LBNL Responses to COB Comments

November 15, 2004

BERKELEY LAB
Environment, Health and Safety Division
Environmental Restoration Program

Mr. Sal Ciriello
Facility Permitting Branch
Cal EPA-DTSC
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2737

November 15, 2004
ERP-3035

Subject: Responses to October 19, 2004 DTSC Letter Containing City of Berkeley Comments on the Corrective Measures Study, Lawrence Berkeley National Laboratory, Berkeley, California
EPA ID No: CA4890008986

Dear Mr. Ciriello:

Enclosed are the Ernest Orlando Lawrence Berkeley National Laboratory (Berkeley Lab) responses to comments from the City of Berkeley on the *Draft* Corrective Measures Study (CMS) Report dated October 5, 2004. At this time, Berkeley Lab does not anticipate revising the report based on the City of Berkeley comments, except where the comments are similar to those previously provided by Regional Water Quality Control Board (RWQCB). In those cases, Berkeley Lab will revise the text as indicated in our October 18, 2004 responses to comments on the *Draft* CMS Report.

Berkeley Lab is providing the following response to the request included in your October 19, 2004 letter: *"Please clarify in the revised CMS Report the program that will be utilized by LBNL regarding excavation and other possible future work activities in areas that will be included in a land use covenant for institutional land use."* As indicated in Berkeley Lab's responses to RWQCB comments on the *Draft* CMS Report, Berkeley Lab will be preparing a Groundwater Monitoring and Management Plan. The Plan will include a description of Berkeley Lab management controls that will be used to reduce potential risks from exposures associated with contaminated groundwater. To address the DTSC concern, the following sentences will be added to the revised *Draft* CMS report:
Berkeley Lab will also prepare a Soil Management Plan. The Plan will include a description of Berkeley Lab management controls that will be used to reduce potential risks from exposures associated with contaminated soil.

Please contact me at (510) 486-6106 if you have any questions.

Sincerely,

Iraj Javandel
Environmental Restoration Program

Encls.

Ernest Orlando Lawrence Berkeley National Laboratory
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LBNL Responses to Comments from *Nabil Al-Hadithy* of City of Berkeley (COB) Toxics Management Division dated October 5, 2004 to Sal Ciriello of DTSC Standardized Permits and Corrective Action Branch.
Subject: Comments on Lawrence Berkeley Laboratory Corrective Measures Study

Item	Page/Para	COB Comment	LBNL Response
First Comment		The primary concern for the TMD has been to identify appropriate cleanup goals that would allow for the highest uses of the site and not limit it to "institutional" uses.	The past, current, and foreseeable future land use at Lawrence Berkeley National Laboratory (Berkeley Lab) has been, and will continue to be, institutional (commercial/industrial type land use). The institutional land use scenario was therefore provided as the likely and realistic present and future land use scenario in the Berkeley Lab Human Health Risk Assessment. It was also the basis for proposing Media Cleanup Standards (MCSs) in the *Draft* Corrective Measures Study (CMS) Report. Cleanup of the areas described in the *Draft* CMS report based on an institutional land use scenario does not restrict the entire Berkeley Lab site to institutional use. Only approximately 5% of the site or less would be subject to any restricted use requirements while cleanup activities were proceeding. In addition, institutional-land-use-based cleanup standards do not preclude other types of land use in the future under certain regulatory agency approved conditions. These might include, for example, project area-specific studies documenting that risks were below levels of concern for the specific use intended, additional cleanup, and/or appropriate mitigation measures.
Second Comment		The TMD understands that some areas of the site will not be cleaned up to the highest, most protective standard, primarily because of the limitations of technically feasible, and cost effective ways to bring these areas to the most protective cleanup standard. We would refer you to the Regional Water Quality Control Board (RWQCB), which has provided good guidance on how to meet the maximum contaminant levels (MCLs) as a "long term" objective. In the absence of MCLs, written controls and procedures should be submitted for review and approval to local agencies and the RWQCB prior to adoption.	As indicated in Berkeley Lab's responses to RWQCB's comments on the *Draft* CMS Report dated October 18, 2004, Berkeley Lab will prepare a Groundwater Monitoring and Management Plan as part of the Corrective Measures Implementation (CMI) phase of the Corrective Action Process (CAP). Specific plan elements will include a description of the Berkeley Lab management controls that will be used to reduce potential risks from exposures associated with contaminated groundwater. The plan will be submitted to the regulatory agencies for review and approval.

