

2. Compliance Summary

LLNL activities comply with federal, state, and local environmental regulations, internal requirements, Executive Orders, and DOE Orders as specified in Contract DE-AC52-07NA27344. This chapter provides an overview of LLNL's compliance programs and activities during 2011.

2.1 Environmental Restoration and Waste Management

2.1.1 Comprehensive Environmental Response, Compensation and Liability Act

Ongoing remedial investigations and cleanup activities for legacy contamination of environmental media at LLNL fall under the jurisdiction of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Title I of the Superfund Amendments and Reauthorization Act (SARA). CERCLA is commonly referred to as the Superfund law.

CERCLA compliance activities for the Livermore site and Site 300 are summarized in **Sections 2.1.1.1** and **2.1.1.2**. Community relations activities conducted by DOE/LLNL are also part of these projects. See **Chapter 8** for more information on the activities and findings of the investigations.

2.1.1.1 Livermore Site Ground Water Project

The Livermore site came under CERCLA in 1987 when it was placed on the National Priorities List. The Livermore site Ground Water Project (GWP) complies with provisions specified in a Federal Facility Agreement (FFA) entered into by the U.S. Environmental Protection Agency (EPA), DOE, the California EPA's Department of Toxic Substances Control (DTSC), and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). As required by the FFA, the GWP addresses compliance issues by investigating potential contamination source areas (e.g., suspected old release sites, solvent-handling areas, leaking underground tank systems), monitoring water quality through an extensive network of wells, and remediating contaminated soil and groundwater. The primary soil and groundwater contaminants (constituents of concern) are common volatile organic compounds (VOCs), primarily trichloroethylene (TCE) and perchloroethylene (PCE). Background information on LLNL Livermore Site environmental characterization and restoration activities are presented in the *CERCLA Remedial Investigation Report for the LLNL Livermore Site* (Thorpe et al, 1990). The *LLNL Ground Water Project 2011 Annual Report* (Buscheck et al. 2012) presents the current status of clean up at the Livermore Site.

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Regulatory Milestones. During 2011, the Remedial Project Managers signed a Consensus Statement for Environmental Restoration of the Livermore site that included 24 Federal Facility Agreement (FFA) milestones. The Livermore site environmental restoration project had 9 milestones scheduled for completion in calendar year 2011. The following deliverables were submitted to the regulatory agencies:

- Fourth Quarter 2010 Self Monitoring Report
- 2010 Annual Report
- First, Second, and Third Quarter 2011 Self Monitoring Report
- Draft, Draft Final, and Final Addendum to the Remedial Design Report No. 1 for Treatment Facility A (TFA)

The other regulatory milestones included the following:

- Receive regulatory comments on Draft Addendum to the Remedial Design Report No. 1 for TFA

All calendar year 2011 milestones were met.

Treatment Facilities. During 2011, the Livermore GWP maintained 29 groundwater and 9 soil vapor treatment facilities. The groundwater extraction wells and dual phase extraction wells extracted about 1,124 million L of groundwater during 2011. The dual-phase extraction wells and soil-vapor extraction wells together removed 1.5 million m³ of soil vapor.

In 2011, the Livermore GWP treatment facilities removed about 94 kg of VOCs. Since remediation efforts began in 1989, more than 15.5 billion L of groundwater and approximately 13.8 million m³ of soil vapor have been treated, removing about 2,970 kg of VOCs.

Community Relations. Livermore site community relations activities in 2011 included regular communication and meetings with Livermore senior leaders, local, regional, and national elected officials, as well as presentations to interest groups and other community organizations. Environmental-related activities include maintenance of information repositories and an administrative record; periodic meetings with members of Tri-Valley Communities Against a Radioactive Environment (Tri-Valley CAREs) and the organization's scientific advisor as part of the activities funded by an EPA Technical Assistance Grant (TAG); hosted tours of site environmental activities, including a Tri-Valley CAREs main site tour in November; and responses to public and news media inquiries. In addition, DOE/LLNL environmental documents, letters, and public notices are also maintained on a public website: <http://www-envirinfo.llnl.gov>.

