



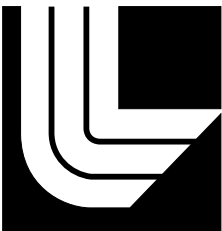
University of California

UCRL-TR-201519

MITIGATION MONITORING PROGRAM

at Lawrence Livermore National Laboratory

FY00 ANNUAL REPORT



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December 2003

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Introduction

Lawrence Livermore National Laboratory (LLNL) has completed eight years of implementing the mitigation measures from the Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Continued Operation of LLNL and Sandia National Laboratories (SNL), Livermore.

This eighth annual report documents LLNL's implementation of the mitigation measures during the fiscal year ending September 30, 2000 (FY00). It provides background information on the mitigation measures, describes activities undertaken during FY00, and documents changes in the monitoring program. Table 1 on page 12, provides a numerical listing of each mitigation measure, the department

responsible for implementing it, and the location within this report where the status is discussed. The discussion of the mitigation measures is organized by the University of California (UC)'s three categories of approaches to implementation: project-specific, service-level and administrative. Table 2 on page 19, Table 6 on page 55, and Table 7 on page 63 provide a detailed discussion of each mitigation measure, including LLNL's implementation strategy and the status as of the end of the fiscal year. Table 3 on page 37, Table 4 on page 46, and Table 5 on page 47 list each construction project undertaken in FY00 and the mitigation measures implemented.

Background

The UC Regents certified the final EIS/EIR for the continued operation of LLNL and SNL, Livermore (SCH90030847) on November 20, 1992. This certification also committed LLNL to carry out the measures proposed by the EIS/EIR to mitigate the significant environmental impacts associated with the proposed action. In accordance with the California Environmental Quality Act (CEQA), a program for monitoring and reporting on the implementation of these mitigation measures was also adopted.

In 1997, an addendum to the 1992 EIS/EIR was prepared for the extension of the contract between UC and the U.S. Department of Energy (DOE) for UC's continued operation and management of LLNL through 2002. Under the addendum, the Mitigation Monitoring and

Reporting Program adopted to implement the mitigation measures recommended in the 1992 EIS/EIR will continue to be in effect through 2002.

Although the EIS/EIR analyzed the potential environmental effects of continued operation of both LLNL and the adjacent SNL, Livermore, CEQA requirements apply only to LLNL, which is managed for the DOE by UC, a state agency.

The EIS/EIR identified significant and significant and unavoidable impacts associated with the proposed action for continued operation of LLNL for the near term (5 to 10 years). CEQA requires that significant impacts be mitigated to less than significant levels (unless compelling economic, social, or other conditions make mitigation not feasible). Mitigation measures were developed for all significant

impacts, and implementation of these mitigation measures is expected to reduce potentially significant impacts to less than significant levels. Significant and unavoidable impacts, however, are those significant impacts that cannot be mitigated to a less than significant level.

While less than significant impacts do not require mitigation measures, LLNL elected to implement mitigation measures to further reduce or eliminate twelve of these impacts, as identified in the EIS/EIR. For example, impacts to prehistoric resources (Impact 4.1.1) from continued operation of LLNL were found to be less than significant. Nonetheless, UC adopted a mitigation measure that requires employees and contractors to report any evidence of cultural resources unearthed during excavation and to take actions to minimize further disturbance, including halting construction until an archaeologist can assess the resources at the construction site. If necessary after review, the archaeologist could recommend additional mitigation measures in accordance with CEQA or National Historic Preservation Act guidelines to protect identified prehistoric and historic cultural resources.

Cumulative impacts were identified in the EIS/EIR that address regional impacts, such as population growth or the potential increased demand for housing in the Livermore Valley area. UC has addressed its portion of these impacts through other measures. However, mitigation of these cumulative impacts is beyond the authority of UC and has been identified as such.

Types of Mitigation Measures

To assist in tracking and reporting implementation, the mitigation measures identified in the 1992 EIS/EIR were separated into the three approaches to implementation:

- Measures related to the implementation of specific projects are called Project-Specific Mitigation Measures. These mitigation measures are associated with programs and projects. They must be considered during program or project planning, design, and construction/execution phases.
- Measures related to administrative actions, independent of specific projects, are called Administrative Mitigation Measures. These mitigation measures are generally independent of proposed program- or project-related activities. They may be required by general growth or by necessary maintenance of LLNL infrastructure.
- Measures related to maintaining adequate service levels are called Service-Level Mitigation Measures. Some proposed programs or projects could result in additional demand for specific services onsite, offsite, or both. Mitigation measures associated with services such as water, fuels, or sewage disposal would be initiated when an existing baseline service level is expected to be exceeded. In some cases, both project-specific and service-level mitigations may be triggered by the same proposed program or project.

Numbering System

Mitigation measures were numbered for consistency and ease of reference, using a system of three numbers separated by decimals (for example, 4.2.2) to track project impacts. The first digit, "4," identifies the corresponding section of the Final EIS/EIR. The second digit, "2," is coded to identify the specific LLNL site or cumulative impacts, that is:

- 1 = LLNL Livermore site
- 2 = LLNL Site 300

4 = Cumulative impacts

Note: The number “3” in the second digit location was used in the EIS/EIR to identify impacts and measures at SNL, Livermore. SNL is not addressed in this report. See the EIS/EIR for additional information.

The third digit, “2,” provides a sequential numbering of impacts within the section and site. Thus, Impact 4.2.2 would be an impact discussed in the EIS/EIR section 5.1.4, pertaining to Prehistoric and Historic Cultural Resources, at LLNL Site 300, and would be the second such impact listed. Each mitigation measure is numbered to correspond to the impact it addresses as it was numbered in the EIS/EIR. The mitigation for Impact 4.2.2 would therefore be Mitigation Measure 4.2.2.

Mitigation Monitoring Program Responsibilities

The Mitigation Monitoring and Reporting Program in the EIS/EIR outlined responsibilities for organizations as follows:

- The LLNL director has overall responsibility for implementing the mitigation measures associated with the operation of LLNL. This responsibility

includes reviewing implementation status of the mitigation measures.

- The Laboratory site manager supports those persons directly responsible for implementing the mitigation measures. The departments within Laboratory Site Operations (for example, Plant Engineering, Hazards Control Department, and the Environmental Protection Department) provide guidance on mitigation measures, implement some measures, and verify that mitigation measures are implemented by others at the appropriate times.

Persons responsible for mitigating significant impacts will secure funding, implement the mitigation measures related to their activities, and report on the implementation. For example, mitigation measures that are related to a project are implemented by the project managers for that program.

- The Assurance Review Office (ARO) is responsible for assuring that the Mitigation Monitoring Program is in place.
- The Laboratory Site Manager ensures that the implementation status of the mitigation measures is reported annually.

An overview of the cycle for implementing and monitoring mitigation measures at LLNL is presented in Figure 1.

Process for Mitigation Monitoring and Reporting

The Mitigation Monitoring Program at LLNL established processes to ensure that mitigation measures identified in the EIS/EIR are included in program or project planning and execution, that the status of

these measures is monitored by responsible persons, and that a progress report summarizing the implementation of mitigation measures is prepared annually.

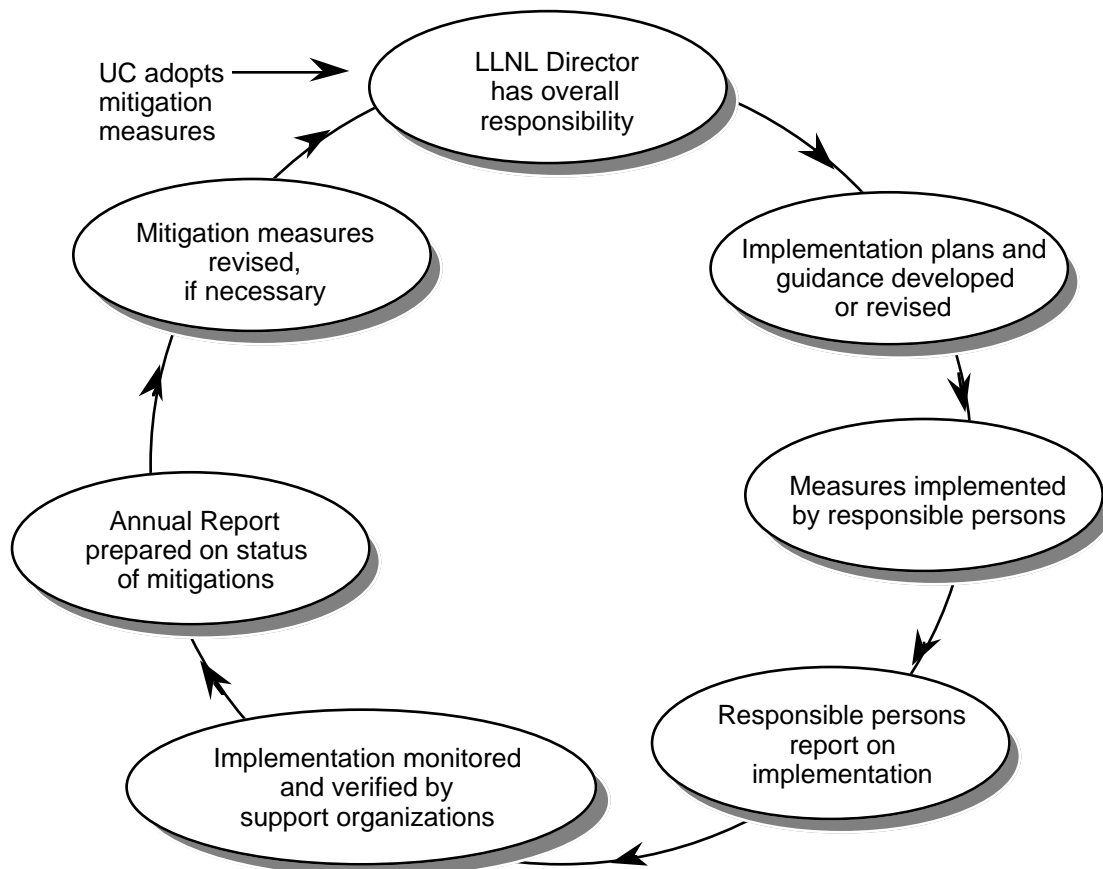


Figure 1. Annual cycle for implementing and monitoring mitigation measures.

Requirements Communicated

Implementation strategies were developed for each mitigation measure and were presented in the annual mitigation monitoring program report for FY93. For project-specific mitigation measures, guidance was incorporated into procurement contracts and specifications, training sessions, manuals, and handouts, as appropriate.

Implementation

The organizations responsible for implementing each measure are listed in Table 1 on page 12. They are responsible for ensuring adequate funding, communicating mitigation requirements to other responsible individuals, and reporting implementation status.

Verification

Subsequent verification by departments in Laboratory Site Operations on the implementation of mitigation measures is conducted on an as-needed frequency. For example, a measure to protect sensitive species might be implemented by project managers of Plant Engineering and verified by wildlife experts from the Environmental Protection Department during the course of the project or, if the project is short term, after completion. Some administrative and service-level mitigation measures require a periodic review of the status and possible follow-up. Receipt of the report documenting the review and the response is considered suf-

ficient documentation of implementation. The status presented in this annual report includes any changes that were made as a result of verifying or checking that the mitigation measure was implemented.

Assurance

The ARO assesses the Mitigation Monitoring Program triennially, after the annual report is completed. This assessment is to assure that the Mitigation monitoring Program is in place, as required by the University of California. Any corrective actions identified during this assessment are to be taken in the year following receipt of the audit report.

Changes to the Mitigation Monitoring Program

All changes instituted in FY94 through FY99 were continued in FY00. These are summarized in the next section. No changes were made to the Mitigation Monitoring Program in FY00.

The following section reports on the status of the measures taken by LLNL to continue to monitor/protect three animal species at the Livermore Site, two animal species at Site 300, and three plant species at Site 300 that did not occur, or were not known to occur, at LLNL at the time the Mitigation Monitoring Program was adopted by the UC Regents in 1992, or were not afforded protection under State or Federal law at that time: the white-tailed kite (*Elanus leucurus*), a state-listed protected bird of prey; the federally-listed threatened California red-legged frog (*Rana aurora draytonii*); the California tiger salamander (*Ambystomata t. californiense*), a federal species of concern; the big tarplant (*Blepharazonia plumosa*),

listed on the California Native Plant Society Rare Plant 1B List; the diamond-petaled poppy (*Eschscholzia rhombipetala*), thought to be extinct until rediscovered in 1993 and thus on the California Native Plant Society 1A List; and the gypsum-loving larkspur (*Delphinium gypsophilum ssp gypsophilum*), listed on the California Native Plant Society Rare Plant 4 list.

During FY00, the Livermore site populations of the California red-legged frog continued to be monitored and protected in accordance with the 1997 and 1998 amended U.S. Fish and Wildlife Service Biological Opinion for the Arroyo Las Positas Maintenance Project. One-hundred-to three-hundred-foot checkerboard sections in the Arroyo were managed for excess in-stream vegetation and sixty-four red-legged frogs were protected from harm in project locations during the maintenance process. A critical habitat area for the red-

legged frog was proposed by the U.S. Fish and Wildlife Service that encompasses the entire Livermore site and surrounding areas.

The Livermore site drainage retention basin was drained in a proactive attempt to eradicate recently discovered non-native bullfrogs (*Rana catesbeiana*), which are a predator of the red-legged frog. The project successfully dried the basin during December 2000 and halted further colonization of habitat onsite.

Also at the Livermore site, one pair of white-tailed kites attempted to nest. The nest was abandoned for unknown reasons shortly after the nestlings hatched. No other nests were recorded in 2000. This trend was observable statewide and is probably due to cyclical climatic variations and the reduction of prey items, such as rodents.

At Site 300, populations of the red-legged frog and the California tiger salamander were monitored at wetland locations site-wide. A critical habitat area was formally designated by the U.S. Fish and Wildlife Service for the Alameda whip-snake (*Masticophis lateralis euryxanthus*) and includes about one-third of the Site

300 property in the southwest corner of the site. In addition, a critical habitat area was designated by the U.S. Fish and Wildlife Service for the red-legged frog and roughly eighty percent of Site 300 lies within this critical habitat area.

Monitoring of the big tarplant and the diamond-petaled poppy continued in FY00. The big tarplant remained widespread throughout Site 300, with the number and size of the populations increasing from 1999. Detailed monitoring of populations located in areas undergoing controlled burning is also being conducted to determine the impacts of fire on the population dynamics of this species. A total of 273 diamond-petaled poppy plants were observed in 2000 (a dramatic increase from the nine plants observed in 1999). The majority of these plants produced seed-bearing pods.

Also in FY00, populations of the gypsum-loving larkspur were mapped. Two locations of this species were confirmed. It was determined that a more common species of larkspur had been misidentified as the gypsum-loving larkspur in many locations during previous surveys.

Previous Changes to the Mitigation Monitoring Program

The Mitigation Monitoring Program has two elements: the mitigation measures themselves and the program to ensure implementation and reporting. Some flexibility was reserved to modify and improve mitigation measures in response to actual program or project experience. These modifications are to be consistent with CEQA requirements. With regard to the implementing strategy, more flexibility exists. The implementation strategy was

developed by LLNL, after the EIS/EIR was certified, to integrate with LLNL's organizational structure and types of operations.

After gaining experience in actual implementation of these measures, some changes were warranted in the program and are reflected in this report. For the most part, these changes more accurately describe how the measures are best implemented and verified. They do not reduce

the degree to which the measures are implemented.

Changes Made in FY99

Mitigation measure 12.1.1C, which was designed to reduce LLNL's water use, requires LLNL to limit car washing at the Livermore site to only that which is essential. Beginning in FY99, DOE has required that LLNL obtain its fleet vehicles from General Services Administration, who, in turn, requires that they be kept clean. The hours of car wash operation were increased to from sixteen hours a day to twenty-four hours a day, seven days a week, to accommodate the larger number of cars needing to be washed.

The following section reports on the status of the measures taken by LLNL to continue to monitor/protect two animal species at the Livermore Site and two plant species at Site 300 that did not occur, or were not known to occur, at LLNL at the time the Mitigation Monitoring Program was adopted by the UC Regents in 1992, or were not afforded protection under State or Federal law at that time: the white-tailed kite (*Elanus leucurus*), a state-protected bird of prey; the federally-threatened California red-legged frog (*Rana aurora draytonii*); the big tarplant (*Blepharazonia plumosa*), listed on the California Native Plant Society Rare Plant 1B List; and the diamond-petaled poppy (*Eschscholzia rhombipetala*), thought to be extinct until rediscovered.

During FY99, the Livermore site populations of the California red-legged frog continued to be monitored and protected in accordance with the 1997 and 1998 amended U.S. Fish and Wildlife Service Biological Opinions. In addition, a Species of Special Concern and Federal candidate, the California tiger salamander (*Ambystoma tigrinum*), was monitored at

wetland locations at Site 300. Also at the Livermore site, three pairs of white-tailed kites successfully nested and fledged eighteen young. The kites were marked with aluminum leg bands to initiate long-term studies of the species in a semi-urban edge habitat.

Monitoring of the big tarplant at Site 300 continued in FY99. It continued to be widespread throughout the site, although individual populations were reduced in size. A total of nine Diamond-petaled poppy plants were located (down from the twenty-six observed in 1998); of these, six plants produced seed-bearing pods.

Changes Made in FY98

During soil excavation for the National Ignition Facility (NIF) at the Livermore site, a molar from a 14,000-year-old mammoth was found at a depth of about 10 meters below ground surface. LLNL implemented Mitigation Measure 4.1.1, which applies to prehistoric and historic cultural resources found during the course of development excavation at the Livermore site. Upon discovery of the find, construction was stopped in the immediate area and an archaeologist was called in to assess its potential cultural importance. When it was determined that the find was not a cultural resource, a paleontologist from the UC Berkeley Museum of Paleontology was called in to assess the find and he determined it to be a mammoth of paleontological importance. To mitigate impacts to the resource, LLNL obtained an excavation permit from the Department of the Interior under the provisions of the Antiquities Act of 1906 and removed bones from the construction area. The bones were accessioned into the UC Berkeley Museum of Paleontology and are being prepared for possible later presenta-

tion at LLNL. This mitigation measure will be implemented for any future unanticipated occurrence of paleontological resources that could be impacted by a proposed project at the Livermore site or Site 300.

A new population of the federally threatened red-legged frog (*Rana aurora draytonii*) was identified in the northwestern portion of Arroyo Las Positas on the Livermore site. Measures to mitigate the potential for future impacts to the frogs were developed in conjunction with the U.S. Fish & Wildlife Service.

At the Livermore site, six separate pairs of white-tailed kites (*Elanus lecurus*), a state-protected raptor, successfully nested and fledged fourteen young.

Monitoring of the big tarplant (*Blépharazonia plumosa*), a California Native Plant Society “rare” plant), and the Diamond-petaled poppy (*Eschscholzia rhombipetala*), a plant not seen in California since 1950), continued in 1998. The big tarplant continued to be widespread throughout Site 300. A total of twenty-six diamond-petaled poppy plants were located; of these, eighteen plants produced seed-bearing pods.

Changes Made in FY97

The *Environmental Impact Report Addendum for the Continued Operation of Lawrence Livermore National Laboratory* (September 1997) concluded that one of the significant, unavoidable impacts identified in the 1992 EIS/EIR is no longer of concern. Specifically, Impact 13.1.3, which states “Mixed-waste generation may require onsite storage beyond storage limits prescribed by the Resource Conservation and Recovery Act (RCRA) and could result in a need for additional storage capacity” is no longer a concern because

the 1992 Federal Facility Compliance Act provided regulatory relief—offsite treatment and disposal options have become available, and the storage and treatment capabilities of LLNL can be expanded.

These actions implemented Mitigation Measures 13.1.3B, 13.1.3C, and 13.1.3D, which were designed to reduce the significant and unavoidable impacts associated with extended storage of mixed wastes. These mitigation measures, therefore, are now considered to be completed. Mitigation Measure 13.1.3A, which was also intended to reduce Impact 13.1.3, will continue to be implemented as a best-management practice associated with mixed-waste generation.

In addition, the Significant and Unavoidable Impact 3.2.3, which states, “The proposed action would result in an increased demand for nonhazardous solid waste disposal services at the Corral Hollow Landfill,” is no longer a concern—in 1995, the Corral Hollow Landfill was closed. Since that time, Site 300 solid waste has been, and continues to be, sent to a transfer station in Tracy, where it is sorted for recycling or disposal. This transfer station has adequate capacity to accept current and projected Site 300 waste. Therefore, Mitigation Measure 3.2.3, which was designed to reduce the significant impact associated with continued use of the Corral Hollow Landfill, is considered to be completed. Solid-waste reduction and recycling strategies at Site 300 will continue to be implemented as a best-management practice associated with solid-waste generation.

