

CHAPTER 8.0

Acronyms

ABAG	Association of Bay Area Governments
ACM	Asbestos-containing materials
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMPs	Best Management Practices
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Department of Conservation, Geological Survey
CHP	California Highway Patrol
CMI	Corrective Measures Implementation
CNDDDB	California Natural Diversity Database
CY	Calendar year
dB	Decibels
dBA	A-weighted decibels
DCE	1,1-dichloroethene
DOE	United States Department of Energy
DOT	United States Department of Transportation

DPM	Diesel particulate matter
DTSC	Department of Toxic Substances Control
EBMUD	East Bay Municipal Utility District
EH&S	Environment, Health, and Safety (Division)
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
gsf	Gross square feet
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HEPA filter	High Efficiency Particulate Air filters
HWHF	Hazardous Waste Handling Facility
ICM	Interim Corrective Measures
Leq	Energy-Equivalent Noise Level
LBL/LBNL	Lawrence Berkeley Laboratory/Lawrence Berkeley National Laboratory
LHS	UC Berkeley Lawrence Hall of Science Museum
LOS	Level of Service
LRDP	Long Range Development Plan
MM	Modified Mercalli
MOA	Memorandum of Agreement
MRZ	Mineral Resource Zones
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Airborne Pollutants
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOP	Notice of Preparation

NO _x	Nitrogen oxide
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Health and Safety Administration
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PM _{2.5}	Particulate Matter – 2.5 microns or smaller
PM ₁₀	Particulate Matter – 10 microns or smaller
PNNL	Pacific Northwest National Laboratory
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
ROG	Reactive Organic Gas
SHPO	State Historical Preservation Officer
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminant
TCE	Trichloroethene
TSCA	Toxic Substances Control Act
UC	University of California
UCPD	UC Berkeley Police Department
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile organic compound
µg/m ³	Micrograms per cubic meter

APPENDIX A

Standard (Required) LBNL Project Features

LBNL has identified several environmentally proactive measures in its 1987 Long Range Development Plan Environmental Impact Report (LRDP EIR; see Chapter 2, Purpose and Need), as amended, that Berkeley Lab implements in all of its projects and development to avoid or minimize potentially significant environmental impacts. These mitigation measures have been adopted as part of the LRDP EIR by The Regents of the University of California and thus are required of all LBNL activities, and are included as part of this NEPA analysis. Consequently, all such measures relevant to the Proposed Action are included in the project description as standard features of all such LBNL projects. These measures are pertinent to such environmental resource areas as visual quality; air quality; biological resources; cultural resources; geology and soils; hazards and hazardous materials; hydrology and water quality; noise; traffic; and utilities. Included among them are those listed below:

- Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses will be included as part of all new projects.
- Construction contract specifications would require that during construction exposed surfaces would be wetted twice daily or as needed to reduce dust emissions. In addition, contract specifications would require covering of excavated materials.
- Invasion of opportunistic colonizer trees and shrubs will be controlled. A maintenance program for controlling further establishment of eucalyptus, green wattle acacia, French broom, cotoneaster, and other opportunistic colonizer shrubs and trees in disturbed areas on-site will be undertaken. Herbicides will not be used for this purpose.
- Removal of native trees and shrubs will be minimized. (To the greatest extent possible, the removal of large coast live oak, California bay, and Monterey pine trees will be avoided.)
- A photographic record will be made of all structures demolished as part of future projects.
- An individual well-versed in the history of science in the twentieth century will evaluate the significance of specific pieces of equipment that may be replaced due to obsolescence or a change in the vector of research.
- Geologic and soils studies will be undertaken during the design phase of each LBNL building project. Recommendations contained in those studies will be followed to ensure that the effects of landsliding, lurching, and liquefaction potential will not represent a significant adverse impact during a seismic event.