2.1.1.2 Site 300 Environmental Restoration Project

Remedial activities are ongoing at Site 300, which became a CERCLA site in 1990 when it was placed on the National Priorities List. Remedial activities are overseen by the EPA, the Central Valley Regional Water Quality Control Board (CVRWQCB), and DTSC, under the authority of an FFA for the site. Contaminants of concern at Site 300 include VOCs (primarily TCE), high-explosive compounds, tritium, depleted uranium, silicone-based oils, nitrate, perchlorate, polychlorinated biphenyls, dioxins, furans, and metals. The contaminants present in environmental media vary within the different environmental restoration operable units (OUs) at

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the site. See Webster-Scholten (1994), and Ferry et al. (1999) for background information on LLNL environmental characterization and restoration activities at Site 300. The *LLNL Site 300 2011 Annual Compliance Monitoring Report* (Dibley et al. 2012) presents the current status of clean up at Site 300.

Regulatory Milestones. During 2011, DOE and the regulatory Remedial Project Managers signed a new FFA Schedule of Deliverables for Site 300 that included 87 FFA milestones. The Site 300 environmental restoration project had 25 milestones scheduled for completion in calendar year 2011. The following deliverables were submitted to the regulatory agencies:

- Draft, Draft Final, and Final Building 832 Five-Year Review
- Draft, Responses to regulatory comments, and Final Building 812 Gamma Surface Soil Survey Characterization Work Plan
- Annual 2010 Compliance Monitoring Report
- Draft, Responses to regulatory comments, and Final Building 812 Characterization Work Plan (Part 2)
- Draft, Draft Final, and Final General Services Area (GSA) Five-Year Review
- Draft, Responses to regulatory comments, and Final Building 812 Baseline Risk Assessment Work Plan
- Draft Building 834 Five-Year Review
- First Semester 2011 Compliance Monitoring Report (CMR)

The other regulatory milestones included:

- Initiate Building 812 Gamma Surface Soil Survey
- Regulatory comments due on Draft Building 832, Building 834, and GSA Five-Year Reviews
- Regulatory comments due on Draft Building 812 Baseline Risk Assessment Work Plan
- Regulatory comments due on Draft Building 812 Characterization Work Plan (Part 2)
- Regulatory comments due on Draft Building 812 Gamma Surface Soil Survey Characterization Work Plan

Treatment Facilities. During 2011, the Site 300 ERP operated 15 groundwater and 5 soil vapor treatment facilities at Site 300. The groundwater extraction wells and dual-phase extraction wells extracted about 40.3 million L of groundwater during 2011. The dual-phase extraction wells and soil-vapor extraction wells together removed 1.3 million m³ of soil vapor.

In 2011, the Site 300 treatment facilities removed nearly 11 kg of VOCs, 0.14 kg of perchlorate, 1,600 kg of nitrate, 0.14 kg of the high explosive compound RDX, 0.00085 kg of silicone oils (TBOS/TKEBS), and 0.0048 kg of uranium. Since ground water remediation began in 1990, approximately 1,500 million L of ground water and 17.6 million m³ soil vapor has been treated, resulting in removal of more than 560 kg of VOCs, 1.2 kg of perchlorate, 11,000 kg of nitrate, 1.6 kg of RDX, 9.5 kg of silicone oils, and 0.013 kg of uranium.

Remediation efforts in the Eastern GSA have successfully reduced concentrations of TCE and other VOCs in ground water to below their respective cleanup standards set in the GSA Record of Decision (ROD) (United States [U.S.] Department of Energy [DOE], 1997). The Eastern GSA

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ground water extraction and treatment system was shut off on February 15, 2007 with the U.S. EPA, RWQCB, and California DTSC approval. As required by the GSA ROD, ground water monitoring will be conducted for five years after shutdown to determine if VOC concentrations rise or “rebound” above cleanup standards. TCE concentrations were below the 5 µg/L cleanup standard for all Eastern GSA ground water samples collected during 2011. The status of the Eastern GSA cleanup and disposition of the treatment system and monitoring wells will be discussed with the regulatory agencies in 2012.