In July 1997, four red-legged frogs (*Rana aurora draytonii*) were observed in the Arroyo Las Positas. Three frogs were observed in the eastern margin of the site where the Arroyo Las Positas enters the Livermore site; another frog was seen in the arroyo at approximately the midpoint

of its course throughout the Laboratory. Consultation with the U.S. Fish & Wildlife Service was initiated for arroyo maintenance and other projects that may impact this species and its habitat. Measures to mitigate the potential for future impacts to the frogs have been developed with the U.S. Fish & Wildlife Service.

In FY97, two pairs of white-tailed kites returned, nested successfully, and fledged young. Furthermore, numerous sitings of individual white-tailed kites have been observed in the vicinity by various Laboratory personnel.

As a result of the 1997 floristic survey at Site 300, two additional sensitive plant species were identified. The big tarplant (*Blepharazonia plumosa*), a California Native Plant Society "rare" plant, was found to be widely distributed within the grassland eco-region. Also, a population of a plant not seen in California since 1950, the diamond-petaled poppy (*Eschscholzia rhombipetala*), was identified in the southwestern portion of the site. Development activities are not being conducted in this area.

Changes Made in FY96

The mitigation monitoring program outlined in the EIS/EIR described that organizations responsible for implementing mitigation measures will provide specific checklists for each activity. In FY96, Plant Engineering revised their checklists for projects.

Based upon follow-on surveys at Site 300 for the presence of the white-tailed kite (*Elanus leucurus*), it appears that the kite did not return in FY96. In addition, because of the potential for the presence of the federally-listed California red-legged frog (*Rana aurora draytonii*) in the surface waters at the Livermore site, sur-

veys were also conducted in FY96 for this species. The species was not observed.

In FY96, the watering of remote trees with groundwater was discontinued but could be reactivated during a drought.

Changes Made in FY95

In FY95, the western burrowing owl (*Speotyto cunicularia*) was identified in the buffer zone of the Livermore site. Therefore, LLNL elected to implement mitigation measures 7.2.6T, 7.2.6U, 7.2.6V, and 7.2.6W in this area. Implementation of these measures is reported for the projects that took place in the buffer zone.

The criteria for determining which activities require a wildlife survey under 7.2.6L and 7.2.6T have been changed slightly to a more protective criteria. Previously, surveys were conducted when activities were planned for previously undisturbed areas (i.e., areas having minimal recent disturbance). LLNL now conducts surveys wherever an activity or project is planned for an area with potential to provide suitable habitat. These new criteria require the expertise of an experienced wildlife biologist, and LLNL now employs one. These criteria may also be more cost-effective.

Surveys for Elderberry bushes have concluded that not all bushes were identified in the EIS/EIR and that surveys are needed for each new project proposed for areas with suitable Elderberry habitat. In response to this change, the implementation codes used in Table 2 were modified in FY95. A "#1" now indicates that a survey was conducted and that the project was more than 300 feet from the bush.

Mitigation measure 12.2.1C, which is intended to reduce the unnecessary use of water, requires that LLNL limit car washing at Site 300 to only that which is essen-

tial. Starting in FY95, Site 300 stopped washing cars because they were lacking the necessary facility or system support for this activity. Employees needing to have their cars washed drive to the Livermore site carwash. This mitigation measure, therefore, is no longer applicable.

Changes Made in FY94

The mitigation monitoring and reporting program outlined in the 1992 EIR described a system where LLNL generated “generic checklists and other guidance” to communicate the mitigation measures. The implementing organizations would use these generic checklists to prepare specific checklists. Actual experience during FY93 and FY94 indicated that guidance on the mitigation measures was better communicated by incorporating the mitigation measure requirements into existing operational manuals, design specifications, or other accepted guidance. Experience indicated that checklists were still appropriate for specific projects.

The 1992 mitigation monitoring and reporting program description called for the LLNL ARO to audit the Mitigation Monitoring Program but did not specify the frequency. LLNL has determined that this review is most useful when performed triennially. Operating experience (the first and only review to-date was conducted at the end of FY93) made it apparent that an annual audit is neither cost-effective nor practical to implement, because of the time required to disseminate audit findings and implement corrective actions.

Initially, two similar mitigation measures were not identified as being implemented in the same process. As of FY93, both of these Air Quality Mitigation Mea-

asures, 8.2.3 and 8.1.2, were recategorized as project-related.

Mitigation measure 12.1.1D, Use reclaimed groundwater in place of potable water in cooling towers to the greatest extent possible, was intended as one of eleven mitigations to reduce water usage site-wide. The other ten mitigation measures oriented to reduce water usage were as follows:

- 12.1.1A/12.2.1A, Reduce landscape irrigation below 1989 levels
- 12.1.1B/12.2.1B, Reduce blowdown in cooling towers
- 12.1.1C/12.2.1C, Limit car washing to only essential
- 12.1.1E, Reassess landscaping contracts; implement conservation
- 12.1.1F, Monitor all water use; discourage unnecessary use
- 12.1.1G, Use reclaimed groundwater for irrigation
- 12.1.1H, Continue water conservation awareness program

LLNL started using reclaimed groundwater in 1990 and approximately 20 million gallons were used as make-up water in the cooling towers. In FY94, this mitigation measure, 12.1.1D, was put on hold because of potential adverse environmental impacts from using water with a high mineral content in the cooling towers. The higher mineral content of the reclaimed water required the use of additional chemicals to operate the tower, making it more chemically expensive and more labor intensive. These additional chemicals end up in the sanitary sewer system, defeating the Laboratory’s pollution prevention policies. In addition, the temporary, above-ground pipeline installed along LLNL’s perimeter fence to deliver the ground water to the cooling tower was aesthetically unattractive and the Plant Engineering department was asked to remove it.

Status of Mitigation Measures

Table 1 on page 12 presents a road map to mitigation measures discussed in Table 2, Table 6, and Table 7. These tables provide the status of each mitigation measure. Table 1 indicates which mitigation measures are project-specific, service-level, or administrative and indicates which LLNL organization is responsible

for implementing each mitigation measure.

LLNL has implemented the 66 EIS/EIR mitigation measures it committed to implement in 1992. In fact, some mitigation measures were initiated prior to completion and certification of the EIS/EIR.

Table 1. Mitigation Measures Summary

Mitigation Measure No.	Measure	Project Specific	Service Level	Administrative	LLNL Org. Responsible for Implementing	More Info on Page
<i>Community Services</i>						
3.1.1	Compare operations to National Fire Protection Association (NFPA) standards; increase if needed		X		Hazards Control	55
3.2.1	Compare operations to NFPA standards; increase if needed		X		Hazards Control	55
3.2.3	Implement solid waste reduction and recycling at Site 300		X		Defense Systems/ Nuclear Design	55
<i>Prehistoric and Historic Cultural Resources</i>						
4.1.1	Report cultural resources unearthed	X			Plant Engineering & Environmental Protection	19
4.1.2	After Section 106, develop Cultural Resources Management Plan			X	Environmental Protection	63
4.2.1	Report cultural resources unearthed	X			Plant Engineering & Environmental Protection	19
4.2.2A	After Section 106, develop Cultural Resources Management Plan			X	Environmental Protection	63
4.2.2B	Restrict access to cultural resources during construction	X			Plant Engineering	21
4.2.2C	Monitor for historic resources during grading	X			Plant Engineering & Environmental Protection	22
4.4.1	Cumulative of 4.1.1	X			See 4.1.1	22
4.4.2	Cumulative of 4.1.2	X			See 4.1.2	23
4.4.3	Cumulative of 4.2.1	X			See 4.2.1	23
4.4.4	Cumulative of 4.2.2A, B, C	X			See 4.2.2 A, B, C	23

Table 1. Mitigation Measures Summary (Continued)

Mitigation Measure No.	Measure	Project Specific	Service Level	Administrative	LLNL Org. Responsible for Implementing	More Info on Page
<i>Geologic Resources and Hazards</i>						
6.1.1A	Construction meets seismic requirements of 5481.1B	X			Plant Engineering	24
6.1.1B	Engineering and administrative actions prevent releases during earthquakes			X	Each Directorate	65
6.1.2	Geotechnical investigation for foundation and drainage	X			Plant Engineering	25
6.2.1A	Construction meets seismic requirements of 5481.1B	X			Plant Engineering	24
6.2.1B	Engineering and administrative actions prevent releases during earthquakes			X	Plant Engineering & Hazards Control	65
6.2.2	Geotechnical investigation for foundation and drainage	X			Plant Engineering	25
<i>Ecology</i>						
7.2.6A	Create employee awareness of protected species			X	Defense and Nuclear Technologies & Environmental Protection	68
7.2.6B	Perform no construction within 300 ft. of elderberry bushes	X			Plant Engineering & Environmental Protection	26
7.2.6C	Evaluate fairy shrimp sampling			X	Environmental Protection	68
7.2.6D	Limit use of rodent poisons (Site 300 & Livermore)			X	Site 300 Management & Plant Engineering	69
7.2.6E	Maintain speed limits of 35 m.p.h.; confine traffic			X	Site 300 Management	69
7.2.6F	Continue warning horns prior to blasts			X	Site 300 Management	70
7.2.6G	Continue controlled burns, excluding livestock			X	Site 300 Management	70
7.2.6H	Continue to protect Amsinckia Grandiflora			X	Site 300 Management	70
7.2.6I	Maintain roads in existing locations; eliminate duplicate roads			X	Site 300 Management	70

Table 1. Mitigation Measures Summary (Continued)

Mitigation Measure No.	Measure	Project Specific	Service Level	Administrative	LLNL Org. Responsible for Implementing	More Info on Page
7.2.6J	Limit herbicide use to near structures, roads, utilities, facilities			X	Site 300 Management	71
7.2.6K	Keep food-related trash in closed container or remove it			X	Site 300 Management	71
7.2.6L	Survey for dens of kit fox within 60 days of starting construction	X			Environmental Protection	27
7.2.6M	Establish exclusion zones if dens are found	X			Environmental Protection	28
7.2.6N	Rope off exclusion zones if active dens are found	X			Plant Engineering	29
7.2.6O	Perform monthly checks to maintain zones if active dens are found	X			Environmental Protection	29
7.2.6P	Cover trenches/holes or allow egress	X			Plant Engineering	30
7.2.6Q	Implement procedure to destroy potential kit fox dens (if unavoidable)	X			Environmental Protection	30
7.2.6R	Consult Fish and Game Department if impact on dens is unavoidable	X			Environmental Protection	31
7.2.6S	Install artificial dens if dens are destroyed	X			Environmental Protection & Plant Engineering	31
7.2.6T	Survey for dens of burrowing owl and American badger	X			Environmental Protection	32
7.2.6U	Establish an exclusion zone if burrowing owl or American badger dens are found	X			Environmental Protection	32
7.2.6V	Restrict activities in exclusion zones	X			Site 300 Management & Plant Engineering	33
7.2.6W	Talk with agencies before destroying owl and badger dens	X			Environmental Protection	33
7.2.10	Replace wetlands lost by cooling tower upgrades			X	Site 300 Management	71
7.4.3	Cumulative for 7.2.6			X	See 7.2.6	72
7.4.4	Cumulative for 7.2.10			X	See 7.2.10	72

Table 1. Mitigation Measures Summary (Continued)

Mitigation Measure No.	Measure	Project Specific	Service Level	Administrative	LLNL Org. Responsible for Implementing	More Info on Page
<i>Air Quality</i>						
8.1.1	Reduce fugitive emissions (water spray and cover dirt)	X			Plant Engineering	34
8.1.2	Design each project to minimize criteria pollutants	X			Plant Engineering	35
8.1.6	Enhance Transportation Systems Management Program			X	Plant Engineering	73
8.2.1	Reduce fugitive dust emissions (water spray and cover dirt)	X			Plant Engineering	34
8.2.3	Design each project to minimize criteria pollutants	X			Plant Engineering	35
<i>Noise</i>						
10.1.1	Reduce noise of construction equipment and vehicles			X	Plant Engineering	74
10.2.1	Reduce noise of construction equipment and vehicles			X	Plant Engineering	74
10.2.2	Continue blast forecasting and restrictions			X	Site 300 Management	74
10.4.1	Cumulative of 11.1.2 (to reduce noise)			X	See 11.1.2	74
<i>Traffic</i>						
11.1.2	Enhance Transportation Systems Management Program			X	Plant Engineering	74
11.1.5	Monitor parking supply, alleviate deficiencies		X		Plant Engineering	56
<i>Utilities and Energy</i>						
12.1.1A	Reduce landscape irrigation below 1989 levels		X		Plant Engineering	57
12.1.1B	Reduce blowdown in cooling towers		X		Plant Engineering	57
12.1.1C	Limit car washing to only essential		X		Business Services/Fleet Management	58
12.1.1.D	Use reclaimed groundwater in cooling towers		X		Plant Engineering	58
12.1.1E	Reassess landscaping contracts; implement conservation			X	Plant Engineering	75
12.1.1F	Monitor all water use; discourage unnecessary use		X		Plant Engineering	59

Table 1. Mitigation Measures Summary (Continued)

Mitigation Measure No.	Measure	Project Specific	Service Level	Administrative	LLNL Org. Responsible for Implementing	More Info on Page
12.1.1G	Use reclaimed groundwater for irrigation		X		Plant Engineering	59
12.1.1H	Continue water conservation awareness program			X	Plant Engineering	75
12.1.4	Evaluate and install process water conservation devices		X		Plant Engineering	59
12.2.1A	Reduce landscape irrigation below 1989 levels		X		Plant Engineering	60
12.2.1B	Reduce blowdown in cooling towers		X		Plant Engineering	60
12.2.1C	Limit car washing to only essential		X		Business Services/Fleet Management	58
12.2.1D	Monitor all water use; discourage unnecessary use		X		Plant Engineering	61
12.4.1	Cumulative for 12.1.1		X		See 12.1.1	61
12.4.2	Cumulative for 12.2.1		X		See 12.2.1	61
<i>Materials and Waste Management</i>						
13.1.3A	Enhance waste minimization policy and practices			X	Deputy Director	75
13.1.3B	Pursue alternatives to mixed waste TS&D			X	Environmental Protection	75
13.1.3C	Increase treatment of low-level mixed waste			X	Environmental Protection	76
13.1.3D	Apply for increase waste storage capacity, if necessary			X	Environmental Protection	76

Project-Specific Mitigation Measures

Project managers review the twenty-nine project-specific mitigation measures to ensure all applicable measures are incorporated into their project planning and implementation processes. The Environmental Protection Department provides advanced notice of the need to implement applicable mitigation measures to project planning staffs by including the requirements in the National Environmental Policy Act (NEPA) and design review documentation pertaining to the proposed projects. For all projects, the Environmental Protection Department also provides technical experts in air pollution abatement, cultural resources, and biological/natural species protection to support implementation of specific measures.

The general scheme for implementing project-specific mitigation measures at LLNL is shown in Figure 2.

The status of each project-related mitigation measure is shown in Table 2 on page 19.

Projects Undertaken in FY00

Each project in progress during FY00, at either the Livermore site or Site 300, was reviewed to determine whether the applicable project-specific mitigation measures were incorporated. The results of these reviews by Plant Engineering and the Environmental Protection Department are listed in Table 2 on page 19, Table 6 on page 55, and Table 7 on page 63.

A project at LLNL may span multiple years. For example, a project's design may start in 1999 with construction starting in

2000 and continuing into 2001. By their nature, mitigation measures are implemented at different stages of project. The entries in Table 2, Table 6, and Table 7 are a cumulation of the status for each measure as of the end of the fiscal year.

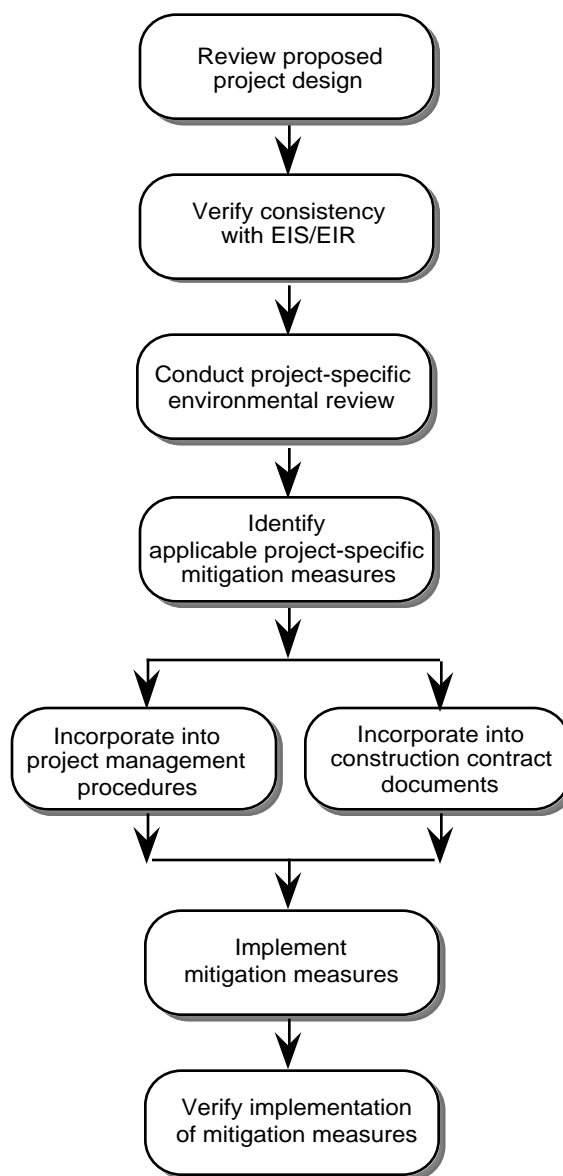


Figure 2. Implementing project-specific mitigation measures.

Paleontological Resources Mitigation Measures

LLNL applies the same protection it affords to cultural resources under the The National Historical Preservation Act to paleontological resources under the Antiquities Act of 1906. During FY98 soil excavation for NIF at the Livermore Site, a molar from a 14,000-year-old mammoth was found at a depth of about 10 meters below the ground surface. Upon this discovery, LLNL obtained an excavation per-

mit from the Department of the Interior under the provisions of the Antiquities Act and removed bones from the construction area. The bones (including eleven ribs; three vertebrae; one humerus; one substantially complete and one partial tusk; and a partial skull with palate, jawbone, and molars) were accessioned into the University of California, Berkeley Museum of Paleontology collection in 1999 and have been partially prepared for possible later presentation at LLNL.

Table 2. Project-Specific Mitigation Measures

Mitigation Measure	Implementation Strategy	Status
<i>Prehistoric and Historic Cultural Resources</i>		
4.1.1 Requires LLNL employees and contractors to report any evidence of cultural resources unearthed during development excavation at the LLNL Livermore site. An archaeologist will assess any unearthed resources at the construction site. If necessary, construction will be stopped to preclude disturbance of any cultural resources, testing would be conducted, and mitigation measures recommended in accordance with DOE and CEQA guidelines. Note: Implementation of this measure also implements measure 4.4.1.	<ul style="list-style-type: none"> • LLNL will hire an archaeologist to evaluate (on an “on-call” basis) cultural resources unearthed at the Livermore site and Site 300. • A training program will be established to educate construction inspectors and others on how to recognize cultural resources and artifacts, on the importance of avoiding damage to prehistoric and historic resources, and on procedures for protecting them. • The LLNL Facilities Specifications will be modified to include standard language requiring contractors to report any evidence of cultural resources unearthed. 	<ul style="list-style-type: none"> • Archaeologist was hired in April 1993. • For the most, part the same heavy equipment operators are used for all LLNL jobs at Site 300. They have developed a familiarity with the artifacts already found at the site and in-situ indications of materials of interest. • This language is included in Section 01010, paragraph 1.11, Special Requirements of the LLNL Facilities Specifications. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99.
4.2.1 Requires LLNL employees and contractors to report any evidence of cultural resources unearthed during development excavation at the LLNL Site 300. An archeologist will assess any unearthed resources at the construction site. If necessary, construction will be stopped to preclude disturbance of any cultural resources, testing would be conducted, and mitigation measures recommended in accordance with DOE and CEQA guidelines. Note: Implementation of this measure also implements measure 4.4.3.		