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Third Comment		The TMD is concerned with creating a patchwork of areas on the LBL campus that meet the state criteria for beneficial uses. These would be hard to map and regulate.	As a response to a comment from RWQCB on the *Draft* CMS Report, Berkeley Lab will revise the report to include site-wide maps and cross sections showing areas where groundwater is or is not proposed for protection as a potential drinking water supply. As discussed in the October 14, 2004 Remedial Project Managers (RPM) meeting, affected portions of land parcels subject to restricted use would be regulated through a Land Use Covenant (LUC) between the University of California (UC) and the California Environmental Protection Agency Department of Toxic Substances Control (DTSC), in accordance with California Code of Regulations (CCR), Title 22, Division 4.5, Section 67391.1. The LUC would not be a site-wide control, but would be placed only on those sections of individual parcels, which are subject to land use restrictions. The location/extent of the restricted areas would be documented by survey and included in the LUC, which would be reviewed by DTSC annually. In addition, conditions of the LUC would be included in Berkeley Lab's Hazardous Waste Handling Facility Permit, which is reviewed by DTSC every five years. The location/extent of the areas where groundwater does not meet the state criteria for domestic use would also be described and discussed in Berkeley Lab's Groundwater Monitoring and Management Plan.

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Fourth Comment		The TMD would also like to see human health risk analyses determined more pathways of exposure. We would like to see bathing, washing, irrigation considered as exposure pathways. As with the RWQCB, we are prepared to consider that drinking is an unlikely pathway for exposure and that the MCL goals can be met in the not too distant future.	The potential exposure pathways and receptors used to develop the proposed MCSs in the *Draft* CMS Report were derived from the DTSC-approved Human Health and Ecological Risk Assessment Work Plan and Assumptions Document for Berkeley Lab (Berkeley Lab, 2002). These potential pathways and receptors were further defined in the Berkeley Lab Human Health Risk Assessment (HHRA) (Berkeley Lab, 2003). The HHRA utilized potential exposure pathways and receptors based on the reasonable and likely future use of the Berkeley Lab site to calculate risks to human health. These pathways did not include the domestic use of groundwater for drinking, bathing, or washing; or the use of groundwater for irrigation. Nevertheless, the cleanup standards proposed in the *Draft* CMS Report are protective of these pathways where groundwater meets the criteria for domestic or municipal supply under State Water Resources (SWRCB) Resolution 88-63. In these areas, the proposed cleanup standard is the Maximum Contaminant Level (MCL) for drinking water. Note that if drinking groundwater is an unlikely exposure pathway, as noted in the comment, bathing or washing are also unlikely pathways.

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Fifth Comment		In contrast, the CMS report presents the non-degradation policy and MCL as "goals" or "objectives" rather than a long-term "requirement".	Compliance with SWRCB non-degradation policy (Resolution 68-16) under the Porter-Cologne Water Quality Control Act is a requirement and is listed as such in Section 3.1 of the Draft CMS Report. In areas where groundwater meets minimum SWRCB yields for potential domestic supplies, attainment of MCLs is the goal or objective corresponding to that requirement. Where the CMS report lists "goals" and "objectives", those terms are used in compliance with regulatory agency guidance and nomenclature. The United States Environmental Protection agency (EPA) Handbook of Groundwater Protection and Cleanup policies for RCRA Corrective Action (EPA, 2004) states the following "Implementing goals in terms of 'what, where, and when' is not a new approach to corrective action but rather a clarification of 'cleanup objectives' as described in the May 1, 1996 Advance Notice of Proposed Rulemaking (ANPR - EPA, 1996a; page 19449). For example, to measure achievement of final groundwater cleanup goals, the ANPR described final cleanup objectives in terms of (1) groundwater cleanup levels, (2) the point of compliance, and (3) cleanup timeframes…" The California RWQCB San Francisco Bay Region's Water Quality Control Plan (Basin Plan) (RWQCB,1995) establishes beneficial uses and water quality objectives (WQOs) for groundwater and surface water in the San Francisco Bay region. The Basin Plan notes that the "The overall goals of water quality regulation are to protect and maintain thriving aquatic ecosystems and the resources those systems provide… California's regulatory framework uses water quality objectives both to define appropriate levels of environmental quality and control activities that can adversely affect aquatic systems."