- Excavation and earth moving will be designed for stability, and accomplished during the dry season when feasible. Drainage will be arranged to minimize silting, erosion, and landsliding. Upon completion, all land will be restored, covering exposed earth with planting.
- LBNL will prepare an annual self-assessment summary report. The report will summarize environment, health, and safety program activities, and identify any areas where LBNL is not in compliance with laws and regulations governing hazardous materials, hazardous waste, hazardous materials transportation, regulated building components, worker safety, emergency response, and remediation activities.
- Prior to shipping any hazardous materials to any hazardous waste treatment, storage or disposal facility, LBNL will confirm that the facility is licensed to receive the type of waste LBNL is proposing to ship to that facility.
- LBNL will continue its waste minimization programs and strive to identify new and innovative methods to minimize hazardous waste generated by LBNL activities.
- LBNL will require hazardous waste haulers to provide evidence that they are appropriately licensed to transport the type of wastes being shipped from LBNL.
- In addition to implementation of the numerous employee communication and training requirements included in regulatory programs, LBNL will undertake the following additional measures as ongoing reminders to workers of health and safety requirements:
 - Posting, in areas where hazardous materials are handled, of phone numbers of LBNL offices, which can assist in proper handling procedures and emergency response information.
 - Continuing to post “Emergency Response and Evacuation Plans” in all LBNL buildings.
 - Continuing to post all sinks in areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be poured down the drain.
 - Continuing to post dumpsters and central trash collection areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be disposed of as trash.
- LBNL will update its emergency preparedness and response program on an annual basis, and will provide copies of this program to local emergency response agencies and to members of the public upon request.
- Each individual project will continue to be designed and constructed with adequate storm drainage facilities to collect surface water from roofs, sidewalks, parking lots, and other surfaces and deliver it into existing channels which have adequate capacity to handle the flow.
- Summary: Potential adverse impacts to water quality can be reduced if LBNL adopts feasible mitigation measures to control surface water runoff, prevent erosion, and maintain adequate drainage facilities.

- Projected noise levels will be compared with ambient noise levels and the Berkeley Noise Ordinance limits, or other applicable regulations. Acoustical performance standards would be included in future contract documents. LBNL will continue to design, construct and operate buildings and building equipment taking into account measures to reduce the potential for excessive noise transmission.
- Noise-generating construction equipment will be located as far as possible from existing buildings. If necessary, windows of laboratories or offices will be temporarily covered to reduce interior noise levels on-site.
- LBNL’s Facilities Master Specifications (Environment, Safety, and Health General Requirements) require subcontractors to furnish an adequate number of flaggers for all work that may affect the use of roads by the University. The following standards are required for traffic flaggers:
 - Flaggers shall be posted at the entrance and exit of access roads used for hauling material and at all other areas where normal traffic is subject to disruption.
 - Flaggers shall be equipped and instructed at Subcontractor's expense in accordance with current “Instructions to Flaggers” of the Department of Transportation, State of California.
- Prior to construction of any project which may add significant sewer load to the city sanitary sewer system, LBNL will investigate the potential impact of the project on the city system. LBNL will identify mitigation measures to accommodate the sewer load if the impact investigation indicates that the city system could not accommodate the additional sewage. LBNL will reimburse the City of Berkeley and/or EBMUD for its fair share of allowable and necessary sewer improvement capital costs which are needed to accommodate increased demand and mitigate sewer impacts resulting from implementation of the LBNL LRDP.

APPENDIX B

Land Use Analysis

Setting and Impacts

Lawrence Berkeley National Laboratory is located on approximately 200 acres of University of California (UC) land above the UC Berkeley campus. LBNL is operated by the University under contract to the U.S. Department of Energy. The Laboratory is surrounded by open space, institutional uses, and residential and neighborhood commercial areas. South and southeast of LBNL is the approximately 1,230-acre UC Berkeley campus, operated and maintained by the University of California. The UC Berkeley campus includes the open space areas of Strawberry Canyon southeast of LBNL. Residential neighborhoods and a small, one-block neighborhood commercial area in the City of Berkeley lie to the north and northwest. Regional open space, including the 2,000-acre Tilden Regional Park, lies to the northeast. The 205-acre Claremont Canyon Regional Preserve is south of LBNL.

Building 51 is located adjacent to Lawrence Road and McMillan Road at LBNL. Current uses on the project site include limited office use and equipment storage. Following the end of Bevatron operations 1993, the site was minimally active until late 2005 for scientific research activities. Laboratory, office, engineering, and computing functions occupy the LBNL buildings immediately adjacent to Building 51. Surrounding land uses include residential areas to the north of the LBNL property line; LBNL buildings and UC Berkeley athletic fields to the south; LBNL buildings and UC Berkeley student housing, amphitheater, and classrooms to the west; and additional LBNL buildings and the UC Berkeley Lawrence Hall of Science to the east. Building 51 is approximately 1,100 feet from the nearest residences to the west and north, and about 1,300 to 1,400 feet from the Lawrence Hall of Science to the east.