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
4.1.1 and 4.2.1, continued	<ul style="list-style-type: none"> If evidence of cultural resources is found during construction activities (such as excavation for foundations), work will be stopped and the LLNL archaeologist will be called in to advise further action. The LLNL archaeologist will notify DOE/OAK of cultural resources discovered. DOE/OAK to notify the State Office of Historic Preservation. 	<ul style="list-style-type: none"> One find of a potential cultural resource was reported in FY00. While performing maintenance activities along the bank of Arroyo Las Positas, a Plant Engineering department employee reported the discovery of a bone. Work was halted in the immediate area of the find until an archaeologist could advise further action. The archaeologist examined the bone and determined that it was a vertebrae of a large mammal, probably a deer. An examination of the soil in the vicinity of the find did not indicate any evidence of cultural materials. The UC Museum of Paleontology was consulted to determine whether or not the bone had any paleontological significance. Museum staff determined that the bone was likely from a modern deer and has no paleontological importance.
	<ul style="list-style-type: none"> A permit form will be developed and used for each job at Site 300 that entails digging, grading, excavating or drilling. 	<ul style="list-style-type: none"> The "Soil Excavation, Grading, and /or Drilling Permit" was created in FY94 and has been utilized at Site 300 since that time. This form, and associated procedure, was revised on August 17, 2000 (MOP-02003, Rev. #10) and is provided in Appendix A. Prehistoric and Historic Cultural Resources.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
4.2.2B During construction activities at LLNL Site 300, access to any identified prehistoric or historic site located near the Area of Potential Effect, but not directly impacted by construction, will be restricted by means of stakes and flagging or warning fences. Note: implementation of this measure partially implements measure 4.4.4.	<ul style="list-style-type: none"> This requirement will be placed in the LLNL Facilities Specifications. 	<ul style="list-style-type: none"> This requirement is stated in Section 01010, paragraph 1.11, Special Requirements of the LLNL Facilities Specification. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99.
	<ul style="list-style-type: none"> The archaeologist will review construction projects. Employees will be informed of the requirements of this mitigation measure. 	<ul style="list-style-type: none"> Cultural resource management issues and their implementation are a priority during ground-disturbing activities, as evidenced by the establishment of the Site 300 excavation permit and the development of a close working relationship between construction personnel and the LLNL archaeologist. Project managers and heavy equipment operators notify the archaeologist of planned soil disturbing activities. The archaeologist identifies locations to be restricted and coordinates the restricted area with the contractor and the manager. Through the soil excavation permit process or direct notification by the project manager, the archaeologist reviews projects and compares the potential impact area to known or suspected archaeological sites and to archaeologically sensitive areas.
	<ul style="list-style-type: none"> Project managers and construction managers for facilities and projects at Site 300 restrict access to prehistoric and historic cultural resources at job sites by staking off and flagging, or by fencing off the resources. 	<ul style="list-style-type: none"> If the project may be near a prehistoric or historic site, the archaeologist or construction manager flags the work area (area of potential effect) or the archaeological monitors construction activities. Workers and equipment are kept away from prehistoric or historic sites.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>4.2.2C Monitoring during grading of LLNL Site 300 will be conducted in areas where historic resources are determined to exist within the Area of Potential Effect. Implementation of this measure partially implements measure 4.4.4.</p>	<ul style="list-style-type: none"> The LLNL Facilities Specifications for Site 300 projects will be modified to contain standard language requiring monitoring during grading in areas where there are historic resources. LLNL will establish a service contract or hire an archaeologist to evaluate cultural resources unearthed during grading and diskings activities at Site 300. A duty of the archaeologist is to set up restrictions in areas of proposed earthwork if known historic resources may be present and monitor the grading and other soil disturbance activities. Until completion of the Cultural Resource Management Plan, Plant Engineering personnel will consult with the archaeologist prior to ground-disturbing activities, such as annual spring grading and diskings, to coordinate cultural resource protection measures. 	<ul style="list-style-type: none"> This language is included in Section 01010, paragraph 1.11, Special Requirements of the LLNL Facilities Specifications. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99. An archaeologist position was created in 1993 to provide for the evaluation of each proposed project involving earthwork at Site 300. When suspected archaeological resources are unearthed during ground-disturbing activities, the archaeologist is notified immediately and evaluates the find. A Soil Excavation, Grading, and/or Drilling Permit is used to document this requirement and its implementation. In addition, the archaeologist sets up restrictions in areas of proposed earthwork, if known archaeological resources are present, and monitors the grading and other disturbance activities.
<p>4.4.1 The cumulative impacts of the proposed action will be mitigated as set forth in Mitigation Measure 4.1.1. Impacts to prehistoric re-sources by other projects within the identified cumulative impact study area, but outside the boundaries of the LLNL Livermore and Sandia National Laboratory (Livermore sites), cannot be mitigated by UC.</p>	<p>Refer to implementation of 4.1.1; no additional action on the part of UC is required.</p>	<p>N/A</p>

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
4.4.2 The cumulative impacts of the proposed action will be mitigated as set forth in Mitigation Measure 4.1.2. Impacts to historic resources by other projects within the identified cumulative impact study area, but outside the boundaries of the LLNL Livermore and Sandia National Laboratory (Livermore sites), cannot be mitigated by UC.	Refer to implementation of 4.1.2; no additional action on the part of UC is required.	N/A
4.4.3 The cumulative impacts of the proposed action will be mitigated as set forth in Mitigation Measure 4.2.1. Impacts to prehistoric resources by other projects within the identified cumulative impact study area, but outside the boundaries of LLNL Site 300, cannot be mitigated by UC.	Refer to implementation of 4.2.1; no additional action on the part of UC is required.	N/A
4.4.4 The cumulative impacts of the proposed action will be mitigated as set forth in Mitigation Measures 4.2.2A, B, and C. Impacts to historic resources by other projects within the identified cumulative impact study area, but outside the boundaries of the LLNL Site 300, cannot be fully mitigated by UC.	Refer to implementation of 4.2.2 A, B, and C; no additional action on the part of UC is required.	N/A

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<i>Geologic Resources and Hazards</i>		
<p>6.1.1A All buildings and facilities under the proposed action at the LLNL Livermore site, including retrofits, will be built or modified (or retrofitted) according to established seismic design criteria based on their hazard ranking and location, as stated in DOE Order 5481.1B.</p> <p>6.2.1A All buildings and facilities at Site 300 will be built according to established seismic design criteria based upon their hazard ranking and location, as stated in DOE Order 5481.1B.</p>	<ul style="list-style-type: none"> • DOE Order 5481.1B requires the Laboratory to identify and demonstrate conformance with applicable guides, codes, and standards. Requirements for seismic design of nuclear facilities are identified in DOE Standard 1020-94 "Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities." 	<ul style="list-style-type: none"> • All projects undertaken in FY00 were built or modified according to established seismic design criteria. Refer to Table 3 on page 37 for a list of buildings and modifications constructed during FY00 in accordance with this mitigation measure.
<p>Actual implementation of DOE Order 5481.1B is through a rigorous and structured process that includes specific written direction in design criteria documents requiring the use of DOE Standard 1020-94, informal and formal design reviews that use the requirements of the standard as a basis for evaluation of the design, and certification by the design engineer of record that the requirements of the standard have been met.</p> <p>Architect-Engineer firms providing design services to LLNL are contractually required to design to the requirements of DOE Standard 1020-94. Furthermore, they are required to certify, by signature, that their design has met all applicable codes and standards.</p> <p>Under this Order, some seismically insignificant projects (e.g., landscaping) may be undertaken without project-specific seismic calculations.</p> <p>Per DOE Standard 1020-94 Appendix B-1 Table B-1, Performance Category (PC) "0" buildings, systems, and components have no safety, mission, or cost considerations. Hence, no seismic calculations are required to justify acceptable behavior (damage/failure limits). PC1 and PC2 systems and components are patterned after the Uniform Building Code and the Sheet Metal and Air Conditioning Contractor's National Association, which provide standard methods and details for anchoring ducts, piping, and fixtures; hence these do not need seismic calculations except for anchoring equipment.</p>	<ul style="list-style-type: none"> • The requirement to use DOE Standard 1020-94 in the design process at LLNL and guidance for implementation of these requirements has been issued by Laboratory management. A typical statement of the seismic design criteria requirements provided to an Architectural-Engineering firm was provided in the FY94 mitigation monitoring report. <p>An example of a design review sign-off was provided in the annual Mitigation Monitoring Report for FY93.</p>	<ul style="list-style-type: none"> • The requirement to use DOE Standard 1020-94 in the design process at LLNL and guidance for implementation of these requirements has been issued by Laboratory management. A typical statement of the seismic design criteria requirements provided to an Architectural-Engineering firm was provided in the FY94 mitigation monitoring report. <p>An example of a design review sign-off was provided in the annual Mitigation Monitoring Report for FY93.</p>

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>6.1.2 Site-specific geotechnical investigations by a California Certified Engineering Geologist, or by a California Registered Geologist, or by a California Registered Civil Engineer specializing in geotechnical studies, will be performed for proposed structures on the Livermore Site. The recommendations of the geotechnical investigation regarding foundations and subterranean drainage will be included in project design.</p>	<ul style="list-style-type: none"> Geotechnical investigations by California certified engineering geologists, California registered geologists, or California registered civil engineers specializing in geotechnical studies are routinely performed on all new major facility designs (\$2M total project costs). Often, new construction occurs in locations where previous soils investigations have been conducted. In these cases, results of the previous investigations are used as the basis for foundation and drainage designs. For light structures, small modifications, or relatively inexpensive construction, soil parameters as specified in the latest revision of the Uniform Building Code are used for minimum design requirements of foundation and drainage systems. 	<ul style="list-style-type: none"> LLNL requests that consultants prepare proposals to provide soil engineering reports. A copy of this type of request and the cover page, index, and drainage section from the Geotechnical Engineering Study for a project were provided in the annual Mitigation Monitoring Report for FY94. LLNL then provides these soils reports to the Architectural-Engineering firms designing the project. See Table 3 on page 37 and Table 4 on page 46 for a list of all FY00 construction activities at the Livermore site and Table 5 on page 47 for Site 300, and the implementation status of this mitigation measure.
<p>6.2.2 Site-specific geotechnical investigations by a California Certified Engineering Geologist, a California Registered Geologist, or a California Registered Civil Engineer specializing in geotechnical studies, will be performed for proposed structures at Site 300. The recommendations of the geotechnical investigation will include those regarding foundations and subterranean drainage and will be included in project design.</p>		

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<i>Ecology</i>		
7.2.6B Ensures that no construction-related activities occur [at Site 300] within a 300-ft. radius of known locations of elderberry bushes (see Figure F-18 in Appendix F of EIS/EIR). Elderberry bushes are habitat for the federally listed Valley elderberry longhorn beetle.	<ul style="list-style-type: none"> Elderberry bush locations were depicted in Appendix F, Figure F-18 of the EIS/EIR. As new bushes are identified, their locations are noted on the site maps. 	<ul style="list-style-type: none"> No additional elderberry bushes were found at Site 300 in FY00. A map is maintained by the Environmental Protection Department and Site 300 management with site-wide elderberry bush locations.
	<ul style="list-style-type: none"> The facilities specifications provided to contractors will be modified to include this requirement. 	<ul style="list-style-type: none"> Section 01010 Special Requirements of the LLNL Facilities Specifications, paragraph 1.10D requires contractors to meet this performance measure. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99.
	<ul style="list-style-type: none"> Shop supervisors of M&O construction, construction coordinators of labor only, and program or construction managers of construction management ensure all construction-related activities at Site 300 are reviewed through the Soil Excavation Permit process by the Environmental Evaluations Group, to verify that these activities will be conducted outside of a 300-ft. radius of elderberry bushes. 	<ul style="list-style-type: none"> See Table 5 on page 47 for a list of all FY00 construction activities at Site 300. This table indicates that all activities were reviewed for potential impact to elderberry beetle habitat.
	<ul style="list-style-type: none"> Prior to construction activities, Plant Engineering will post signs in a visible location. 	<ul style="list-style-type: none"> All construction in FY00 was determined to be outside the 300-ft. radius, and no signs were required.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6L Undisturbed areas [at Site 300] (i.e., areas having minimal recent surface disturbance) that may be affected by proposed construction projects will be surveyed for dens of the San Joaquin kit fox no earlier than 60 days prior to the beginning of construction activities. The survey area will include a minimum 300-ft. buffer zone around the proposed construction zone. Disturbed areas will not be surveyed. For new fire trails, linear trenching, or the redisking of the fire break in the northeastern corner of LLNL Site 300, the buffer zone will cover 50 ft. on either side of the right-of-way. In addition, a 50-ft. buffer zone will be established around monitor well installations. Methods employed during these surveys will follow techniques acceptable to the U.S. Fish and Wildlife Service and the California Department of Fish and Game (U.S. Fish and Wildlife Service, 1989). Because of the enhanced awareness program, however, personnel will be more aware of the potential for kit fox at the site. Depending upon the results of the survey outlined in mitigation measure 7.2.6L, mitigation measures 7.2.6M, N, O, Q, R, and S may be implemented.</p>	<ul style="list-style-type: none"> • An LLNL wildlife biologist surveys proposed construction sites within 60 days of ground disturbance. A flow diagram will be used to guide these surveys and follow-up on activities. 	<ul style="list-style-type: none"> • All proposed projects in FY00 to be located in areas with potential for suitable habitat were surveyed for kit fox dens. Surveys were conducted for a total of thirty-three projects at Site 300, as shown in Table 5 on page 47. The flow diagram used during wildlife surveys was updated in FY96 and is provided in Appendix B. Ecology.
	<ul style="list-style-type: none"> • The facilities specification will be modified to include this requirement. Key Site 300 personnel and construction project managers will be briefed on these requirements. 	<ul style="list-style-type: none"> • Section 01230 (Site 300) Special Requirements of the LLNL Facilities Specifications, paragraph 1.01H.1, was modified to include this requirement. A copy of this section was provided in the Mitigation Monitoring Report for FY94. This section was superseded in FY99 by Section 01010, paragraph 1.10D.
<ul style="list-style-type: none"> • The Soil Excavation Permits form (Maintenance and Operation Procedure 02003) used by Plant Engineering at Site 300 and the NEPA reviews also serve to trigger this survey and the required follow-up. 		<ul style="list-style-type: none"> • Site 300 management, staff, and project managers were briefed on this requirement during presentations on December 8, 1999, March 15, 2000, April 19, 2000, and August 15, 2000.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6M Consistent with U.S. Fish and Wildlife Service (1989) recommendations, protective exclusion zones will be established around kit fox dens observed in the 300- or 50-ft. buffer zone. These exclusion zones will be the following distances:</p> <ul style="list-style-type: none"> • Known kit fox dens = 200 ft. • Pupping kit fox dens (dens with sign of pupping activity) = 300 ft. • Potential kit fox dens = 25 ft. 	<ul style="list-style-type: none"> • Follow-on actions from wildlife surveys are included in the flow diagram described in the strategy and status for Mitigation Measure 7.2.6L. This flow diagram is followed by the wildlife biologist, the project manager, and construction personnel. 	<ul style="list-style-type: none"> • No active pupping dens were discovered FY00. However, four potential pupping dens were found during surveys conducted prior to ground disturbance activities for thirty-three projects. Exclusion zones were established during these projects.
<p>This mitigation measure restricts activities within these exclusion zones: only essential vehicle operation will be allowed, and construction, materials storage, or other types of surface-disturbing activity will be prohibited or minimized. New roads will be kept to a minimum and vehicle traffic will be restricted to roads that are necessary for construction.</p>		

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6N Any known and pupping kit fox dens found will be posted with a sign near the den entrance stating the presence of the sensitive resource. To ensure protection of these dens, fencing will be installed around each one following the exclusion distances specified above. The exclusion fencing will consist of large stakes (4- to 5-ft. metal or 1x1-inch wooden stakes) connected with a heavy rope or cord, and will be maintained for the duration of the construction project. The exclusion area can be modified as described in measure 7.2.6M. Potential kit fox dens found within a proposed construction site buffer zone will have 2-ft. wooden stakes with flagging placed at the den's entrance and will be maintained for the duration of the construction project.</p>	<ul style="list-style-type: none"> Follow-on actions from wildlife surveys are included in the flow diagram described in the strategy and status for Mitigation Measure 7.2.6L. This flow-diagram will be followed by the wildlife biologist, the project manager, and construction personnel. 	<ul style="list-style-type: none"> No known or pupping dens were discovered in FY00.
<p>7.2.6O Monthly checks of known and pupping dens will be conducted to ensure that the signs, stakes, and fencing are still intact. Monitoring will be done as unobtrusively as possible, staying outside the exclusion zones.</p>	<ul style="list-style-type: none"> Follow-on actions from wildlife surveys are included in the flow-diagram described in the strategy and status for Mitigation Measure 7.2.6L. These will be followed by the wildlife biologist, the project manager, and construction personnel. 	<ul style="list-style-type: none"> No known or pupping dens were discovered in FY00 and, therefore, no monthly checks were needed.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6P To prevent the kit fox (and other species of concern) from being injured or trapped during the construction phase of a project, excavated steep-walled holes or trenches greater than 2 ft. deep will be covered with plywood at the close of each working day, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.</p>	<ul style="list-style-type: none"> Procedures to implement this mitigation measure will be developed and put in all Site 300 construction contract specifications. Employees and contractors working at Site 300 will be trained and routinely informed of this requirement. The LLNL wildlife biologist will be notified of any trapped animals. 	<ul style="list-style-type: none"> Construction specifications Section 01010, Special Requirements of the LLNL Facilities Specifications, paragraph 1.10D, requires all excavations to be covered or modified with ramps each night. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99. Site 300 management, staff, and project managers were briefed on this requirement at December 8, 1999, March 15, 2000, and August 15, 2000 briefings. A list of Site 300 projects active in FY00 and their implementation status for this mitigation measure are presented in Table 5 on page 47.
<p>7.2.6Q If potential kit fox dens will be unavoidably destroyed by construction or other related activities, the following procedures will be initiated prior to disturbance. The dens will be monitored by a trained kit fox biologist for 2 to 3 days to determine if they are being used by kit fox. Activity at the dens can be monitored by placing tracking medium at the den's entrance and by night spotlighting. If there is sign of kit fox activity, the dens will be observed for 2 to 3 more days to allow the animal to move to another den during its normal activities. If there is no activity, the den will be destroyed.</p>	<ul style="list-style-type: none"> The flow diagram for surveys for kit fox, and for other actions derived from the surveys, includes this requirement. The flow diagram and forms to be used during the surveys and follow-on actions, including this requirement, are included in Appendix B. Ecology. The flow diagram for surveys for kit fox, and for other actions derived from the surveys, includes this requirement. The flow diagram and forms to be used during the surveys and follow-on actions, including this requirement, are included in Appendix B. Ecology. It was not necessary to destroy any potential kit fox dens in FY00. 	