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Sixth Comment		In presenting this report with limited risks due to limiting the pathways for exposure, we present the federal government with the excuses to stop payment for additional clean up to the highest standards possible.	(See also response to the fourth comment.) Potential exposure pathways were based on the likely and realistic present and future land use scenario for Berkeley Lab for continued institutional use. The potential exposure pathways and receptors for institutional use were not limited, but included all anticipated receptors, including current indoor workers; potential future indoor workers who might work in future buildings located in areas where buildings are not presently constructed; outdoor landscape workers; and construction workers who might excavate soil or be exposed directly to groundwater. In addition, although the RCRA site cleanup is based on the institutional land use scenario, it does not preclude additional site cleanup by the federal government in the future. The ongoing responsibilities of the Department of Energy (DOE) for remediation are specified in the UC/DOE contract to manage and operate Berkeley Lab. Clause 6.20 of the contract states the following: Responsibility for environmental restoration and remedial work. Upon termination or expiration of this contract or any lease or occupancy agreements identified in Appendix I, DOE shall be responsible for complying with all applicable laws, regulations, and DOE directives requiring investigation, monitoring, cleanup, containment, restoration, removal, or other remedial activity with respect to any hazardous substances present in soil, ground water, or buildings as a result of activities conducted during the term of the contract or any prior contract modifications or during the term of any said lease or occupancy agreements.

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Summary Comment 1 (part 1)		Historically, regulatory agencies have had difficulty maintaining controls for sites closed with contamination left in-place.	(See also response to third comment.) This is a regulatory issue, which was discussed at the Remedial Project Managers (RPM) meeting held at the DTSC offices on October 14, 2004. Representatives of the City of Berkeley, DTSC, the RWQCB, DOE, and Berkeley Lab were in attendance. The DTSC would be the regulatory agency responsible for maintaining site control under a Land Use Covenant (LUC) with the University of California. Also, Berkeley Lab's previously conducted ICMs and remedies proposed in the CMS have wherever feasible provided for the removal of contaminated materials rather than leaving contamination in-place.
Summary Comment 1 (part 2)		Institutional controls are proposed for LBNL when the ILCR is greater than 10^{-6} calculated for pathways that include bathing, irrigation etc., or when the HI is greater than 1. The TMD would like to review the proposed policies and procedures and details of the specific controls that will be implemented.	This is a regulatory issue, which was discussed at the RPM meeting on October 14, 2004. At that meeting, the DTSC agreed to allow the City of Berkeley to participate in negotiations between the DTSC and University of California regarding any implementation of a LUC.
Summary Comment 2		There are some controls that the TMD would consider problematic. Examples are declaring groundwater of no potential beneficial use as a drinking water source due solely to contamination and land-use restrictions for the property.	The CMS Report does not propose declaring groundwater of no potential beneficial use as a drinking water source due solely to contamination and land-use restrictions for the property. Provisions included in the *Draft* CMS Plan relative to groundwater are in compliance with State of California laws and regulations. Any controls on Berkeley Lab groundwater imposed under the RCRA process would be approved by the DTSC in consultation with the RWQCB.

REFERENCES

Berkeley Lab 2002. RCRA Corrective Measures Study Plan for the Lawrence Berkeley National Laboratory, Environmental Restoration Program, May 2002.

Berkeley Lab, 2003. Human Health Risk Assessment for the Lawrence Berkeley National Laboratory Environmental Restoration Program, May 2003.

EPA, 2004, Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action for Facilities Subject to Corrective Action Under Subtitle C of the Resource Conservation and Recovery Act: Solid Waste and Emergency Response (5303W), EPA530/R-01/030, April, 2004.

RWQCB, 1995, Water Quality Control Plan, California Regional Water Quality Control Board San Francisco Bay Region.