitoring	Compliance
Section 4.3.9	Support Services Area (Building 77 Area)	None	No Action (COC concentrations are below risk-based MCSs and groundwater characteristics do not meet criteria of SWRCB Resolution 88-63 – *Sources of Drinking Water Policy*).				
Section 4.3.10	Support Services Area (Building 75/75A Area)	None	No Action (COC concentrations are below risk-based MCSs and groundwater characteristics do not meet criteria of SWRCB Resolution 88-63 – *Sources of Drinking Water Policy*).				
Section 4.3.11	Wells East of Building 75A	None	No Action (COC concentrations are below risk-based MCSs and groundwater characteristics do not meet criteria of SWRCB Resolution 88-63 – *Sources of Drinking Water Policy*).				

DU: Control on the domestic use of groundwater
GWETS: Groundwater extraction and treatment system
TS: Treatment system
MWs: Groundwater monitoring wells
SW: Prevent discharge of contaminated groundwater to surface water.
DW: Protect a potential source of drinking water.

Attachment A
Table A2 LBNL Soil Units Identified in the CMS

Unit Number	Description	Residual Contamination	Proposed Corrective Measure	Institutional Controls	Operation and Maintenance	Monitoring	Compliance
AOC 6-3	Building 88 Hydraulic Gate Unit	none	No further action recommended. Excavation was completed to the TSCA self implementing cleanup level as an ICM.				
	Building 51L Groundwater Plume Source Area	VOCs	Excavation and offsite disposal				
AOC 2-5	Building 7 Sump	VOCs	Excavation and offsite disposal.				
SWMU 3-6	Building 75 Former Hazardous Waste Handling and Storage Facility	none	No further action recommended. Excavation was completed to the TSCA self implementing cleanup level as an ICM.				

Attachment A
Table A3 Projected Treatment Systems

Unit Number & Description	Type of Treatment System	Current Status
AOC 9-13, Building 51/64 Groundwater Solvent Plume	B-51 Firetrails/B-51 Hydraugers Water Treatment System B-51 Motor Generator Room Water Treatment System B-64 Water Treatment System for Soil Flushing	Operational Operational Operational
AOC 1-9, Building 71B lobe of the Building 71 Groundwater Solvent Plume	B-71B Water Treatment System	Operational
AOC 2-4, Building 7 Lobe of the Old Town Groundwater Solvent Plume	B-7 Water Treatment System for Collection Trenches & Soil Flushing B-58/53 Dual Phase Extraction System B-6 Bioventing Dual Phase Extraction System B-46 Water Treatment System	Operational Operational Operational Operational
AOC 10-5, Building 52 Lobe of the Old Town Groundwater Solvent Plume	B-52 Water Treatment System for Soil Flushing	Operational
AOC 10-5, Building 25A Lobe of the Old Town Groundwater Solvent Plume	B-25A Water Treatment System	Operational
B-37 Plume	B-37 Water Treatment System	Shutdown since NFA approved

Operational means the system has been installed and tested, and is currently operating. Additional wells or trenches may be required as specified in the CMS. The existing systems will accommodate the increased volume of influent.

Attachment B
List of Action Items

STP Action Item #	Task Description	Assigned To	Status	Due Date
2.2.a	DTSC approve CMS	OAK	CMS submitted 2/10/05	September 14, 2005
2.2.b	DTSC approval of corrective measure implementation closure report.	OAK/BSO		September 26, 2006
2.2.2.a	Complete all soil excavations required by the CMS	OAK		May 15, 2006
2.2.3.a	Complete installation and testing of all groundwater treatment systems required by the CMS.	OAK		May 15, 2006
2.2.3.b	Complete destruction of all groundwater wells no longer needed, as designated, and approved in the Groundwater Monitoring Schedule.	OAK		May 15, 2006
2.3.a	Issue and obtain approval of an LTS&M Plan.	OAK		May 9, 2006
2.5.a	Determine how to administer the RWQCB grant after transition.	BSO		June 1, 2006
2.5.b	Transfer or terminate the RWQCB grant after transition.	OAK		August 1, 2006
2.6.a	Transfer FY07 budget to SC	EM-30		September 30, 2006
2.6.b	Review and concur to LTS&M portion (Sec. XI) of the baseline	BSO		September 30, 2005

STP Action Item #	Task Description	Assigned To	Status	Due Date
2.7.a	Develop inventory of all non UC generated records.	OAK		April 1, 2006
2.7.b	Identify location for the physical transfer of non UC generated records.	BSO		May 1, 2006
2.7.c	Transfer records/custody of records to SC	OAK		September 30, 2006
3.1.a	Perform preliminary readiness assessment and submit draft CD-4 package.	OAK/BSO		June 14, 2006
3.1.b	Verify conditions on site are ready for transfer.	BSO		September 14, 2006
3.1.c	Verify EM completion scope of work has been completed.	OAK		September 14, 2006
3.1.d	Submit final CD-4 package for concurrence by SC and to EM-1 for review and approval.	OAK		September 21, 2006
3.2.3.a	Complete final transfer of project records needed to complete the CMI closure report.	OAK		October 31, 2006
3.2.3.b	Provided there are EM controlled records in the Federal Records Center, EM has notified NARA in writing of change in custodianship for any EM records stored at their facilities. EM will be responsible for completing and providing copies of SF-135's and SF-258's to SC.	OAK		October 31, 2006

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