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6R If known kit fox dens occur within the areas of proposed disturbance or development, and impact to these resources is unavoidable, the procedures discussed in Appendix F of the Final EIS/EIR will be implemented. The U.S. Fish and Wildlife Service and the California Department of Fish and Game will review and comment on the proposed action. Den monitoring and plugging activities will be fully documented and reported in writing to the U.S. Fish and Wildlife Service and the California Department of Fish and Game as part of the Mitigation Monitoring and Reporting Program.</p>	<ul style="list-style-type: none"> The flow diagram for surveys for kit fox, and for other actions derived from the surveys, will include this requirement. 	<ul style="list-style-type: none"> The flow diagram and forms to be used during the surveys and follow-on actions, including this requirement, are included in Appendix B. Ecology. No known dens were discovered FY00.
<p>7.2.6S If construction activities impact known kit fox dens, then artificial dens may be installed at an agreed-upon location. Consult with the U.S. Fish and Wildlife Service and the California Department of Fish and Game on the appropriate placement and design of artificial dens.</p>	<ul style="list-style-type: none"> The flow diagram for surveys for kit fox, and for other actions derived from the surveys, will include this requirement. 	<ul style="list-style-type: none"> The flow diagram and forms to be used during the surveys and follow-on actions, including this requirement, are included in Appendix B. Ecology. No known dens were discovered FY00.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6T Undisturbed areas that might be affected by proposed construction projects will be surveyed (including a 300-ft. buffer zone) for known burrows or dens of the burrowing owl and American badger no sooner than 60 days prior to the beginning of construction activities. For new fire trails, the buffer zone will cover 50 ft. on either side of the right-of-way.</p> <p>The flow diagram and forms to be used during the surveys were included in the Mitigation Monitoring Report for FY96.</p>	<ul style="list-style-type: none"> • An LLNL wildlife biologist surveys proposed construction sites within 60 days of construction. A flow diagram is used to guide these surveys and follow-on activities. A copy of the flow diagram is provided in Appendix B. Ecology. • The facilities specification will be modified to include this requirement. • Section 01010 Special Requirements of the LLNL Facilities Specifications, paragraph 1.10.D was modified to include this requirement. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99. • Key Site 300 personnel and construction project managers will be briefed on these requirements. • Site 300 management, staff, and project managers were briefed on this requirement at briefings on December 8, 1999, and March 15, April 19, and August 15, 2000. • The Soil Excavation Permit form (Maintenance & Operation Procedure 02003) used by Plant Engineering at Site 300 and the NEPA review by the Environmental Protection Department also serve to trigger this survey and the required follow-up. 	<ul style="list-style-type: none"> • The list of Site 300 projects active in FY00 and their implementation status for this mitigation measure are in Table 5 on page 47. • In FY00, dens were found and exclusion zones were established within fifty feet for a total of fourteen projects occurring at both Livermore Site and Site 300.
<p>7.2.6U If known dens are identified within the survey area, exclusion zones of 50 ft. will be established and delineated.</p>	<ul style="list-style-type: none"> • An LLNL wildlife biologist surveys proposed construction sites within sixty days of construction. A flow diagram is used to guide these surveys as follow-on activities. A copy of the flow diagram is provided in Appendix B. Ecology. 	<ul style="list-style-type: none"> • In FY00, dens were found and exclusion zones were established within fifty feet for a total of fourteen projects occurring at both Livermore Site and Site 300.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
7.2.6V Restricts activities within these exclusion zones: only essential vehicle operation will be allowed, and construction materials storage, or other types of surface-disturbing activity, will be prohibited or minimized. New roads will be kept to a minimum and vehicle traffic will be restricted to roads that are necessary for construction. If it is impossible to maintain acceptable exclusion zones, requires consultation with the California Department of Fish and Game to modify exclusion zone dimensions.	<ul style="list-style-type: none"> • An LLNL wildlife biologist surveys construction sites within sixty days of construction and defines any needed exclusion zones. • The flow diagram for surveys for burrowing owl and American badger, and for other actions derived from surveys, includes this requirement. • The facilities specification will be modified to include this requirement. 	<ul style="list-style-type: none"> • In FY00, activities were restricted within the exclusion zones that the wildlife biologist established around the dens. Exclusion zones were established around the dens identified prior to the ground-disturbing elements of seven projects. • A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99. • Construction specifications Section 01230, (Site 300) Special Requirements of the LLNL Facilities Specifications, paragraph 1.10D requires all excavations to be covered or modified with ramps each night. A copy of this specification was included in the mitigation monitoring report for FY99.
	<ul style="list-style-type: none"> • Key Site 300 personnel and construction project managers will be briefed on these requirements. 	<ul style="list-style-type: none"> • Site 300 management, staff, and/or project managers were briefed on the requirement of this mitigation measure on December 8, 1999, and March 15, April 19, and August 15, 2000.
7.2.6W If known dens will be unavoidably impacted, consultation with the California Department of Fish and Game will occur to determine acceptable procedures for destruction of the dens.	<ul style="list-style-type: none"> • An LLNL wildlife biologist surveys construction sites within sixty days of construction to determine if any known dens would be unavoidable impacted. A flow diagram for surveys for burrowing owl and American badger, and for other actions derived from surveys, includes this requirement. • Key Site 300 personnel will be briefed on this requirement. 	<ul style="list-style-type: none"> • There were no projects in FY00 that would unavoidably impact known dens; therefore, consultation with the California Department of Fish & Game was not warranted. (A list of Site 300 projects with activity in FY00 and their implementation status are in Table 5 on page 47.) • Site 300 management, staff, and project managers were briefed on this requirement at briefings on December 8, 1999, and March 15, April 19, and August 15, 2000.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<i>Air Quality</i>		
<p>8.1.1 General construction practices at the LLNL Livermore site, including contract specifications, will require that fugitive emissions be reduced by means such as water spraying of roads and the wheels and lower portions of construction vehicles and covering exposed piles of excavated material.</p> <p>8.2.1 General construction practices at LLNL Site 300, including contract specifications, will require that fugitive emissions be reduced by means such as water spraying of roads and the wheels and lower portions of construction vehicles and covering exposed piles of excavated material.</p>	<ul style="list-style-type: none"> • The LLNL facilities specifications will require contractors to control dust on construction sites. 	<ul style="list-style-type: none"> • The requirement is contained in Section 01500, paragraph 1.10A, of the LLNL Facilities Specifications. A copy of this requirement in the specification was provided in the mitigation monitoring report for FY99.
	<ul style="list-style-type: none"> • LLNL heavy equipment operators will control dust from their operations. 	<ul style="list-style-type: none"> • A list of projects with activity in FY00 is presented in Table 3 on page 37, Table 4 on page 46, and Table 5 on page 47. This table indicates this mitigation measure was implemented.

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>8.1.2 On a project-specific basis, evaluate the feasibility of designing buildings at the LLNL Livermore site to minimize the contribution of criteria pollutants to the offsite ambient concentrations.</p> <p>8.2.3 Mitigation measures for nitrogen oxides, volatile organic compound, and PM10 emissions for the LLNL Livermore site (Mitigation Measure 8.1.2) would also be employed at LLNL Site 300.</p>	<ul style="list-style-type: none"> The following equipment and operations related to new buildings have been identified as generating criteria pollutants: boilers, architectural coatings, and emergency generators. Requirements will be in place to minimize the emission of criteria pollutants. Criteria pollutants include CO, NOx, SO₂, VOCs, PM₁₀, and Ozone. <ul style="list-style-type: none"> The pollutants CO, NOx, SO₂, and particulate matter, are generated in the boilers used for heating and cooling of LLNL facilities. Contract specifications for boilers will require designs that minimize the release of criteria pollutants. State of California Code requires that boilers must follow American Society of Heating, Refrigerating, and Air Conditioning Engineering, Inc. standards for efficiency and are tested in accordance with American Society of Mechanical Engineers (ASME) PTC 4.1. All architectural coatings must meet the strict requirements (best available technology) of the Bay Area Air Quality Management District (BAAQMD) and the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). 	<ul style="list-style-type: none"> Contract specifications for both the Livermore Site and Site 300 prescribe boiler standards in the LLNL facilities specification which include Section 15556 Cast Iron Boilers, paragraphs 2.06, 2.12, 2.13, 2.14, and 3.02; Section 15559 Steel Water Tube Boilers, paragraphs 2.06, 2.12, 2.13, 2.14, and 3.02; and Section 15561 Fire Tube Boilers, paragraphs 2.06, 2.12, 2.13, 2.14, and 3.02. The pertinent sections of these specifications were presented in the Mitigation Monitoring Report for FY94. All new or replacement boilers installed at LLNL in the future will be designed to meet BAAQMD best available technology requirements. Volume IV, Part 42.1 of the LLNL Environment, Health and Safety Manual requires that heating-system boilers must conform to current standards of the ASME, Underwriters Laboratories Industrial Risk Insurers, California Administrative Code, and Factory Mutual. For specific regulations, refer to: <ul style="list-style-type: none"> ASME Boiler and Pressure Vessel Code, Section IV, Heating Boilers UL795, Commercial Industrial Gas Heating Equipment UL726, Oil-Fired Boiler Assemblies Industrial Risk Insurers (formerly FIA), "Recommended Good Practice for Combustion Safeguards on Single-Burner Boilers—Furnaces" FM, Loss Prevention Data Sheet 12-37 (low water cutoff) CAC, Title 8, Chapter 4, Subchapter 2 CAC, Title 24, Electrical Control

Table 2. Project-Specific Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
8.1.2 and 8.2.3, continued	<ul style="list-style-type: none"> • The Laboratory adheres to the Clean Air Act, Power Plant and Industrial Fuels Use Act (fuel selection must also comply with DOE 43330.2C), and to the regulations of the two regional air quality management districts. • LLNL's Environment, Health and Safety Manual requires compliance with BAAQMD, SJVUA-PCD, and the State of California regulatory requirements to minimize emissions. • Building designs are reviewed by both Plant Engineering and the Environmental Protection Department. • A list of projects that were reviewed for potential minimization of criteria pollutant emissions in FY00 is in Table 3 on page 37, Table 4 on page 46, and Table 5 on page 47. 	

Table 3. FY00 Projects at the Livermore Site

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
131-00-003	B-131 EM 1560 CADD Area	Complete	NA-1	#2	NA-2	NA-1	NA-3
132-N98-011	B132N, R2000, ASCI	Complete	NA-1	#2	NA-1	NA-1	#1
332-99-036	B332 Increment I Security Fence	Complete	#1	#1	#3	#1	#1
571-98-003	B571 HVAC Corrections and Upgrade	Complete	NA-1	#2	NA-1	NA-1	#1
ELI-97-021	B332 EMCC Replacement	Complete	NA-1	#1	NA-1	NA-1	#1
111-00-007	B111 Visualization Center	Complete	NA-1	#2	NA-1	NA-1	#1
ISF-00-001	ISF Line Item	Construction	#1	#1	#1	#1	#1
511-00-033	Stairway West Side Building 511	Complete	NA-1	#1	NA-2	NA-1	#1
451-97-015	B-451 ASCI Blue-Pacific Installation	Complete	#1	#1	#3	#1	#1
451-19-902	B-451 ASCI Blue-Pacific Installation 9	Complete	#1	#1	#3	#1	#1
451-99-003	B-451 ASCI Blue-Pacific Mods	Complete	#1	#1	#3	#1	#1
451-98-003	B-451 Addition	Complete	#1	#1	#3	#1	#1
NIF-99-004	Underground Power @5900 BL	Complete	#1	#2	#3	#1	NA-3
NIF-99-005	LTAB EVA Quip Design	Complete	NA-1	#2	NA-2	NA-1	#1
INS-99-001	Roof Line Item	Construction	NA-1	#1	NA-2	NA-1	#1
174-00-004	B174 Roof Deficiencies	Construction	NA-1	#2	NA-2	NA-1	#1
217-00-005	B217 Re-Roof	Construction	NA-1	#2	NA-2	NA-1	#1
261-00-006	B261 Re-Roof	Construction	NA-1	#2	NA-2	NA-1	#1
298-00-005	B298 Roof Deficiencies	Design	NA-1	#2	NA-2	NA-1	#1
312-00-001	B312 Re-Roof	Construction	NA-1	#2	NA-2	NA-1	#1
321-00-002	Reinstall Fence	Complete	#1	#1	#2	#1	#1
334-00-002	Concrete Wall Inserts	Complete	#1	#1	#2	#1	#1
335-00-002	B335 Office Remodel	Complete	#1	#1	#2	#1	#1
341-99-005	B341C ReRoof	Complete	NA-1	#2	NA-2	NA-1	#1
361-00-015	B361 Roof Deficiencies	Design	NA-1	#2	NA-2	NA-1	#1
332-98-018	B-332 MXL Fire Alarm	Construction	NA-1	#2	NA-2	NA-1	#1
332-98-021	Reinforce Fire	Complete	#1	#1	#1	#1	#1
332-99-010	RM1200 Piping Mods	Complete	NA-1	#2	NA-2	NA-1	#1
332-99-015	HEPA Filters	Complete	NA-1	#2	NA-2	NA-1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
332-99-035	RM1066 Floor Repair	Complete	NA-1	#2	NA-2	NA-1	#1
332-99-037	RM 1345 Glove Box Install	Complete	NA-1	#2	NA-2	NA-1	#1
332-99-039	Roof Barrier	Complete	NA-1	#1	#1	#1	#1
332-00-001	CSSS Network	Complete	#1	#1	#2	#1	#1
332-00-002	Rm 1009 Waste Operations Upgrade	Complete	#1	#1	#2	#1	#1
332-00-003	Seismic Upgrade Room 1010	Complete	NA-1	#1	#1	#1	#1
332-00-004	Electrical Power Room 1010	Complete	NA-1	#1	#1	#1	#1
332-00-005	Increment 3 GBE Replacement	Complete	NA-1	#2	NA-2	NA-1	#1
332-00-006	FHE Duct Replacement	Complete	NA-1	#2	NA-2	NA-1	#1
332-00-007	Increment 1 Barrier	Complete	#1	#1	#3	#1	#1
332-00-008	Second Street Barriers	Complete	#1	#1	#2	#1	#1
332-00-009	Overhead Deterrent/Net	Complete	#1	#1	#2	#1	#1
332-00-012	IPS Replacement	Complete	#1	#1	#2	#1	#1
332-00-013	EMCC Wiring	Complete	#1	#1	#2	#1	#1
332-00-014	Power System Upgrade	Complete	#1	#1	#2	#1	#1
332-00-017	Glove Box #5	Complete	NA-1	#2	NA-2	NA-1	#1
332-00-018	Room 1006 Fume Hood	Construction	NA-1	#2	NA-2	NA-1	#1
332-00-019	Overhead Deterrent System	Complete	#1	#1	#3	#1	#1
332-00-020	Replace Expansion Tank Room 1200	Complete	NA-1	#1	#2	#1	#1
332-00-021	Waste Operations Upgrade A/B	Construction	#1	#1	#2	#1	#1
332-00-023	Nash Pump Piping Mods	Complete	#1	#1	#2	#1	#1
332-00-025	Downdraft Sup. Upgrade	Construction	#1	#1	#2	#1	#1
332-00-028	B332 R1345 Glovebox	Construction	NA-1	#2	NA-2	NA-1	#1
332-00-030	Panel Wiring Glovebox 12	Construction	NA-1	#2	NA-2	NA-1	#1
551E-99-011	Tree Relocation - Blk 500	Complete	#1	#2	NA-2	#1	#1
ELI-97-023	Transformer Back T556 Replace	Complete	#1	#2	NA-2	#1	#1
258-299-002	Relocate Trailer & Ext. Duct	Complete	#1	#2	NA-2	#1	#1
274-99-004	B-274 Upgrade to STC45 Rating	Complete	NA-1	#1	NA-2	NA-1	NA-3
319-00-003	B-319 Rm Alt. R-243, 252, 111	Complete	NA-1	#1	NA-2	NA-1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
190-99-003	B-190 Office Addition 1999	Complete	#1	#1	#3	#1	#1
191-98-006	B-191 Femto-Second Laser Lab	Complete	NA-1	#1	NA-2	NA-1	#1
332-99-013	Install Nash Chillers	Complete	NA-1	#1	NA-2	NA-1	NA-3
131-00-18	Install Wheel Chair Life	Design/Complete	NA-1	#1	NA-2	NA-1	NA-3
132N-99-027	B-132 Rm. 2218-2226A	Complete	NA-1	#2	NA-2	NA-1	NA-3
217-00-007	B-217 VTR Rework	Complete	NA-1	#2	NA-1	NA-1	NA-3
217-00-007	T-1277 Relocation Walls	Complete	#1	#2	#3	#1	#1
ERD-00-009	B-518 SWAT Site	Complete	NA-1	#2	NA-2	NA-1	#1
231-00-004	B-231 Press Seismic Upgrade	Complete	#1	#2	#1	#1	#1
132N-00-006	B-132N EVA Install	Complete	NA-1	#2	NA-2	NA-1	NA-3
ERD-00-003	MTU FAB-TFE 3,4,5	Complete	NA-1	#2	NA-2	NA-1	#1
ERD-00-002	MTU FAB-TFD #2	Complete	NA-1	#2	NA-2	NA-1	#1
ERD-00-007	SVE FAB-TFD #5	Complete	NA-1	#2	NA-2	NA-1	#1
ERD-00-008	TFD South Shore	Complete	#1	#2	#1	#1	#1
121-99-020	B-121 North East Remodel	Complete	NA-1	#2	NA-2	NA-1	#1
132N-99-014	B-132N IE Upgrade	Complete	NA-1	#2	#1	NA-1	NA-3
ERD-00-010	Painters Blanket	Complete	NA-1	#2	NA-2	NA-1	NA-3
ERD-98-013	Design ERD Blanket	Complete	#1	#2	#1	#1	#1
ERD-00-015	Design Blanket	Complete	NA-1	#2	NA-2	NA-1	NA-3
ERD-00-016	Elect Blanket	Complete	NA-1	#2	NA-2	NA-1	NA-3
ERD-99-005	Elect Blanket	Complete	NA-1	#2	NA-2	NA-1	NA-3
ERD-00-021	T5475 CRD 2 Site Work	Complete	#1	#2	#1	#1	#1
ERD-00-018	Plumbers Blanket	Complete	NA-1	#2	NA-1	NA-1	NA-3
CMP-99-001	Operation Portion - 500 Block Parking	Construction	#1	#2	#1	#1	NA-3
256-00-006	B-256 North Parking	Complete	#1	#2	#1	#1	NA-3
663-00-010	B-663 HVAC Rm. 1204	Complete	NA-1	#1	NA-2	NA-1	NA-3
HWM-00-001	Info Management & Field Tech	Construction	NA-1	#2	NA-1	NA-1	#1
625-00-001	B-625 Structural Project	Complete	NA-1	#1	NA-2	NA-1	NA-3
439-00-002	B439 & T4726 Remodel	Complete	NA-1	#2	NA-2	NA-1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
5627-00-003	T5627 Office Expansion	Complete	#1	#2	#3	#1	#1
BSD-96-005	SCADA Generators Site 200	Complete	NA-1	#2	NA-1	NA-1	NA-3
6127-00-001	6127 Relocation & Site Utilities	Complete	#1	#1	#1	#1	NA-3
291-98-008	B-291 NW LCW Station Electrical	Complete	NA-1	#2	NA-1	NA-1	NA-3
314-98-005	B314 Deferred Maint. Remediation	Complete	#1	#2	NA-2	#1	#1
314-99-003	B314 Modular Furniture Power	Complete	#1	#2	NA-2	#1	NA-3
315-98-005	B315 Deferred Maint. Remediation	Complete	#1	#2	NA-2	#1	#1
DIR-98-010	B314/5 Parking Lot Rehab.	Complete	#1	#2	NA-2	#1	#1
DIR-99-006	B314 Conf. Room Lighting	Complete	NA-1	#2	NA-2	NA-1	NA-3
3724-99-005	Single Point Power Kits	Complete	NA-1	#2	NA-2	NA-1	#1
162-00-004	Rm. 1210 Power Addition	Complete	NA-1	#2	NA-2	NA-1	#1
162-00-005	B162 W.Canopy - Fire Sprinkler Mod.	Opening Report	NA-1	#2	NA-2	NA-1	NA-3
174-00-003	B174 Room 1320 Paint Cleanroom	Complete	NA-1	#2	NA-2	NA-1	#1
175-00-006	Remove Classified Cables - Bits	Complete	#1	#2	#3	#1	#1
381-00-005	B381 New Conference Room #1340	Complete	NA-1	#2	NA-2	NA-1	#1
381-00-006	B381 Room 1332/1360 Soundsoak	Complete	NA-1	#2	NA-2	NA-1	#1
381-00-007	B381 Assembly Stand Utilities	Complete	NA-1	#2	NA-2	NA-1	#1
381-00-009	B381 and B481 Install Fiber Cable	Complete	#1	#2	#3	#1	#1
381-00-010	B381 Enlarge Room 2148	Complete	NA-1	#2	NA-2	NA-1	#1
381-00-014	B381 Chiller Power Outlets - Room B158	Complete	NA-1	#2	NA-2	NA-1	#1
381-00-021	Enlarge Room 1320	Complete	NA-1	#2	NA-2	NA-1	#1
391-00-013	Target Positioner Area Room B350	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-014	B391 Epoxy Coating on Floor of Room B350	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-015	B-391 Cleanroom Ceiling Tiles	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-017	B391 Interlock Conduits, Wire Room B350	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-018	B391 PDS Build-up Area Room 1250	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-019	B391 Electrical Outlets Room 13J02A	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-020	Paint Room 1220	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-021	B391 10' Double Doors Room 118	Complete	NA-1	#2	NA-1	NA-1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
391-00-022	C.A. Reel Installation Room B350	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-024	B391 Room B350 Electrical Power	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-026	Power module air release struct, room B352	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-028	Warning Signs & Lights Room B350	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-027	Relocate Alarm Panel Room B330	Complete	NA-1	#2	NA-1	NA-1	#1
431-00-002	Relocate Temp. Structure From B494 to B431	Complete	#1	#2	#3	#1	#1
432-00-005	B432 Explosion Proof Fan Motor	Complete	NA-1	#2	NA-1	NA-1	#1
482-00-004	B482 Convert Room 2025 & 2027 to one large office	Complete	NA-1	#2	NA-1	NA-1	#1
482-00-007	Office Modifications - Rms 1023, 1024, 1025	Complete	NA-1	#2	NA-1	NA-1	#1
482-00-009	B482 Entry Exterior Lighting	Complete	NA-1	#2	#3	NA-1	#1
490-00-003	B490 Relocate Room 1114	Opening Report	NA-1	#2	NA-1	NA-1	NA-3
490-00-007	B490 Office Modification Room1430	Complete	NA-1	#2	NA-1	NA-1	#1
490-00-009	B490 Rooms 1012 & 1018 Modification	Complete	NA-1	#2	NA-1	NA-1	#1
490-00-010	Layout Tables - Room 1422	Complete	NA-1	#2	NA-1	NA-1	#1
490-00-011	Remove Classified Cables - B490	Complete	NA-1	#2	NA-1	NA-1	#1
493-00-001	F.A. Dust Detectors Installation	Complete	NA-1	#2	NA-1	NA-1	#1
493-00-005	B493 Room 100 Interior Bollards	Complete	NA-1	#2	NA-1	NA-1	#1
494-00-002	B494 East Side Asphalt Paving Material	Complete	#1	#2	#3	#1	#1
494-00-003	B494 Temp. Structure	Complete	#1	#2	#3	#1	#1
494-00-004	B494 Concrete Pads	Complete	#1	#2	#3	#1	#1
2629-00-001	T2629 New Copier Room 111	Complete	NA-1	#2	NA-1	NA-1	#1
3724-00-004	T3724 Carpet & Paint Room 1238	Complete	NA-1	#2	NA-1	NA-1	#1
3751-00-002	T3751 Repaint Interior	Opening Report	NA-1	#2	NA-1	NA-1	NA-1
3905-00-002	T3905 Paint and Carpet	Complete	NA-1	#2	NA-1	NA-1	#1
5926-00-001	T5926 Modifications	Complete	NA-1	#2	#3	NA-1	#1
5927-00-006	T5627 Parking Lot Lighting	Complete	#1	#2	#3	#1	#1
5977-00-003	Power Poles - T5977	Complete	#1	#2	#3	#1	#1
5981-00-002	T5981 Enclose Open Area for Offices	Complete	NA-1	#2	#3	NA-1	#1
5982-00-002	T5982 Install Power Poles	Complete	#1	#2	#3	#1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
6526-00-002	T6526 Parking Lot Lighting	Complete	#1	#2	#3	#1	#1
NIF-00-006	Glass Doors & TESA Locks for 5900's	Closing Report	NA-1	#2	NA-1	NA-1	#1
NIF-00-010	Stair Access Control - NIF Const. Site	Complete	NA-1	#2	#3	NA-1	#1
391-00-008	B391 Wash Box Utility Install - Room	Complete	NA-1	#2	#3	NA-1	#1
181-99-006	B181 Upgrade Room 2044 to VTR	Complete	NA-1	#2	NA-1	NA-1	#1
381-99-014	CONS -381 New Duct Heater	Complete	NA-1	#2	NA-1	NA-1	#1
NIF-00-005	Relocate T2582 to NIF Construction Yard	Complete	#1	#2	#3	#1	#1
161-00-001	B-161 Interlocks Room 119	Complete	NA-1	#2	NA-1	NA-1	#1
391-00-025	PDS Laser Curtain - Room 1250	Complete	NA-1	#2	NA-1	NA-1	#1
443-00-001	Clear B443 for RTI	Complete	NA-1	#2	#3	NA-1	#1
494-00-005	B494 Roll-up Door Replacements	Complete	NA-1	#2	#3	NA-1	#1
5982-00-001	5900 Trailers Fence Removal	Complete	NA-1	#2	#3	NA-1	#1
PPS-99-007	2nd Street A/C Resurface	Complete	NA-1	#2	NA-2	NA-1	#1
141-00-007	B141 Phase I ACU	Complete	NA-1	#2	NA-2	NA-1	NA-3
141-00-005	B141 HVAC Upgrade	Complete	NA-1	#1	NA-2	NA-1	NA-3
551#-00-016	Southgate Drive Improvement	Complete	#1	#2	NA-2	#1	#1
363-00-002	363 ACV01 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
313-00-003	313RCA02,03 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
281-00-007	281 ACS01,03 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
435-00-008	435 RCH09 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
231-00-022	231 ACV26 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
321-00-011	321 ACV08 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
321-00-008	B321 ACU 48, 49, 50 and 8 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
313-00-004	B313 ACS 01,02,03 Replacement	Complete	NA-1	#2	NA-1	NA-1	#1
1737-99-002	T6926 Site Mods/ T1737	Complete	#1	#2	#3	#1	#1
219-99-004	B219 Paint Exterior	Complete	NA-1	#2	NA-1	NA-1	#1
292-99-004	B292 Install Fume Hoods R1008	Complete	NA-1	#2	NA-1	NA-1	NA-3
311-99-004	B311 VTR R1102A Construction	Complete	NA-1	#2	NA-1	NA-1	#1
319-99-006	B319 Remodel Women's Restroom	Complete	NA-1	#2	NA-1	NA-1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
HWM-99-002	6127 Relocation & Site Utilities	Complete	#1	#1	#1	#1	#1
216-00-008	480 V Power B216 Chiller	Complete	#1	#2	#1	#1	#1
TSD-00-001	T1888 Mods	Complete	#1	#2	#1	#1	#1
325-99-009	B325MCC Replacement	Complete	#1	#1	#1	#1	#1
325-00-007	B325MCC Const. Phase 1	Complete	#1	#1	#1	#1	#1
325-00-011	B325MCC Construction Phase II	Complete	#1	#1	#1	#1	#1
132N-00-020	B241 Repair Fire Wall	Complete	NA-1	#2	NA-2	NA-1	NA-3
151-00-013	B151 Fume Hood Restart	Complete	NA-1	#2	NA-2	NA-1	NA-3
235-00-021	B235 Evaluate Hoods	Complete	NA-1	#2	NA-2	NA-1	NA-3
1879-99-001	T1879	Complete	NA-1	#2	NA-1	NA-1	NA-3
1879-00-001	T1879	Complete	NA-1	#2	NA-1	NA-1	#1
1879-00-003	T1879	Complete	NA-1	#2	NA-1	NA-1	#1
151-99-014	B151 Mods for Isoprobe	Complete	NA-1	#2	NA-1	NA-1	#1
EVA-00-001	Modify Existing EVA System	Complete	NA-1	#2	NA-1	NA-1	#1
2428-00-008	T2428 Ductless HVAC	Design	NA-1	X	NA-1	NA-1	X
241-99-021	B241 Seismic Evaluation & Options	Design	NA-1	X	NA-1	NA-1	X
241-00-014	B241 Painting Area 1855 Offices	Complete	NA-1	#2	NA-1	NA-1	#1
241-00-013	B241 Seismic Bracing of Sprinklers	Complete	NA-1	#2	NA-1	NA-1	#1
235-00-008	B235 Emergency Power Computers	Complete	NA-1	#2	NA-1	NA-1	#1
151-00-009	B151 Install PH Adjust Component	Complete	NA-1	#2	NA-1	NA-1	#1
123N-00-020	B241 Repair Fire Wall	Complete	NA-1	#2	NA-1	NA-1	NA-3
132N-00-002	B132N R1671 Conversion VTR	Complete	NA-1	#2	NA-1	NA-1	#1
132N-00-003	B132N R1671 Conversion VTR	Complete	NA-1	#2	NA-1	NA-1	#1
132N-00-019	B132N Emergency Generator	Complete	NA-1	#2	NA-1	NA-1	#1
DIR-01-001	Barrack Bldgs Seismic Bracing	Complete	NA-1	#1	NA-2	NA-1	NA-3
DIR-00-002	Barrack Bldgs Seismic Bracing	Complete	NA-1	#1	NA-2	NA-1	NA-3
231-00-021	231RCH07 Replacement	Complete	NA-1	#1	NA-1	NA-1	NA-3
197-00-008	B-197 Chiller/Boiler Replacements	Complete	NA-1	#2	NA-1	NA-1	NA-3
671-00-001	B671 HVAC Capital Upgrade	Complete	#1	#1	#1	#1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
321A-99-009	B321A Lab Remodel	Complete	#1	#1	#1	#1	#1
571-99-006	B571 HVAC Replacement	Complete	#1	#1	#1	#1	#1
175-00-004	B175 Security Clean-Up	Complete	#1	#1	#1	#1	#1
321A-00-001	B321A Design & Cleanup Support	Complete	#1	#1	#1	#1	#1
312-00-004	South Cafeteria Air Wash Unit	Complete	#1	#1	#1	#1	#1
132S-00-005	Paging Isolation	Construction	NA-1	#2	NA-2	NA-1	NA-3
261-00-003	Conference Room Evacuation Page	Construction	#1	#2	NA-2	#1	NA-3
NIF-00-001	NIF Underground 13.8 kV Power	Complete	NA-1	#2	NA-2	NA-1	#1
3724-00-002	T3724 Re-Roof	Complete	NA-1	#2	NA-2	NA-1	#1
493-00-001	B-493 High Bay Mod. FAU Storage	Complete	NA-1	#1	NA-2	NA-1	#1
391-00-012	B-391E NOVA Facility Mothball Study	Complete	NA-1	#2	NA-2	NA-1	NA-3
197-00-005	B-197 Boiler and Chiller Replacement Study	Complete	NA-1	#2	NA-2	NA-1	NA-3
NIF-00-002	NIF KDP Crystal Finishing Facility Design Review	Complete	NA-1	#2	#3	NA-1	NA-3
NIF-99-012	NIF Switchyard Fab. Area Site Preparation	Complete	#1	#1	NA-2	#1	NA-3
NIF-00-012	MSDL Test Facility Scope	Complete	NA-1	#2	#3	NA-1	NA-3
1886-00-002	T1886 Parking Lot Repair	Complete	#1	#2	NA-2	#1	#1
1888-00-003	T1888 Site Access Maint.	Complete	#1	#2	NA-2	#1	#1
482-00-008	B484 HVAC Study	Complete	NA-1	#2	NA-2	NA-1	#1
NIF-00-009	NIF OAB HVAC M&O Support	Complete	NA-1	#2	NA-2	NA-1	NA-3
NIF-00-008	NIF Cooling Tower Maintenance Services	Complete	NA-1	#2	NA-2	NA-1	NA-3
NIF-00-007	NIF OAB Deionized, Water Systems M&O Support	Complete	NA-1	#2	NA-2	NA-1	NA-3
1886-00-004	T1886 Trellis Area	Complete	#1	#2	NA-2	#1	NA-3
NIF-00-004	NIF Facility DDC Interface	Complete	NA-1	#1	NA-2	NA-1	NA-3
581-00-003	NIF Engineering Support	Complete	NA-1	#2	NA-2	NA-1	NA-3
1886-00-005	T-1886 Picnic Area Construction	Complete	#1	#2	NA-2	#1	NA-3
CAF-00-001	Fire Code Def for B-125, 312 & T-4675	Complete	NA-1	#2	NA-1	NA-1	NA-3
132N-99-025	B-132 Ground Water Drainage	Complete	#1	#2	#3	#1	#1
ELI-99-003	EPSRU	Complete	#1	#1	#1	#1	#1