As a federal facility conducting work within the University of California's mission, LBNL is generally exempt under the federal and state constitutions from compliance with local requirements. However, LBNL seeks to cooperate with local jurisdictions to reduce the physical consequences of its activities to the extent feasible. The City of Berkeley General Plan is a statement of community priorities developed to guide public decision-making. The General Plan land use designations for most of the areas within the University of California lands are Institutional and Open Space. The General Plan land use designation for the project site is Institutional. Institutional areas of Berkeley are for institutional, government, educational, recreational, open space, natural habitat, woodlands, and public service uses and facilities, such as the University of California, BART, Berkeley Unified School District, and East Bay Municipal Utility District facilities. Berkeley General Plan Policy LU-35 states that the City of Berkeley

shall “develop and foster close working relationships with the University of California to ensure and facilitate land use decisions that are mutually beneficial to the institution and the adjoining neighborhoods” (City of Berkeley, 2001).

The Proposed Action would demolish Building 51 and the Bevatron that it houses. The site comprises approximately four acres, including parking and staging areas. Of this, approximately 2.25 acres would be converted from developed area (i.e., occupied by Building 51) to an undeveloped area for an indeterminate time. At the completion of the project, the 2.25-acre demolition zone would be backfilled, compacted, and hydroseeded. Until another project is proposed, approved, and initiated, no buildings would exist in the demolition zone, and it would revert to an undeveloped area within a developed, institutional setting.

The primary planning document for development at LBNL is the Laboratory’s Long Range Development Plan (LRDP), adopted by the University of California in August 1987. “Long Range Development Plan” is the University of California’s term for a campus-wide planning document. Each UC campus (in the case of LBNL, a Department of Energy National Laboratory managed by UC) is required to periodically re-examine its academic goals and devise physical plans to support them. The LRDP is the planning tool to guide the physical development of the site. The LRDP organizes the LBNL site into seven functional planning areas to consolidate related functions, maximize efficiency, and establish a network of roadways, pedestrian paths, and parking to minimize hazards to employees and the public. The project site is in the functional planning area designated by the LRDP as the “Bevalac Accelerator Complex,” which is “a center for nuclear physics, radiobiology, and accelerator research” (LBNL, 1987). The 1987 LRDP called for the addition of approximately 149,300 gross square feet and removal of approximately 29,600 gross square feet of building space in the Bevalac Accelerator Complex. The Proposed Action would therefore be consistent with the 1987 LRDP.

The project site is in the western portion of the LBNL site, within the city limits of Berkeley. As described earlier, although LBNL seeks to cooperate with local jurisdictions in addressing the physical consequences of potential land use conflicts, the Laboratory is generally exempted by the federal and state constitutions from compliance with local land use regulations, including general plans and zoning. The City of Berkeley’s General Plan designates the area as Institutional. Demolition of the facility would be consistent with this designation.¹

The Proposed Action would not result in the addition of any new development at LBNL and the change in land use from limited office use and equipment storage to an undeveloped area within an institutional setting would not result in a significant land use impact.

Revegetation would be in accordance with the 1987 LRDP. As set out in that document, landscape planting areas are established throughout the Laboratory grounds to sustain or augment the shrub, grassland, and forest areas of the Laboratory. Major landscaping goals are to:

¹ In the Land Use element of the Berkeley General Plan, the classification of “Institutional” denotes “areas of the City for institutional, government, educational, recreational, open space, nature habitat, woodlands, and public service uses and facilities, such as the University of California...”

- Complement the hillside setting;
- Unify the site visually;
- Relate the site to adjacent vegetation of the Berkeley Hills;
- Prevent erosion;
- Provide amenities to users of the site; and,
- Provide a buffer between functional areas, building and adjacent properties.

Although not yet completed or approved, a new LRDP for LBNL is being prepared. In November 2000, a Notice of Preparation (NOP) was issued for this LRDP and its associated LRDP Environmental Impact Report (EIR), in accordance with California Environmental Quality Act requirements.² An NOP was reissued in October 2003. The new LRDP will project growth and development at LBNL for approximately the next 20 years. The draft LRDP and new LRDP EIR are expected to be circulated for public review in late 2006. The Proposed Action would be reflected and accounted for in the new LRDP and new LRDP EIR.

² NEPA documentation is not required for a University of California LRDP.