Table 3. FY00 Projects at the Livermore Site (Continued)

Plant Facility Number (PFN)	Project Name	Project Activity Status at the End of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Seismic Construction	6.1.2 Geotech Investigation	8.1.1 Reduce Fugitive Emissions	8.1.2 Minimize Pollutants
TSF-00-001	Terascale Simulation Facility	Design	X	#1	#1	X	#1

Mitigation Measure Implementation Code:

- #1 Implemented on this project
- #2 Seismic Design criteria met, no specific calculations required, see Table 2 for discussion
- #3 Existing geotechnical investigation data for the site were utilized
- X Applies to this project and will be implemented at the appropriate phase
- O Mitigation measure applies, but not implemented on this project

Not Applicable (NA)—Does not apply to this project for one of following the reasons:

- NA-1 No ground disturbing activity involved
- NA-2 No geotechnical investigation required for this project (e.g. landscaping, maintenance)
- NA- 3 Equipment which would release criteria pollutants was not involved

Table 4. Livermore Site Buffer Zones

Mitigation Measures											
Plant Facility Number	Project Name	Project Activity at the end of FY00	4.1.1 Report Cultural Resources Unearthed	6.1.1A Construction meet Seismic Requirement	6.1.2 Geotechnical Investigation	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult with Agency to Destroy Den	8.1.1 Reduce Fugitive Dust Emissions	8.1.3 Design Buildings to Minimize Criteria Pollutants
N / A	Spring Mowing of Buffer Zone	Maintenance	NA-1	#2	NA-9	#1	NA-5	NA-5	NA-5	NA-1	NA-8
N / A	Arroyo Las Positas Maintenance	Maintenance	#1	#2	NA-9	#1	NA-5	NA-5	NA-5	NA-1	NA-8

Mitigation Measure Implementation Code:

- #1 Implemented on this project
- #2 Seismic design criteria met; without project-specific calculations
- #3 Existing geotechnical investigation data for the site were used
- X May apply to this project; will be implemented at the appropriate phase, if applicable
- O Mitigation measure applies but not implemented on this project

Not Applicable (NA)—The mitigation measure does not apply to this project for one of following the reasons:

- NA-1 No ground disturbing activity involved
- NA-2 Construction activity taking place on a site currently disturbed. Therefore, no survey required and 7.2.6M, N, O, Q, R, S, U, V, and W are not applicable
- NA-3 No potential, known, or pupping kit fox dens were identified based on the 7.6.2L survey
- NA-4 No steep-walled holes or trenches greater than 2 ft. deep
- NA-5 Based on results of 7.2.6T survey; no known dens of American badger or burrowing owl identified
- NA-6 No identified cultural resource sites were determined to exist at or near construction site
- NA-7 No known or pupping kit fox dens found (code to be used when potential dens were identified)
- NA-8 Project did not include buildings with equipment or materials that would release criteria pollutants or building was designed before 1992
- NA-9 No geotechnical investigation required for this project (e.g. landscaping or maintenance)
- NA-10 Dens (potential kit fox, known burrowing owl, or American badger dens) identified in the survey were not impacted
- NA-11 Project or activity was determined to have no potential impact to known Elderberry bushes based on location; no special survey was conducted

Table 5. FY00 Projects at Site 300

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
89-098-001	S300 Fire Station / Medical Facility	Complete	#1	NA-2	NA-2	#1	#1	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	#1
801-00-004	B-801 Erosion Control	Complete	#1	#1	#1	#2	#1	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	NA-10
899-00-002/003	BTS Construction	Complete	#1	#1	#1	#1	#1	#1	#1	NA-4	#1	NA-4	NA-4	NA-4	NA-4	#1	#1
300-98-015	Site 300 Lightning Detection Activation	Complete	NA-1	NA-2	NA-2	#1	#3	NA-1	#1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	#1	#1
300-99-001	PE-Chip Seal Routes 1&2 Site 300	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	NA-4	NA-1	NA-4	NA-4	NA-4	NA-4	#1	NA-1
300-99-003	Site 300 Explosives Facilities Phase II	Complete	NA-1	NA-2	NA-2	#1	NA-1	#1	#1	#1	NA-1	#1	#1	#1	NA-9	NA-1	NA-1
300-9-004	Tank 8 Earthwork	Complete	#1	#1	#1	#2	#1	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	NA-10
300-99-006	Central GSA Pipeline	Complete	#1	#1	#1	#2	#1	#1	#1	NA-4	#1	NA-4	NA-4	NA-4	NA-4	#1	NA-10
300-99-010	S-300 Water Tank Tie Down	Complete	#1	#1	#1	#1	#1	#1	#1	NA-4	#1	NA-4	NA-4	NA-4	NA-4	#1	NA-10
300-99-015	S-300 Training Center	Complete	NA-1	NA-1	NA-1	#1	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
4107-99-001	Virtual Training Center	Complete	NA-1	NA-2	NA-1	#2	#3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1	#1
801-99-006	B-801 Floor Repair	Complete	NA-1	NA-1	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
806-99-002	PE-Asphalt Overlay Process Area	Complete	NA-1	NA-2	NA-2	#2	#1	NA-1	#1	NA-4	NA-1	NA-4	NA-4	NA-4	NA-4	#1	NA-10
809-98-002	B-809 Pressing Facility	Construct.	NA-1	NA-2	NA-2	#1	#3	NA-1	#1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
829-97-001	B-829 Pit Closure	Complete	#1	NA-2	NA-2	#1	#1	#1	#1	#1	#1	#1	#1	#1	NA-9	#1	NA-10

Table 5. FY00 Projects at Site 300 (Continued)

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
851B-98-001	B-851B Restroom	Complete	NA-1	NA-2	NA-1	#2	#3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
874-99-002	B-874 Lease Unit	Complete	NA-1	NA-2	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
874-99-003	B-874 B-875 Roof Prep Support	Complete	NA-1	NA-2	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
874-99-004	B-874 Roof Repair	Complete	NA-1	NA-2	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
ERD-98-018	B-832 Treatment Site Work (Phase 2)	Complete	#1	NA-2	NA-2	#2	#3	#1	#1	#1	1#	#1	NA-7	NA-7	NA-7	#1	NA-10
ERD-00-023	B-832 Canyon Site Work	Complete	#1	#1	#1	#2	#1	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	NA-10
ERD-00-024	HE Process Area Site Work	Complete	#1	#1	#1	#2	#1	#1	#1	NA-4	#1	NA-4	NA-4	NA-4	NA-4	#1	NA-10
300-00-003	S-300 Lightning Detection System Activation	Complete	#1	NA-2	NA-2	#2	#3	NA-1	#1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	#1	NA-10
899-00-004	Pistol Range Lighting	Complete	#1	NA-2	NA-2	#2	#3	#1	#1	NA-4	#1	NA-4	NA-4	NA-4	NA-4	#1	NA-10
300-00-007	Alarm Mag 1	Complete	#1	#1	#1	#2	#1	NA-1	#1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	#1	NA-10
300-00-008	Alarm Mag 7	Complete	#1	#1	#1	#2	#1	NA-1	#1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	#1	NA-10
300-00-009	Alarm Mag 8	Complete	#1	#1	#1	#2	#1	NA-1	#1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	#1	NA-10
300-00-010	Site 300 Truck Ramp	Complete	#1	#1	#1	#2	#1	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	NA-10
807-00-001	B-807 Roof Repair	Complete	NA-1	NA-1	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
806-00-001	B-806 Roof Repair	Complete	NA-1	NA-1	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
300-00-013	S-300 Road Striping	Complete	NA-1	NA-2	NA-1	#2	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-10
851-00-002	B-851 MCC Repair	Complete	NA-1	NA-1	NA-1	#2	NA-3	NA-1	#1	NA-4	NA-1	NA-4	NA-4	NA-4	NA-4	NA-1	#1

Table 5. FY00 Projects at Site 300 (Continued)

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
826-00-003	B-826 Fire Alarm Repair	Complete	NA-1	NA-1	NA-1	#2	NA-3	NA-1	1 #	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
827-00-004	B-827 Fire Alarm Repair	Complete	NA-1	NA-1	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
825-00-006	B-825 Fire Alarm Repair	Complete	NA-1	NA-1	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
899-00-006	B-899 Slurry Seal	Complete	NA-1	NA-2	NA-2	#2	#1	NA-1	#1	NA-4	NA-1	NA-4	NA-4	NA-4	NA-4	#1	#1
812-00-002	B-812 Test Bed	Construct.	NA-1	NA-2	NA-1	#1	NA-1	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
804-00-002	B-804 Road Way Repair	Complete	#1	NA-2	NA-2	#2	#1	NA-1	#1	NA-4	#1	NA-4	NA-4	NA-4	NA-4	#1	NA-10
CFF-96-003	Contained Firing Facility	Construct.	#1	NA-2	NA-2	#1	#1	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	#1
801D-00-001	Water Seal New Building	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
875-99-012	Install Transfer Switches and Connectors	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
300-99-014	Bury Communication Line	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	#1	#1	NA-7	NA-7	NA-7	#1	NA-10
300-99-013	Remove and Replace 3 Vents and 6 Water Valves in West Area	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-99-064	Repair Road to Tanks 4/7	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-10
800-99-078	Install Transfer Switches and Connectors	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
832F-00-001	Pave Walkway	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
850-00-002	City Water / Lateral Supply Line	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
871-00-004	Building HVAC Unit RCH01 Replacement	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1

Table 5. FY00 Projects at Site 300 (Continued)

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
898-00-001	Paint Exterior W.O.P	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
846-00-002	Replace Feed O/C Relays	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
801-99-007	Elk Ravine - 801 Water Line Tie-in	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
827D-00-001	Install Chemical Storage Building	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
804-00-001	Labor Effort for Disposal of Shot Table Gravel	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
882-00-001	Install Asphalt Berm	Complete	NA-1	NA-2	NA-2	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
827D-00-002	Power Source for Fume Hood	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
805-00-002	Elect. Panel Change Out	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
817-00-002	Elect. Panel Change Out	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
810-00-002	Elect. Panel Change Out	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
806-00-001	Elect. Panel Change Out	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
800-00-039	Install Traffic Warning Light at S-300 Main Gate	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
8710-00-001	Remove/Replace Bad A/C Unit	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
300-00-006	Annual Fire Trail Grading	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
801-00-008	Paint Walls and Ceiling in Control Room	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	1#

Table 5. FY00 Projects at Site 300 (Continued)

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
818A-00-001	Build, Paint and Install Shelves	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
873-00-021	Install Wall Room A / C	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
834-00-002	Install F-Alarm	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
899-00-005	Install BTS Power/ Ltg.	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
825-99-004	Install Water Source Heat Pump & RAC in Cntl Rm	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
806A-99-001	Remove/Replace Heat Cntrl Pnl Insp. Bay #1	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
833-00-001	Remove H.V. Fire Alarm	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
827E-00-001	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
827D-00-003	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
827C-00-001	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
826-00-002	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
825-00-005	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
834H-00-002	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
836D-00-002	Paving	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
823A-00-001	Paving	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
818-00-001	Remove H.V. Fire Alarm	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
827A-00-001	Panelboard Replacement	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
834-00-004	834 MXL Rework, A, B, L	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1

Table 5. FY00 Projects at Site 300 (Continued)

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
875-01-008	Inspect and Maintain General Plant Equipment	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
800-00-004	Security Gate & Fences, Inspection and Maint.	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-005	Lawn & Sprinkler Maint., Weed and Pest Control	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-006	Storm Drain Maint., Minor Repairs	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-007	Inspect and Maintain Traffic Control Signs	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-008	Inspect and Maintain Area Roads	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-009	Provide Services Needed for Salvage Operation	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
800-00-010	Roadside Clean Up at Site 300	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-015	Freeze Protection	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
800-00-021	Power Pole Weed Control	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-022	Change Out Backflow Devices	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
875-2000-005	Repair Water Sys. Cntrl. Equipment	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	#1
800-00-024	B-Division Gravel Bags	Complete	NA-1	NA-2	NA-1	#2	NA-3	NA-1	#1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-1	NA-10
800-00-030	12KV Pole Line Maint.	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10

Table 5. FY00 Projects at Site 300 (Continued)

PFN or Permit #	Title	Project Activity at the End of FY00	4.2.1 Report Cultural Resources	4.2.2B Restrict Access to Cultural Resources	4.2.2C Monitor Historic Resources	6.2.1A Construction Meet Seismic Requirement	6.2.2 Geotechnical Investigation	7.2.6B Construction More than 300' from Elderberry Bush	7.2.6K Remove Trash Items from Construction Site	7.2.6L Survey for Kit Fox Dens	7.2.6P Cover Trenches & Holes	7.2.6T Survey for Owl, Badger	7.2.6U Establish Exclusion Zones	7.2.6V Restrict Activities in Zones	7.2.6W Consult With Agency to Destroy Den	8.2.1 Reduce Fugitive Dust Emissions	8.2.3 Design Buildings to Minimize Criteria Pollutants
865-00-001	865 Main Substation Maint.	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-034	Bldg. Substation Maint.	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-037	12KV Pole Line Repair	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
800-00-038	S-300 Area Weed Control	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10
801-00-009	Install 4200 Gallon Photo Rinse Water Tank	Complete	#1	NA-2	NA-2	#2	NA-3	#1	#1	#1	NA-1	#1	NA-7	NA-7	NA-7	#1	NA-10

#1 Measure was implemented on this project

#2 Design criteria met without project-specific seismic calculations

#3 Existing geotechnical investigation data for the site were utilized

X May apply to this project. Will be implemented at a later phase of the project

O Mitigation Measure applied, but was not implemented on this project. (Explanation required)

The Mitigation Measure does not apply to this project for one of the following reasons:

NA-1 No ground disturbing activity involved

NA-2 No identified cultural resource sites were determined to exist at or near construction site

NA-3 No geotechnical investigation required for this project (e.g. landscaping, maintenance)

NA-4 Construction activity taking place on a site that the wildlife biologist has determined is not a suitable habitat. Therefore, no survey required and Mitigation Measures 7.2.6M, N, O, Q, R, S, U, V, and W are not applicable

NA-5 No potential, known, or pupping kit fox dens identified based on 7.6.2L survey

NA-6 No steep-walled holes or trenches greater than 2 feet deep were dug

NA-7 Based on results of 7.2.6T survey, no known dens of American badger or burrowing owl identified

NA-8 No known or pupping kit fox dens found (code to be used when only potential dens were identified)

NA-9 Dens (potential kit fox, known burrowing owl, or known American badger dens) identified in the survey were not impacted

NA-10 Project did not include building with equipment or materials which would release criteria pollutants or building was designed before 1992

Service-Level Mitigation Measures

The EIS/EIR identified several areas where operations may result in additional demand for services that may exceed the existing capacity for delivery of a particular service. For instance, an increase in employee population would increase the demand for onsite fire-protection services. The planned mitigation for this impact is hiring additional fire fighters as necessary to maintain an adequate level of service.

For the purposes of monitoring these service-level mitigations, the following will be identified where applicable:

- The baseline service level
- The method to be used to measure the level of service
- The threshold level that must be reached to prompt the implementation of mitigation measures

For other service-level mitigations, the current status will be indicated. Refer to Figure 3 for a flow diagram of this process

and to Table 6 for the status of all such mitigation measures.

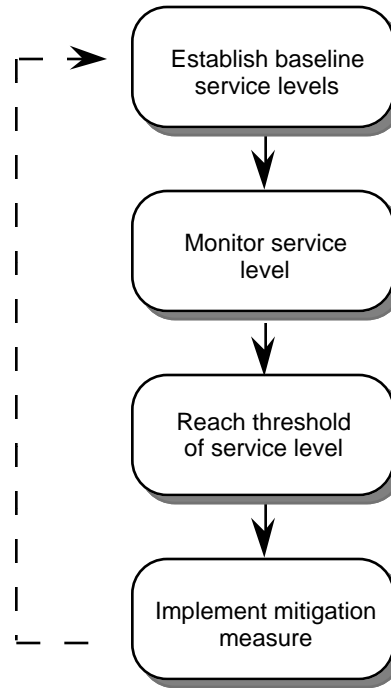


Figure 3. Implementing service-level-related mitigation measures.

Table 6. Service-Level Mitigation Measures

Mitigation Measure	Implementation Strategy	Status
<i>Community Services</i>		
<p>3.1.1 Continue to review current operations at the LLNL Livermore site against NFPA standards on an annual basis. If additional needs are identified, personnel, equipment, and facilities shall be increased or upgraded as necessary.</p> <p>3.2.1 Continue to review current operations at LLNL Site 300 against NFPA standards on an annual basis. If additional needs are identified, personnel, equipment, and facilities shall be increased or upgraded as necessary.</p>	<ul style="list-style-type: none"> The Hazards Control Department will revise the Emergency Management Division Self Assessment Plan to include specific reference to National Fire Protection Association (NFPA) standards as an item for self assessment on an annual basis. Currently, the plan includes self assessment for compliance with DOE orders, which in turn reference NFPA standards. This change will directly reference the NFPA standards and result in a formal documentation of completion of that self assessment. The Emergency Management Division Self Assessment Plan includes formal documentation of completion of tasks and formally assigns responsibility for each assignment. The document is part of a larger Hazards Control Quality Assurance Plan and Self Assessment Plan, which specifies specific dates for completion of tasks. By using this method this topic will be addressed annually in a formal manner. 	<ul style="list-style-type: none"> The Emergency Management Division's ES&H Self Assessment Plan includes NFPA Standards as an item for self assessment. The assessment is conducted by a committee consisting of both Assistant Chiefs and the Fire Chief. The results of the review conducted in FY99 indicated that LLNL's Emergency Management Division policies, procedures, and common practices meet or exceed NFPA standards.
<p>3.2.3 Continue to implement solid waste reduction and recycling strategies at LLNL Site 300.</p>	<ul style="list-style-type: none"> This mitigation measure is no longer required. LLNL continues to implement solid-waste reduction and recycling strategies as a best management practice and reports results in the annual Site Environmental Report. 	<ul style="list-style-type: none"> This mitigation measure is complete.

Table 6. Service-Level Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<i>Traffic</i>		
<p>11.1.5 Continue to monitor the parking supply at the LLNL Livermore site and schedule capital improvements as necessary to alleviate any parking stall deficiencies. Implementation of Mitigation Measure 11.1.2 will also decrease the need for parking. [While no mitigation is required, implement an expanded Transportation Systems Management Program to aid in reducing traffic congestion.]</p>	<ul style="list-style-type: none"> LLNL's Civil Planning surveys site-wide parking supply and demand every four years. The Parking Master Plan was reorganized in 1998, and a copy of this document is available on LLNL's internal web page. <p>The goal of LLNL's parking policy is to meet employee demand without providing an overabundance of parking. By providing priority parking for high occupancy vehicles, employees have an incentive to use fuel efficient modes of transportation, thereby contributing to satisfying parking need by reducing demand rather than increasing supply.</p> <p>Civil Planning provides input to program managers through the Comprehensive Site Plan process. In addition, an active employee suggestion program exists to change open parking to carpool, vanpool, and/or motorcycle parking where employees so request or demand is high.</p> <p>A representative from Civil Planning is a member of the Laboratory Traffic Safety Committee. The committee provides the opportunity for Civil Planning to better interface with Hazards Control, the Protective Force Division, and programmatic organizations to resolve parking issues.</p>	<ul style="list-style-type: none"> Except for parking lot maintenance and repair, no capital improvements related to parking were made in FY00.

Table 6. Service-Level Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status																								
Utilities and Energy																										
12.1.1A Continue to reduce use of Hetch Hetchy and Zone 7 water for landscaping irrigation at the Livermore site below 1989 levels.	<ul style="list-style-type: none">LLNL has been on a water-conservation program since 1989. The quantities below are for total usage lab-wide. (LLNL does not meter water used for irrigation separately). Water usage, in million of gallons, was as follows:<table><tr><td>FY89, 235</td><td>FY95, 225</td></tr><tr><td>FY90, 223</td><td>FY96, 244</td></tr><tr><td>FY91, 190</td><td>FY97, 289</td></tr><tr><td>FY92, 214</td><td>FY98, 206</td></tr><tr><td>FY93, 226</td><td>FY99, 214</td></tr><tr><td>FY94, 229</td><td>FY00, 223</td></tr></table>Each year LLNL estimates the amount of water used for irrigation and provides an annual (July - June) water balance report to the City of Livermore. The following estimates, in million of gallons, have been provided.<table><tr><td>1988 –1989, 60.2</td><td>1994–1995, 28.8</td></tr><tr><td>1989 –1990, 45.6</td><td>1995–1996, 29.3</td></tr><tr><td>1990 –1991, 32.6</td><td>1996–1997, 35.1</td></tr><tr><td>1991–1992, 24.5</td><td>1997–1998, 22.2</td></tr><tr><td>1992 –1993, 28.8</td><td>1998–1999, 34.3</td></tr><tr><td>1993 –1994, 28.8</td><td>1999–2000, 37.7</td></tr></table>	FY89, 235	FY95, 225	FY90, 223	FY96, 244	FY91, 190	FY97, 289	FY92, 214	FY98, 206	FY93, 226	FY99, 214	FY94, 229	FY00, 223	1988 –1989, 60.2	1994–1995, 28.8	1989 –1990, 45.6	1995–1996, 29.3	1990 –1991, 32.6	1996–1997, 35.1	1991–1992, 24.5	1997–1998, 22.2	1992 –1993, 28.8	1998–1999, 34.3	1993 –1994, 28.8	1999–2000, 37.7	<ul style="list-style-type: none">Of the 223 million gallons of water used in FY00, it is estimated that 37.7 million gallons of it were used for irrigation. This volume constitutes a thirty-seven percent reduction below 1989 usage. (Note that most of the irrigation water is not metered at LLNL; therefore, this number is estimated and can include water that is unaccounted for, including leaks and miscellaneous small uses.)
FY89, 235	FY95, 225																									
FY90, 223	FY96, 244																									
FY91, 190	FY97, 289																									
FY92, 214	FY98, 206																									
FY93, 226	FY99, 214																									
FY94, 229	FY00, 223																									
1988 –1989, 60.2	1994–1995, 28.8																									
1989 –1990, 45.6	1995–1996, 29.3																									
1990 –1991, 32.6	1996–1997, 35.1																									
1991–1992, 24.5	1997–1998, 22.2																									
1992 –1993, 28.8	1998–1999, 34.3																									
1993 –1994, 28.8	1999–2000, 37.7																									
12.1.1B Continue to reduce blow-down in cooling towers to minimal operable levels.	<ul style="list-style-type: none">In July 1991, LLNL modified the two main cooling tower load centers, B-291 and B-325. This project automated the chemical feed system used for treating the cooling tower water. In the summer of 1992, water blowdown was reduced by approximately 20 percent. This new system also reduced the amount of make-up water required for tower operations.	<ul style="list-style-type: none">The system described is still in operation.																								

Table 6. Service-Level Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
12.1.1C Limit car washing to only that which is essential.	<ul style="list-style-type: none"> Beginning in FY99, DOE has required that LLNL obtain its fleet vehicles from General Services Administration who, in turn, requires that they be kept clean. The hours of car wash operation were increased to twenty-four hours a day, seven days a week, to accommodate the larger number of cars needing to be washed. 	<ul style="list-style-type: none"> Fleet Management estimated that 3,637 vehicles from the Livermore Site and Site 300 utilized the car wash in FY00. Fleet management and the Environmental Protection Department are working towards installing a water recycler at the car wash.
12.2.1C Limit car washing to only that which is essential at LLNL Site 300.	<ul style="list-style-type: none"> Starting in FY95, Site 300 temporarily stopped washing cars because they were lacking the necessary facility or system support for this activity. This continues to be the case. Employees needing to have their cars washed drive to the Livermore site car-wash. 	<ul style="list-style-type: none"> Mitigation measure 12.2.1C is no longer applicable because there is no car washing facility at Site 300.
12.1.1D Use reclaimed groundwater in place of potable water in cooling towers to the greatest extent feasible.	<ul style="list-style-type: none"> The Laboratory started using treated groundwater at the B-325 cooling tower in 1990. From 1990 to 1994, LLNL used approximately 17 million gallons of this water as cooling towers make-up water. The use of reclaimed groundwater in place of potable water in cooling towers was discontinued in FY94 because of the cost and adverse environmental impacts from its implementation. The higher mineral content of the reclaimed water required the use of additional chemicals to operate the tower, making it more chemically expensive and more labor intensive. These additional chemicals end up in the sanitary sewer system, defeating the Laboratory's pollution prevention policies. In addition, the temporary, above-ground pipeline installed along LLNL's perimeter fence to deliver the ground water to the cooling tower was aesthetically unattractive; the Plant Engineering Department was asked to remove it. 	<ul style="list-style-type: none"> Mitigation measure 12.1.1D is no longer being implemented for the reasons given to the left in "Implementation Strategy."

Table 6. Service-Level Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
12.1.1F Monitor all water use to discourage waste or unnecessary use.	<ul style="list-style-type: none"> Water use site wide is monitored by Plant Engineering's Mechanical Utility Organization. Water usage is read and logged on a daily basis. In addition, LLNL personnel read the Hetch Hetchy water meter to confirm monthly billings. Meters were installed to monitor water-use trends throughout the day, and a water balance report is compiled on a yearly basis to confirm water usage. The water conservation program discourages all unnecessary water use. 	<ul style="list-style-type: none"> Kirschbaum Field irrigation has been discontinued because the field continues to be used as a staging area for the National Ignition Facility construction. Plant Engineering's Mechanical Utility Organization aggressively monitors the use of low-conductivity water.
12.1.1G Use reclaimed ground-water in place of potable water for irrigation to the greatest extent possible.	<ul style="list-style-type: none"> Systems were developed to use reclaimed ground water to irrigate landscaping. 	<ul style="list-style-type: none"> No additional systems were developed in FY00 for the use of ground water in place of potable water for irrigation.
12.1.4 Evaluate and install, where feasible, process conservation devices or modifications to reduce water consumption. This will result in lower sewage discharge.	<ul style="list-style-type: none"> In 1991, four engineering studies were conducted to evaluate how the Lab could conserve water. These studies included converting liquid ring vacuum pumps to use a closed-loop cooling-water system, replacing the existing swimming pool filters with more water-saving filters, and replacing or converting the existing car wash to use recycled water. Finally, a study was conducted to review landscape irrigation requirements for the LLNL site. 	<ul style="list-style-type: none"> The existing swimming pool filters were replaced with water-saving filters, thereby decreasing water usage by 40,000 gallons to only 5,000 gallons per backwash. This results in a yearly savings of 910,000 gallons of water. Alto Ultra sensor low-flush valves are being installed on some urinals, and low-flush valves are being installed on some toilets. This is an ongoing project. The automatic sprinklers were adjusted to reduce the irrigation time to the minimum required to keep the lawns alive. The sprinkler heads were adjusted to eliminate overspray. When leaking bathroom fixtures are reported, the fixtures are replaced with water-conserving fixtures.

Table 6. Service-Level Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
12.2.1A Continue to reduce landscape irrigation below 1989 levels at LLNL Site 300.	<ul style="list-style-type: none"> Water usage for irrigation purposes at Site 300 has never been measured; therefore, a reduction in usage from 1989 levels is a judgement call. In the spirit of the 1989 LLNL water conservation policy, Site 300 uses only what water is absolutely necessary to maintain existing landscaping. Any new landscaping projects at the site shall use drought-resistant plants requiring minimal amounts of water for landscape irrigation. When Site 300 begins pumping water from the Hetch-Hetchy aqueduct (scheduled in 2002), Site 300 will install additional water meters to meet strict water-reporting requirements. 	<ul style="list-style-type: none"> Measures taken at Site 300 in 1998 to further reduce water usage were continued in FY00. These include converting shrub irrigation systems to drip irrigation, watering grass areas on shorter cycles during the night to reduce evaporation, and aerating lawn areas to reduce irrigation run-off. The majority of irrigated areas at Site 300 are on timers to allow off-hour watering. Actual times and frequencies of watering are closely managed according to seasonal requirements.
12.2.1B Continue to reduce blow-down in cooling towers to minimal operable levels at LLNL Site 300.	<ul style="list-style-type: none"> As part of the 1989 LLNL water conservation policy, Site 300 has reduced blowdown in cooling towers to minimal operable levels. Some cooling towers at Site 300 are fitted with automatic blowdown devices for water conservation purposes, and all cooling towers not needed during mild climate conditions at Site 300 are turned off to save water. 	<ul style="list-style-type: none"> Air conditioning chillers requiring cooling towers are being replaced, when possible, with heat pumps, which do not require cooling towers. One cooling tower, used to cool an air compressor, has been taken out of service by replacing the air compressor with an air-cooled unit.
	<ul style="list-style-type: none"> When Site 300 begins pumping water from the Hetch-Hetchy aqueduct (scheduled in 2002), Hetch-Hetchy water will be the primary source of water for Site 300. Use of this high-quality water will reduce blowdown from the cooling towers to about 20 percent of the volumes currently achieved using existing low-quality well water. 	<ul style="list-style-type: none"> Hetch Hetchy water cannot be delivered to Site 300 until the San Francisco Water Department constructs a chlorination treatment facility. A chlorination plant is currently in the design phase and construction is expected to be complete in January 2002. When high-quality Hetch-Hetchy water becomes available at Site 300, blowdown will be required less frequently.

Table 6. Service-Level Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
12.2.1D Monitor all water use to discourage waste or unnecessary use at LLNL Site 300.	<ul style="list-style-type: none"> A water conservation program has been in place at LLNL since 1989. This program consists of an employee awareness program with flyers on water saving ideas, a phone “hot line” to report water leaks and water abuse, and presentations to facility managers on water conservation. 	<ul style="list-style-type: none"> Water conservation efforts continued in FY00. Water is presently drawn from two wells. Annual water usage, in million of gallons, was as follows: FY93, 24.1 FY97, 32.2 FY94, 27.3 FY98, 21.4 FY95, 23.3 FY99, 24.3 FY96, 25.3 FY00, 22.3
12.4.1 Mitigation measures for the proposed action are set forth under Impact 12.1.1. No mitigation measures are available for other projects in the area.	<ul style="list-style-type: none"> When Site 300 begins pumping water from the Hetch Hetchy aqueduct, new requirements will be placed upon Site 300 for water conservation. Additional water meters will be installed to meet the new reporting requirements, where required. This measure will be implemented by actions taken under Mitigation Measures 12.1.1 and 12.2.1. 	<ul style="list-style-type: none"> The Hetch-Hetchy connection for Site 300's water use is dependent upon the construction of a chlorination facility. The facility is currently in the design phase and construction is expected to be complete in January 2002.
12.4.2 Mitigation measures for the proposed action are set forth under Impact 12.2.1. No mitigation measures are available for other projects in the area.		

Administrative Mitigation Measures

The EIS/EIR identified specific actions, independent of future projects, that LLNL must initiate to mitigate certain adverse impacts of continued operation. Such actions include on-going administrative activities as well as special one-time projects to collect data, prepare reports,

develop a plan of action, or implement a project. Refer to Figure 4 for a flow diagram of the process for implementing mitigation measures related to administrative activities and to Table 7 on page 63 for the status of these measures.