APPENDIX C

Memorandum of Agreement Among the Department of Energy, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Demolition of the Bevatron Building

**MEMORANDUM OF AGREEMENT
AMONG THE DEPARTMENT OF ENERGY
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
AND THE
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE DEMOLITION OF THE BEVATRON BUILDING,
LAWRENCE BERKELEY NATIONAL LABORATORY, BERKELEY, ALAMEDA
COUNTY CALIFORNIA**

WHEREAS, the Department of Energy, Oakland Operations Office (DOE-OAK) has determined that the demolition of the Bevatron Building/Building 51 and 51A Complex, Lawrence Berkeley National Laboratory (Undertaking), will affect the Bevatron Building, a property eligible for inclusion on the National Register of Historic Places, and consulted with California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act, (16 U.S.C. 470f) and Section 110 of the same Act, (16 U.S. C. 470h-2(f));

NOW, THEREFORE, DOE-OAK, the SHPO, and the Council agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

The DOE-OAK shall ensure that the following stipulations are carried out:

I. Recordation

- A. DOE-OAK shall use, to the extent feasible, office and laboratory space in Building 51 to meet facility needs to achieve Lawrence Berkeley Laboratory's science and technology mission. This includes examining the use of Building 51 for accelerators and other large experimental apparatus, such as the equipment for the heavy-ion fusion program.
1. If the DOE determines that the re-use of Building 51 shall require the removal of the Bevatron apparatus from the building, the DOE-OAK shall contact the Historic American Engineering Record (HAER), National Park Service, 600 Harrison Street, Suite 600, San Francisco, 94107, to determine what level and kind of recordation is required for the apparatus. Unless otherwise agreed to by HAER, DOE-OAK shall ensure that all documentation is completed and accepted by HAER prior to the undertaking, and that copies of this documentation are made available to the SHPO and appropriate local archives designated by the SHPO.

2. If the DOE-OAK determines that the re-use of Building 51 is not feasible, or that the building can no longer contribute to the program goals of the facility, the DOE may demolish Building 51 provided that the measures included in Stipulation I.A.1 of this MOA have been completed and that the DOE-OAK contact the Historic American Building Survey (HABS), National Park Service, 600 Harrison Street, Suite 600, San Francisco, 94107, to determine what level and kind of recordation is required for the building. Unless otherwise agreed to by HABS, the DOE-OAK shall ensure that all documentation is completed and accepted by HABS prior to the undertaking, and that copies of this documentation are made available to the SHPO and an appropriate local archives designated by the SHPO.

II. Dispute Resolution Among Consulting Parties

Should the DOE-OAK or the SHPO object within 30 days to any action pursuant to this Agreement, the parties to the agreement shall consult to resolve the objections to the Agreement. If DOE-OAK determines that the objection cannot be resolved, DOE-OAK shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

1. provide the DOE-OAK with recommendations, which the DOE-OAK will take into account in reaching a final decision regarding the dispute; or
2. notify DOE-OAK that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the DOE-OAK in accordance with 36 CFR 800.6(c) (2) with reference only to the subject of the dispute; the DOE-OAK's responsibility to carry out all actions under this Agreement that are not subjects of the dispute will remain unchanged.

III. Amendments

If any of the signatories determines that the terms of this Agreement cannot be carried out as written and that the Agreement should be amended, that signatory shall immediately consult the other signatories concerning such amendment. Amendments shall be considered and executed in accordance with 36 CFR 800.5(e)(5).

IV. Failure to Carry Out the Terms of This Agreement

Failure to carry out the terms of the Agreement require that DOE-OAK again request the Council's comments in accordance with 36 CFR 800. If DOE-OAK cannot carry out the terms of the Agreement, it will not take or sanction any action or make any irreversible commitment that would result in an adverse effect to a historic property or that could foreclose the Council's consideration of modifications or alternatives to the undertaking.

Execution of this Memorandum of Agreement and implementation of its terms evidence that the DOE-OAK has afforded the Council an opportunity to comment on the undertaking and its effects on historic properties, and that the DOE-OAK has taken into account the effects of the undertaking on historic properties.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: *John M. Fowler*
John M. Fowler, Executive Director

DATE: 4/13/97

DOE OAKLAND OPERATIONS OFFICE

BY: *James M. Turner*
for James M. Turner, Ph.D., Manager

DATE: 10/7/97

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

BY: *Cheryl Widell*
Cheryl Widell

DATE: 10/22/97