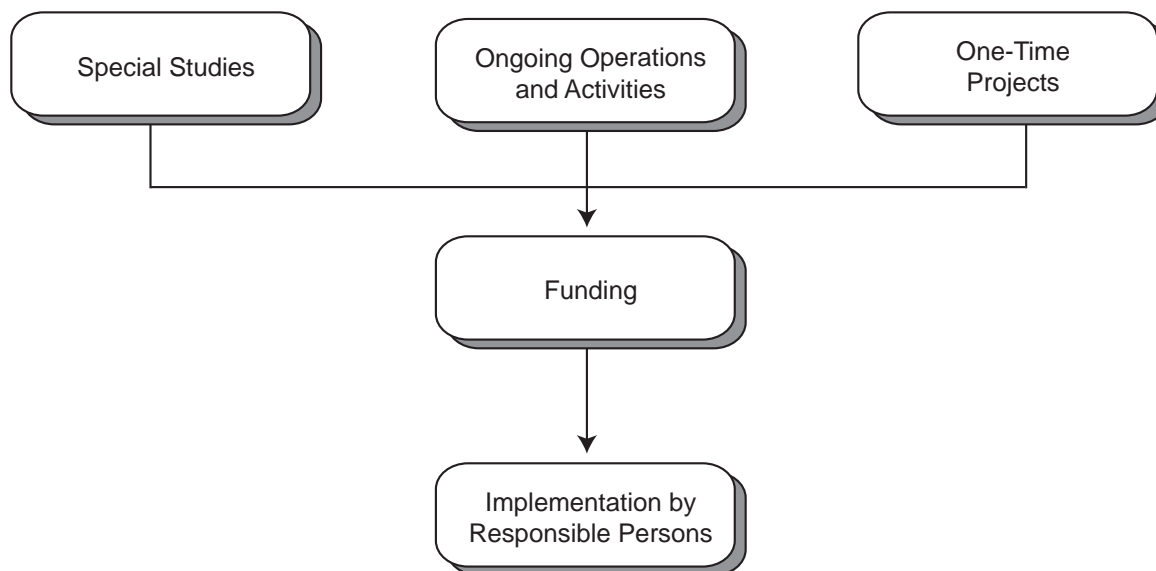


Figure 4. Implementing administrative mitigation measures.

Table 7. Administrative Mitigation Measures

Mitigation Measure	Implementation Strategy	Status
<i>Prehistoric and Historic Cultural Resources</i>		
<p>4.1.2 Following completion of the Section 106 review process (i.e., compliance with the National Historic Preservation Act), a Cultural Resource Management Plan outlining the methodology for managing identified historic resources at the LLNL Livermore site will be made available to the public.</p> <p>4.2.2A Following completion of the Section 106 review process (i.e., compliance with the The National Historical Preservation Act), a Cultural Resource Management Plan outlining the methodology for managing identified historic resources at LLNL Site 300 will be made available to the public. Note: implementation of this measure partially implements measure 4.4.4.</p>	<ul style="list-style-type: none"> Development of a programmatic agreement that will outline a program of cultural resource compliance measures and provisions for a cultural resource management plan. 	<ul style="list-style-type: none"> As a result of continuing consultation with DOE/OAK, the council, and SHPO, a revised programmatic agreement (PA) was prepared and is undergoing internal LLNL review. Based upon input from the Council and SHPO, the PA has been expanded and reorganized to focus efforts on the historic building inventory for the Livermore site and Site 300, and mitigating impacts to any historic buildings that may be proposed for demolition, while at the same time protecting known and potential archaeological resources. DOE extended invitations to participate in the PA process to Alameda and San Joaquin counties, the cities of Tracy and Livermore, to LLNL, and Native American representatives (Ohlone/Costanoan, Northern Valley Yokut, and Bay Miwok.) During 2000, in accordance with the draft PA, LLNL completed a historic evaluation of one building that was planned for demolition (Building 177 Chemistry/Physics Development Laboratory) and has initiated evaluations for four additional buildings. Based on the historic evaluation of Building 177, the building is not eligible for listing in the National Register of Historic Places.
	<ul style="list-style-type: none"> Following the adoption of the PA, preparation of a cultural resources management plan will be initiated. Any tasks outlined in the PA that continue after completion of the cultural resources management plan will be incorporated into the cultural resources management plan. 	<ul style="list-style-type: none"> A projected date for completion of the cultural resources management plan will be identified in the programmatic agreement.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
4.1.2 and 4.2.2A Continued	<ul style="list-style-type: none"> Finalized copies of the Cultural Resources Management Plan will be placed in area libraries, LLNL Visitor's Center, and other public-access locations designated by DOE/OAK. Until the PA is completed and signed by all signatories, cultural resource management reviews of project activities are conducted in accordance with NHPA and CEQA standards and the LLNL archaeologist performs surveys on a project-by-project basis. 	<ul style="list-style-type: none"> Pending completion of the Cultural Resources Management Plan. In FY00, project-specific mitigation measures for LLNL projects were implemented as shown in Table 2 on page 19.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<i>Geologic Resources and Hazards</i>		
<p>6.1.1B Engineering and administrative measures will be taken to anticipate and prevent releases of hazardous substances resulting from strong ground shaking at any given facility at the Livermore Site.</p> <p>6.2.1B Engineering and administrative measures will be taken to anticipate and prevent releases of hazardous substances resulting from strong ground shaking at any given facility at Site 300.</p>	<ul style="list-style-type: none"> Criteria documents establish the appropriate engineering requirements to mitigate and/or prevent releases of hazardous substances resulting from strong ground shaking. Seismic design requirements at the Livermore Site and Site 300 are defined using a graded approach, which reflects the onsite and offsite safety consequences of potential releases of hazardous substances resulting from strong ground shaking. Criteria for seismic design is specified in DOE-STD-1020-94 "Natural Phenomena Hazards Design for Department of Energy Facilities." LLNL has extensive policies and guidance to reduce the impact of seismic movement. <ul style="list-style-type: none"> Section 5.2, "Seismic and Wind Design Criteria," of the Mechanical Engineering Design Safety Standards Manual provides engineering guidance on determining the forces to be used in the design of equipment, vessels, etc., and on the design of tie-downs for equipment, vessels, and free-standing objects to minimize the hazards and damage from earthquakes. Section 5.2.23, "Hazardous Material Considerations," highlights the controls necessary to avoid the accidental release of hazardous substances to the environment. 	<ul style="list-style-type: none"> Plant Engineering requires conformance to these criteria documents on all facility designs at the Laboratory.
	<ul style="list-style-type: none"> LLNL has extensive policies and guidance to reduce the impact of seismic movement. <ul style="list-style-type: none"> Section 5.2, "Seismic and Wind Design Criteria," of the Mechanical Engineering Design Safety Standards Manual provides engineering guidance on determining the forces to be used in the design of equipment, vessels, etc., and on the design of tie-downs for equipment, vessels, and free-standing objects to minimize the hazards and damage from earthquakes. Section 5.2.23, "Hazardous Material Considerations," highlights the controls necessary to avoid the accidental release of hazardous substances to the environment. 	<ul style="list-style-type: none"> Newly constructed or installed equipment is seismically braced or tied-down. The Livermore site and Site 300 facilities that are supplied by natural gas pipelines have been provided with special motion-activated shutoff valves. Activation of these valves is intended to prevent the outbreak and spread of earthquake-caused fires, especially secondary fires. Each building at LLNL is required to be inspected at least triennially. Seismic protection is part of these inspections.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
6.1.1B and 6.2.1B Continued	<p>- The LLNL Health and Safety Manual contains guidance on control of hazardous substances. Chapter 27, "Earthquakes," and its supplement discuss LLNL's earthquake preparations, including references to safe storage of hazardous chemicals. Chapter 32, "Pressure," and its supplements outline a pressure safety program for the Laboratory. Included within the program is a requirement for review of all operations involving hazardous gases. These reviews may lead to formulation of Operational Safety Procedures, writing of an Engineering Safety Note, or adherence to a Plant Engineering Standard specifically addressing the associated hazards and their controls.</p>	
	<ul style="list-style-type: none"> Environment, Safety and Health teams at both the Livermore site and at Site 300 will actively assist the Laboratory's research and facility operations programs to identify and control hazards associated with release of hazardous substances resulting from strong ground shaking. Additionally, team discipline representatives will assist with determinations involving procurement, location, utilization, storage, handling, disposal, spill prevention and cleanup, and other operational matters concerning hazardous substances. Construction designs are reviewed by the ES&H teams. These teams and the programs they support routinely conduct assessments of operations and facilities to identify seismic concerns and correct them. Seismic concerns are identified during directorate self-assessments and corrective actions are tracked on the DefTrack data base. 	

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
6.1.1B and 6.2.1B Continued	<ul style="list-style-type: none"> LLNL employees are trained in the safe use, handling and storage of hazardous substances. A training course, "Seismic Safety," HS5500, includes discussion about codes and standards that must be followed and how to control the risks from earthquakes. "Pressure Safety Orientation," HS5030, outlines the LLNL Pressure Safety Program, pressure hazards and accidents, the safe handling of compressed gases that contain cryogenics, oxyacetylene safety, manifolds and relief devices, and includes a documentation guide. Special courses are also available for the handling of particularly dangerous gases such as "Hydrofluoric Acid," HS4200. This particular course covers the unique health hazards and precautions associated with first-aid requirements for exposure victims, safe use and storage, as well as small laboratory-scale spill response. 	<ul style="list-style-type: none"> In FY00, a total of 449 employees were trained in these three classes: 185 employees were trained in course HS500, 207 employees were trained in course HS5030W, and 57 employees were trained in HS4200.
	<ul style="list-style-type: none"> LLNL's Pressure Safety Program has developed an outline guide for the designers of safety enclosures, "Design and Documentation Guide for Toxic Gas Handling and Gas Cabinets." Exposure control for many of the more hazardous compressed gases is achieved by the use of toxic gas cabinets. Seismic aspects are one of the many specification requirements that gas cabinets must meet. 	<ul style="list-style-type: none"> The supplement on the "Safe Use of Toxic Gases" is being revised.
	<ul style="list-style-type: none"> Another method used to control the release of hazardous substances is a reduction in quantities at risk. At the Livermore site, users are encouraged to limit chlorine cylinders to a maximum quantity of 15 pounds each. Formerly, 100 pound cylinders were in use. Site 300 still allows 100 pound cylinders of chlorine. 	<ul style="list-style-type: none"> Both the Livermore site and Site 300 are experiencing a reduction in the total number of requests and quantities of hazardous gases, according to representatives of Supply and Distribution.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<i>Ecology</i>		
<p>7.2.6A Enhance current employee awareness program to reflect biological mitigation measures. The employee awareness program will include all employees and contract personnel working at LLNL Site 300.</p>	<ul style="list-style-type: none"> The Site 300 Administration Office will continue to implement its current employee awareness program for biological mitigation measures. These measures include brochure UCRL-TB-1097648, "Site 300 Endangered Species: How You Can Protect them." This brochure presents photographs and descriptions of endangered wildlife and plant populations. It also states LLNL's commitment to the preservation of the endangered species and their habitats. The brochure and its contents have been presented to all Site 300 and contract employees. This brochure is also offered to visitors that pass through the Site 300 Badge Office. The brochure will be enhanced to include the additional biological mitigation measures included in the EIR (7.2.6P, 7.2.6K, and 7.2.6T). A videotape presentation is planned. 	<ul style="list-style-type: none"> In addition to the endangered species brochure, LLNL has developed a poster ("Site 300 Special Status Species: How You Can Protect Them"), which is available for display in offices or hallways. A scheduler/calendar depicting Site 300 biota is produced and distributed every year to increase employee awareness. The Endangered Species poster and brochure are supplemented by periodic discussions on environmental, endangered species, and wildlife issues at weekly management meetings with Site 300 supervisors. In addition, a videotape presentation (HS-0095) describes sensitive resources at Site 300. See Appendix B. Ecology for further information on the Site 300 endangered species poster and brochure. An updated brochure is expected to be available in FY03.
<p>7.2.6C Evaluate the U.S. Fish and Wildlife Service's fairy shrimp sampling protocol when published. The evaluation will focus on the need for additional sampling to ensure consistency between survey techniques described in section F.2.4.5 and those of the U.S. Fish and Wildlife Service.</p>	<ul style="list-style-type: none"> LLNL will evaluate the need for additional sampling for fairy shrimp, based on a comparison between U.S. Fish and Wildlife Service sampling protocol and those procedures used to evaluate the presence of fairy shrimp during the preparation of the EIR. 	<ul style="list-style-type: none"> LLNL has performed surveys for fairy shrimp species at suitable habitat locations onsite. Further surveys will be conducted if additional habitats are found onsite.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>7.2.6D Continue to limit the use of sulfur cartridges and anticoagulant ground squirrel poisons such as fumarin, sevin, and diphazinone (except within the fenced surface impoundments on LLNL Site 300). Zinc phosphide, which is much less injurious to canids, will remain the rodenticide of choice. (This measure also applies to the LLNL Livermore site, although it was not identified as a LLNL Livermore site mitigation measure.)</p>	<ul style="list-style-type: none"> The limitation on pesticides will become part of the Site 300 procedures, and the gardeners will receive orientation on this mitigation measure and steps to protect these species. 	<ul style="list-style-type: none"> Site 300 uses only rodenticides allowed under the mitigation measure. Grain treated with zinc phosphide is used only in the fenced surface impoundment area. Aluminum phosphide (which kills with a gas) is used within the impound area and in other areas when needed. The statement describing pesticide use is in Appendix B to the Mitigation Monitoring Program Report for FY97. Pesticide use was the same in FY00 as it was in FY97.
<p>7.2.6E Consistent with current practice, speed limits of 35 miles per hour or less at LLNL Site 300 will be maintained. Vehicle traffic will also be confined to existing roads (paved and unpaved) to the extent possible.</p>	<ul style="list-style-type: none"> The Site 300 onsite speed limit is 35 m.p.h. with some areas having lower posted speed limits. This is stated in the LLNL <i>Environment, Health and Safety Manual</i>, Volume II, Part 21.3 and in the Facility Safety Procedure, B-Division Site 300. 	<ul style="list-style-type: none"> The section of the <i>Environment, Health and Safety Manual</i> relating to vehicle operation and traffic was revised in March 2000. The revised chapter of the document that is directly relevant to this mitigation measure is included in Appendix B. Ecology. Anyone wishing to come onto Site 300 must have had the safety briefing, HS-0095 "You are Responsible for Your Own Safety at Site 300," or be escorted by someone who is current in HS-0095. The safety briefing emphasizes that the maximum speed limit is 35 m.p.h. and that off-road travel at Site 300 is prohibited without permission. Site 300 Management Policy 11, "Driving and Hiking Off-Road at Site 300" (February 1998), further defines the protocols and prohibitions for Site 300 off-road access. Off-road driving greater than fifty feet off pavement without permission is prohibited. A revision S300 MGMT 11 is in preparation and should be distributed in early 2001.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
7.2.6F Warning sounds will continue to be broadcast from each testing facility before a detonation. In addition to warning personnel working in the area, this broadcast will scare away birds, particularly raptors, from the explosion test site.	<ul style="list-style-type: none"> The Facility Safety Procedure B-Division Site 300, Section 4.2.2 states that a warning horn will be sounded before each explosive test. 	<ul style="list-style-type: none"> The explosive firing bunkers continued to use the warning horn prior to each shot.
7.2.6G To maintain and promote habitat diversity, continue to exclude livestock grazing and continue the annual controlled burning program on LLNL Site 300.	<ul style="list-style-type: none"> This mitigation measure is consistent with past practices at Site 300 and will be continued. 	<ul style="list-style-type: none"> LLNL continued to exclude livestock grazing at Site 300 in FY00. In FY00, a controlled burn was initiated and completed in July instead of June. (This one-month delay resulted from the DOE's review of LLNL procedures following the fire at Los Alamos National Laboratory).
7.2.6H Continue to protect the large-flowered fiddleneck population near the Drop Tower by maintaining the fence, controlling access, and prohibiting activities that may adversely impact the population. A second population is in a remote canyon at a distance from current or proposed activities and requires no additional protection.	<ul style="list-style-type: none"> LLNL and the Site 300 administrative office are committed to continuing its program for the protection of the <i>Amsinckia grandiflora</i> (large-flowered fiddleneck). Site 300 has maintained controlled access to limit and prevent activities that may adversely impact the flower's habitat and population located at Site 300. LLNL has, in previous years, entered into an MOU and other agreements for population surveys of the endangered flower. These practices will continue. In addition, LLNL collects data on <i>Amsinckia grandiflora</i> populations and provides it to the U.S. Fish & Wildlife Service, in accordance with the finalized recovery plan, which was completed in FY98 (December 15, 1997). 	<ul style="list-style-type: none"> In April 2000, the portion of Site 300 previously designated as critical habitat for the plant, was designated the <i>Amsinckia grandiflora</i> reserve through a declaration by the Secretary of the U.S. Department of Energy. A memorandum of agreement was signed between DOE and the U.S. Fish & Wildlife Service concerning activities within the reserve. LLNL has also established an experimental population within the reserve and is working with the U.S. Fish & Wildlife Service on continued monitoring of native and experimental <i>Amsinckia</i> populations, and to further develop habitat restoration and maintenance techniques. The annual progress report prepared by LLNL will be submitted to the U.S. Fish & Wildlife Service in May 2001.
7.2.6I Continue to maintain the fire roads and disked areas in the same locations to the extent possible. After evaluation, where possible, duplicate roads paralleling other roads will be eliminated.	<ul style="list-style-type: none"> The Emergency Management Division will conduct an evaluation of all roads and fire trails to identify any duplicate or parallel roads that can be eliminated. 	<ul style="list-style-type: none"> Presently the Emergency Management Division has determined that existing fire trails should be maintained to provide adequate fire protection.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
7.2.6J Herbicide use will remain limited to areas around buildings, roadways, utilities, and other facilities.	<ul style="list-style-type: none"> The gardener's procedures will be modified to include this requirement. 	<ul style="list-style-type: none"> The types, procedures, and locations for herbicide use were the same in FY00 as in the previous three years. An explanation of the herbicides used, procedures for use, and locations where the herbicides were used for FY00 is in Appendix B to the Mitigation Monitoring Program Report for FY97.
7.2.6K Consistent with current construction practices, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in a closed container or removed from the construction site.	<ul style="list-style-type: none"> Guidance for this mitigation measure is in the LLNL <i>Environment, Safety and Health Manual</i>, Volume II, Part 13.3, subpart 3.0: Controls. It states that "All active LLNL workplaces shall be maintained in a sanitary condition and shall be constructed, equipped and maintained in a sanitary condition so far as reasonably practicable to prevent the habitation of rodents, insects and vermin of any kind that may harbor microbes." It also requires receptacles used for waste or refuse to be equipped with a solid, tight-fitting cover. 	<ul style="list-style-type: none"> The LLNL <i>Environment, Safety and Health Manual</i> guidance was revised in June 2000. The revised subpart (3.0) that relates directly to this mitigation measure is provided in Appendix B. Ecology.
7.2.10 The 0.5 acre of lost wetlands will be replaced pursuant to consultation with the California Department of Fish and Game. See Appendix G, Section G.5 of EIS/EIR for additional details regarding this mitigation option.	<ul style="list-style-type: none"> The Environmental Protection Department will reevaluate/validate the estimate of wetland acreage that may be lost from cooling-tower runoff reduction. The Environmental Protection Department and Site 300 management will evaluate potential Site 300 locations for development of alternate "no net loss of wetland value" options. 	<ul style="list-style-type: none"> The proposed scope of the cooling-tower project was evaluated. LLNL evaluated alternative plans to ensure the cooling tower project would result in no net loss of wetlands. One alternative was to allow well water to drain onto the area previously watered by the cooling-tower runoff.
	<ul style="list-style-type: none"> The Environmental Protection Department will consult with The California Department of Fish & Game on mitigation plans and options. 	<ul style="list-style-type: none"> Consultation with the California Department of Fish & Game took place in FY94, and the cooling tower project proceeded. In FY95, well water from Tank 9 was hard plumbed to supply a constant flow of water to the B-865 wetland. Potable water continued to be directed onto the existing wetlands at B-865, B-851, and B-827 in FY00.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
7.4.3 The impacts of the proposed action will be mitigated as set forth under Impact 7.2.6. Impacts to sensitive species by other projects within the cumulative impact study areas cannot be mitigated by DOE or UC.	<ul style="list-style-type: none"> This measure was implemented by actions taken under Mitigation Measure 7.2.6; no additional action is required. 	N/A
7.4.4 The impacts of the proposed action will be mitigated as set forth under Impact 7.2.10. Impacts to wetlands by other projects within the cumulative impact study areas cannot be mitigated by DOE or UC.	<ul style="list-style-type: none"> This measure was implemented by actions taken under Mitigation Measure 7.2.10; no additional action is required. 	N/A

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>8.1.6 Continue the existing LLNL programs to enhance, to the extent feasible, Transportation System Management programs that will revitalize and expand the van pooling and ride sharing programs in an organized effort to reduce vehicle use and associated air emissions.</p>	<ul style="list-style-type: none"> LLNL has a Transportation Systems Management Program that provides and promotes alternative, environmentally responsible options for employee commuting, assists LLNL in complying with transportation-related clean-air legislation, and addresses congestion-management issues. The Program's primary goal is to reduce the drive-alone rate of LLNL's employees by implementing creative solutions to commuter transportation issues. 	<ul style="list-style-type: none"> In FY00, LLNL's TSMP continued to mitigate commuter-generated traffic, highway congestion, and air pollution in the Livermore and San Joaquin valleys. Activities undertaken in FY00 are as follows: <ul style="list-style-type: none"> Continued a pre-tax benefit program for transit and vanpool commuters. This program enables employees to set aside a fixed amount of their salary each month to reduce transportation costs. Employees do not have to pay taxes on the deferred compensation. Participated in the Bay Area Air Quality Management District's "Spare the Air" Program. Site 300 participated in the San Joaquin Valley Unified Air Pollution Control District's "Spare the Air Program." Continued community outreach programs to mitigate transportation-related air pollution and congestion-management issues. TSMP conducted monthly meetings with transportation planners from Livermore, Dublin, Pleasanton, other large employers, and local school districts. Continued two new commuter bus services from previously unserved areas in Contra Costa and Stanislaus counties. Continued membership in the Department of Energy's Clean Cities Coalition and worked to develop increased availability and use of alternative-fueled vehicles for LLNL employees. Offered a pilot vanpool fuel incentive program to enable vanpools to purchase LLNL fuel at reduced rates.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>10.1.1 Construction equipment and vehicles at the LLNL Livermore site will be properly muffled to reduce noise impacts.</p> <p>10.2.1 Construction equipment and vehicles at LLNL Site 300 will be properly muffled to reduce noise impacts.</p>	<ul style="list-style-type: none"> Noise on construction sites is controlled by requiring contractors to meet the requirements of the contract specifications. 	<ul style="list-style-type: none"> For the Livermore site, construction specifications, Section 01130, Paragraph 1.06C reads, "Equip all motorized equipment with mufflers." Section 01135 of the contract specifications makes the same requirement for Site 300. A copy of the specifications was provided in the Mitigation Monitoring Report for FY94 and FY99.
<p>10.2.2 LLNL's weather and noise monitoring program at LLNL Site 300 will continue to restrict operations when peak impulse noise levels are predicted to exceed 126 dB in populated areas.</p>	<ul style="list-style-type: none"> Site 300 will continue to use blast forecasting as a tool to determine if explosive tests would adversely impact neighbors and the surrounding community. 	<ul style="list-style-type: none"> In FY00, noise levels were projected based on meteorological conditions. No tests were conducted when peak impulse noise levels were predicted to exceed 126 dB in populated areas.
<p>10.4.1 The contribution to noise levels by the proposed action will be reduced by Mitigation Measure 11.1.2.</p>	<ul style="list-style-type: none"> This mitigation measure is implemented by actions taken under Mitigation Measure 11.1.2. 	<p>N/A</p>
<p>11.1.2 While no mitigation is required, implement an expanded Transportation Systems Management Program to aid in reducing traffic congestion.</p>	<ul style="list-style-type: none"> LLNL has a Transportation Systems Management Program that provides and promotes alternative, environmentally responsible options for employee commuting, assists LLNL in complying with transportation-related clean-air legislation, and resolves congestion-management issues. 	<ul style="list-style-type: none"> The status of this measure is reported in Mitigation Measure 8.1.6.

Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
12.1.1E Reassess new contracts for additional water-intensive landscaping (i.e., lawn and groundcover) and implement feasible conservation measures, including native, drought-resistant plants and drip versus spray irrigation.	<ul style="list-style-type: none"> Plant Engineering has developed guidelines on how much irrigation water will be used to maintain the lawns and shrubs on the Livermore site. Plant Engineering will continue to review all new projects to incorporate low-water-use features, and will continue to review existing water uses to see if more can be done to conserve. 	<ul style="list-style-type: none"> In FY00, Plant Engineering continued to adhere to their guidelines for landscape irrigation water use, including installation of drought-tolerant plant materials and the incorporation of “hardscape” (concrete patio paving or cobblestone paving). These efforts included a net reduction of 72,000 square feet of turf, from 1,837,757 square feet to 1,765,757 (B551 area); a net increase of 48,145 square feet of groundcover, from 1,636,278 square feet to 1,684,423 square feet primarily in the B-694 area; and increase of 68,200 square feet in the other landscape features category.
12.1.1H Continue the employee water conservation awareness program	<ul style="list-style-type: none"> A water conservation program has been in place at LLNL since 1989. This program consists of a public awareness program with flyers on water-saving ideas, a phone “hot line” to report water leaks and water abuse, and presentations to facility managers on water conservation. LLNL coordinated with San-dia National Laboratory on water-conservation ideas. 	<ul style="list-style-type: none"> LLNL continued with a water conservation employee awareness program but at a reduced level.
13.1.3A Continue to enhance its waste minimization policies and practices to reduce generation of mixed wastes at the source.	<ul style="list-style-type: none"> Impact 13.1.3 identified in the 1992 EIS/EIR is no longer a concern. However, waste minimization will continue to be implemented as a best management practice associated with mixed waste generation and reported in LLNL’s annual environmental report. 	<ul style="list-style-type: none"> The mitigation measure is considered to be completed.
13.1.3B When treatment, storage, and/or disposal options become available for these mixed wastes, pursue those alternatives.	N/A	<ul style="list-style-type: none"> This mitigation measure is completed. The 1992 impact is no longer a concern, as discussed in “Changes Made in FY97” on page 8.

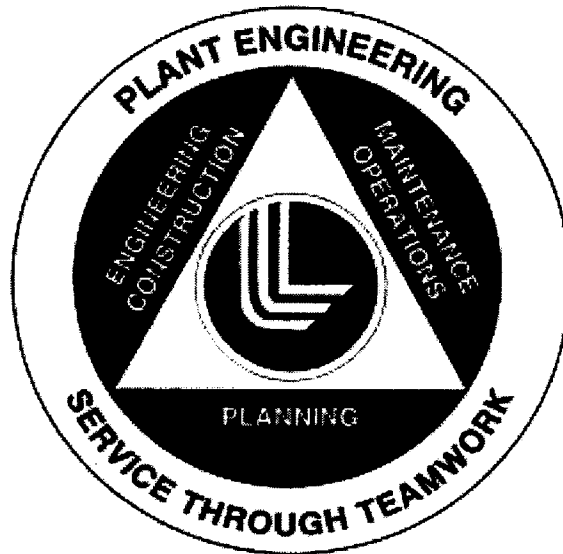
Table 7. Administrative Mitigation Measures (Continued)

Mitigation Measure	Implementation Strategy	Status
<p>13.1.3C Treat increased quantities of treatable low-level liquid mixed wastes at the waste water treatment tank farm to reduce total volumes. In addition, the planned Mixed Waste Treatment Facility (MWTF) will be used to reduce the volume of combustible mixed wastes.</p>	N/A	<ul style="list-style-type: none"> This mitigation measure is completed. The 1992 impact is no longer a concern, as discussed in "Changes Made in FY97" on page 8.
<p>13.1.3D If it appears that LLNL is approaching storage capacity limits, LLNL will apply for additional permitted capacity to accommodate storage until treatment, storage, and/or disposal become available.</p>	N/A	<ul style="list-style-type: none"> This mitigation measure is completed. The 1992 impact is no longer a concern, as discussed in "Changes Made in FY97" on page 8.

Appendix A. Prehistoric and Historic Cultural Resources

Document	Reference in Mitigation Measure No.
Plant Engineering Maintenance Operations Procedure (MOP)-02003, Soil Excavation (Digging, Grading, Tunneling, Trenching, and/or Drilling) Permit Procedure	4.1.1, 4.2.1

PLANT ENGINEERING MAINTENANCE OPERATIONS PROCEDURE (MOP)



**MOP-02003
(Rev. #10)**

**Soil Excavation (Digging, Grading, Tunneling, Trenching,
and/or Drilling) Permit Procedure**

Lawrence Livermore National Laboratory -- Livermore, California

August 17, 2000

Attachment 2

Site 200 - M/O Technical Admin Office, L-602, 422-3672
Site 300 - M/O Division Office, L-873, 423-5211

Site 200 / 300 Plant Engineering

Soil Excavation

(Grading, Tunneling, Trenching and/or Drilling Permit)

Permit #: _____

Date of Request: _____

Approximate Start Date: _____

Scheduled Completion Date: _____

NOTE: SOIL IS TO BE KEPT SEPARATE FROM CONCRETE, ASPHALT AND ALL OTHER RUBBLE

Project Information

Job Title: _____

WT/JO: _____

Specific Location of Excavation or Drilling: _____

Asset: _____

Room: _____

Layout or Sketch Attached ☐ Yes ☐ Not Available

Responsible Individual (RI): _____

Print Name

Signature

Date

RI Telephone#: _____ RI Pager#: _____

Job Safety Analysis Required: ☐

NOTE: This permit does not relieve the designated Responsible Person of the responsibility for the health and safety of workers under his/her direction.

Issue Date: _____

Expiration Date: _____

Plant Engineering Representative: _____
Signature for: _____

Inspector's Signature

FIELD REQUIREMENTS MUST BE COMPLETED PRIOR TO START OF JOB/CONSTRUCTION

Date of Locator services Survey: _____

Name of Locator Operator: _____

Soil Engineering Evaluation (SEEE) ☐ Required ☐ Not Required

Date of SEEE: _____

Soil Engineering Evaluation Comments: _____

Name of Engineer Performing SEEE: _____

Date Job Safety Analysis Completed: _____ Job Safety Analysis Completed by: _____

Project Comp Date: _____ Signature (RI) _____

FOR WORK AT SITE 200 IN THE BUFFER ZONE, ON NEWLY ACQUIRED LAND, IN ARROYO SECO, AND IN OR AROUND THE ARROYO LAS POSITAS AND ITS TRIBUTARIES, A WILDLIFE BIOLOGIST'S SIGNATURE IS NEEDED PRIOR TO PERMIT ISSUANCE.

FOR WORK AT SITE 300, THIS ENTIRE SECTION MUST BE COMPLETED BEFORE PERMIT IS ISSUED

Review/Approval Signatures:

Archeologist: _____

Wildlife Biologist: _____

Environmental Analyst: _____

Site 300 Soil Management Information:

☐ Yes ☐ No Surplus clean fill will be generated and made available for reuse.

☐ Yes ☐ No Additional clean fill is needed to complete this job.

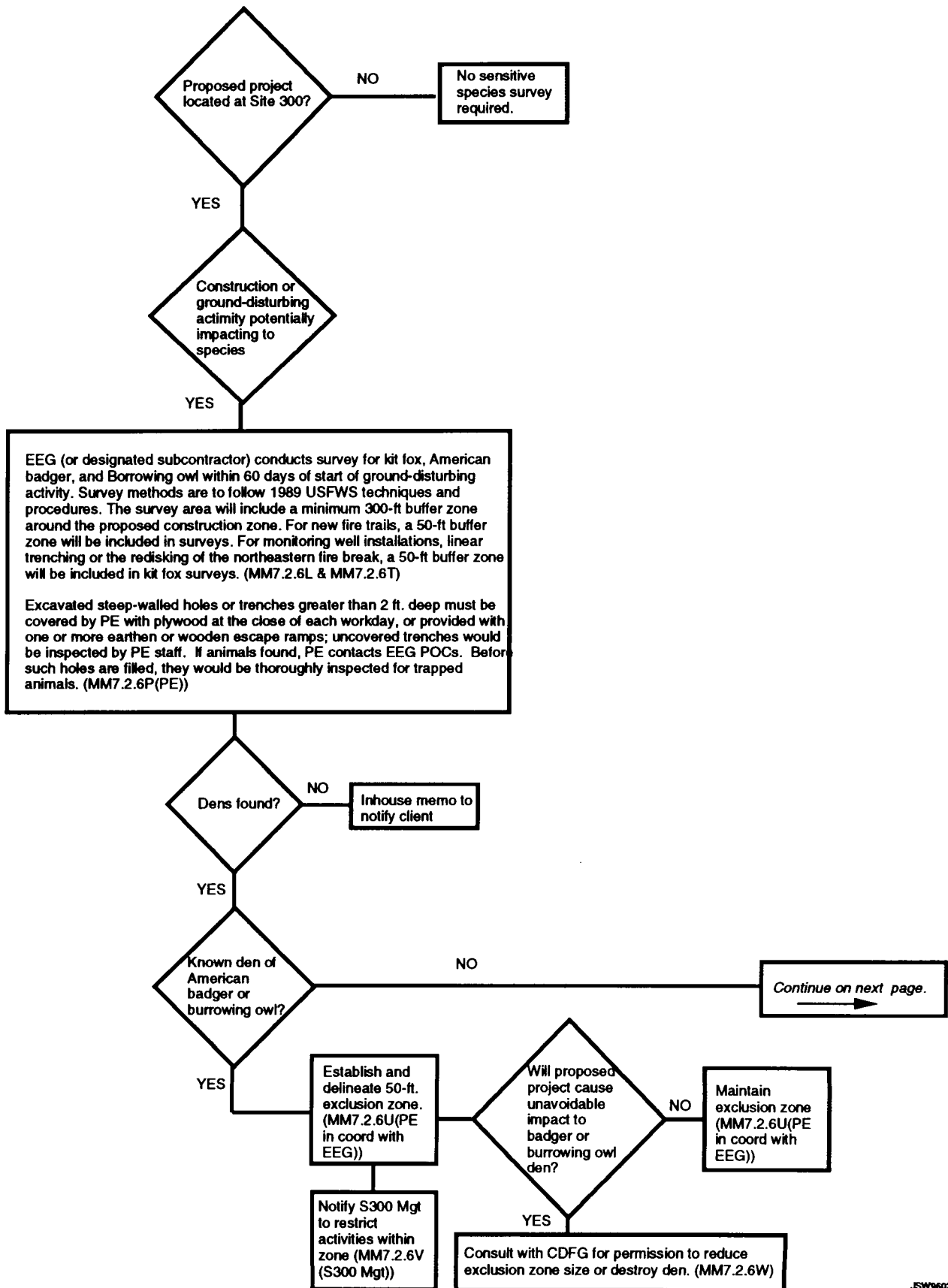
Return Completed permit and all documentation to the appropriate Plant Engineering Permit Office

Rev 11/99 rds

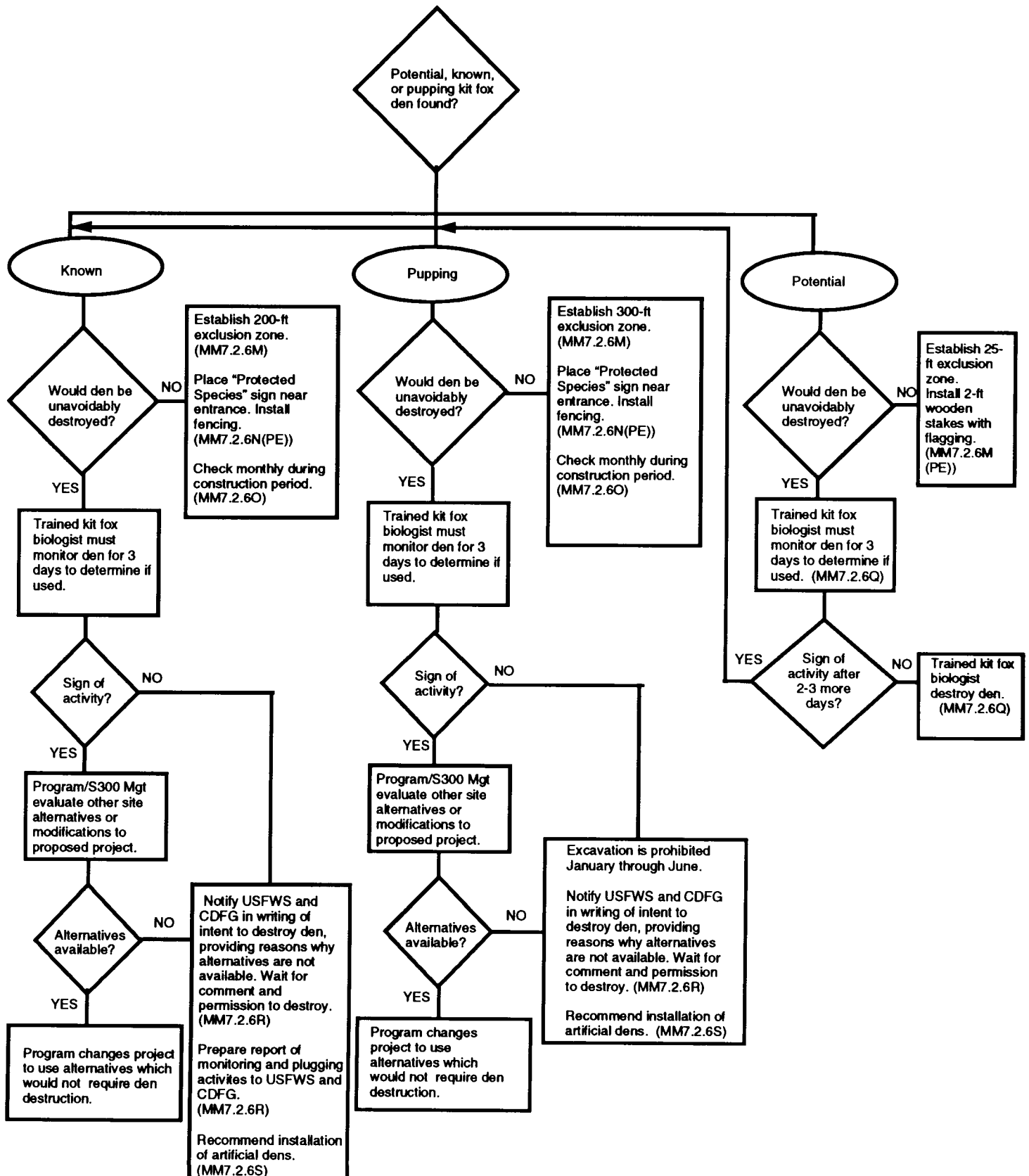
Appendix B. Ecology

Document	Reference in Mitigation Measure No.
Work/schedule poster depicting Site 300 biota	7.2.6A
Flow diagram used to guide wildlife surveys and follow-on activities	7.2.6Q, 7.2.6R, 7.2.6S, 7.2.6T, 7.2.6U, 7.2.6V
<i>ES&H Manual</i> , Volume II, Part 13.3, subpart 3.0: Controls	7.2.6K

EIS/EIR Mitigation Implementation Plan Mitigation Measures 7.2.6L-W



EIS/EIR Mitigation Implementation Plan Mitigation Measures 7.2.6L-W (cont.)



ES&H manual

Environment, Safety, and Health

Volume II

Part 13: Biological

13.3 Sanitation

(Formerly H&SM Chapter 34)

Recommended for approval by the ES&H Working Group

Approved by: Robert W. Kuckuck
Deputy Director for Operations

New document or new requirements

Approval date: June 9, 2000
Editorial Update: April 1, 2001

3.0 Controls

In each of the following sections, microbial hazards associated with each area of concern are discussed along with examples of good practices or controls for avoiding or minimizing the risks of such hazards.

All active LLNL workplaces shall be maintained in a sanitary condition and shall be constructed, equipped, and maintained in a sanitary condition so far as reasonably practicable—to prevent the habitation of rodents, insects, and vermin of any kind that may harbor microbes. General guidelines for the construction and maintenance of toilet and washing facilities, changing rooms, and lunch rooms, including ventilation requirements, are found in 29 CFR 1910 Subpart J, General Environmental Controls, and 29 CFR 1910.141(a)(5), "Sanitation, general, vermin control."

3.1 Water

Drinking water used at LLNL shall conform with the appropriate sections of 40 CFR 141, "National Primary Drinking Water Regulations" and 22 CCR §§ 64400-64501. The San Francisco Public Utilities District analyzes LLNL's Hetch Hetchy water supply for "maximum contaminant levels" according to these regulations. In addition to these analyses, LLNL's Plant Engineering Department collects weekly water samples at representative points around the site to test for bacteria total plate count, fecal coliform, trihalomethane, lead, copper, and residual chlorine levels. LLNL also purchases water from Zone 7 of the Alameda County Flood Control and Water Conservation District as a standby or backup supply to the Hetch Hetchy water system. As a water consumer, LLNL does not treat its water, but LLNL must be assured by the water purveyor that the water never has any impurities in concentrations that would either be hazardous or offensively affect the senses (turbidity, color, taste, or smell).

Water at Site 300 is not supplied by an outside purveyor, but is obtained from well waters; therefore, LLNL, as a consumer and supplier, follows drinking-water regulations that ensure quality as good as or better than that found in 40 CFR 141 and 22 CCR. Plant Engineering monitors at least monthly for various physical, chemical, and biological contaminants and submits a monthly report to the state of California. Site 300 water is chlorinated by the Plant Engineering Department, which monitors residual chlorine concentrations weekly.

The drinking-water supply system shall be installed in accordance with the Uniform Plumbing Code and maintained in good condition. Before installing or repairing drinking-water pipe systems, contact the Plant Engineering Department's Mechanical Utilities for assistance.