Community Relations. Site 300 community relations activities in 2011 included communication and meetings with neighbors and/or local, regional, and national interest groups and other community organizations; public presentations; maintenance of information repositories and an administrative record; tours of site environmental activities; and responses to public and news media inquiries. In addition, DOE/LLNL met with members of Tri-Valley CAREs and the organization’s scientific advisor as part of the activities funded by an EPA TAG. Community questions were also addressed via electronic mail, and project documents, letters, and public notices were posted on a public website: <http://www-envirinfo.llnl.gov>.

2.1.2 Emergency Planning and Community Right-to-Know Act and Toxics Release Inventory Report

Title III of SARA, known as the Emergency Planning and Community Right-to-Know Act (EPCRA), requires owners and operators of facilities who handle certain hazardous chemicals on site to provide information on the release, storage, and use of these chemicals to organizations responsible for emergency response planning. Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, directs all federal agencies to comply with the requirements of the EPCRA, including SARA, Section 313, the Toxic Release Inventory (TRI) Program. EPCRA requirements and LLNL compliance are summarized in **Table 2-1**.

On June 23, 2011, LLNL submitted to DOE/NNSA the TRI Form R for mercury for the Livermore site detailing environmental release estimates for calendar year (TRI reporting year) 2010. Form R is used for reporting TRI chemical releases and includes information about waste management and waste minimization activities.

LLNL has reported lead release data for Site 300 since 2002. Over 99 percent of lead releases are associated with activities at the Site 300 Small Firearms Training Facility (SFTF). Data for the 2010 TRI Form R for lead at Site 300 was submitted to DOE/NNSA on June 23, 2011. Over the past several years, the lead releases have decreased due to increased use of frangible bullets.

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Table 2-1 Compliance with EPCRA.

EPCRA section	Brief description of requirement	LLNL action
302	Notify State Emergency Response Commission (SERC) of presence of extremely hazardous substances.	Originally submitted 5/87.
303	Designate a facility representative to serve as emergency response coordinator.	Update submitted 6/20/11 to San Joaquin County for Site 300 and 6/20/11 to Alameda County for Livermore site.
304	Report releases of certain hazardous substances to SERC and Local Emergency Planning Committee (LEPC).	No EPCRA-listed extremely hazardous substances were released above reportable quantities in 2011.
311	Submit MSDSs or chemical list to SERC, LEPC, and Fire Department.	As per the California Emergency Management Agency, the EPCRA Section 311 requirement is satisfied by the EPCRA Section 312 submittal and the filing of necessary amendments within 30 days of handling a previously undisclosed hazardous material subject to Section 312 inventory requirements.
312	Submit hazardous chemical inventory to local administering agency (county).	Submitted to San Joaquin and Alameda counties on 1/12/11 and 3/1/11, respectively.
313	Submit Form R to U.S. EPA and California EPA for toxic chemicals released above threshold levels.	Form R for lead for Site 300 and mercury for Livermore site submitted to DOE on 6/23/11; DOE forwarded it to U.S. EPA and California EPA 6/27/11.

2.1.3 Resource Conservation and Recovery Act and Related State Laws

The California Accidental Release Prevention (CalARP) Program is the combined federal and state program for the prevention of accidental release of regulated toxic and flammable substances. The goal of the combined program is to eliminate the need for two separate and distinct chemical risk management programs.

In June 2000, LLNL Site 300 submitted a risk-management plan (RMP) to the San Joaquin County, Office of Emergency Services (SJCOES). The RMP described the systems in place to prevent or mitigate the hazards associated with chlorine used in the LLNL Site 300 water treatment system. In accordance with the Final CalARP Program Regulations in the California Code of Regulations (Title 19, Division 2, Chapter 4.5), the LLNL Site 300 RMP was last updated in September 2010. It has been determined that the Site 300 water treatment system falls under CalARP Program Level 2. This plan is updated at least every five years.

LLNL submitted a revised Livermore site CalARP Level 1 RMP in December 2011. The Livermore site RMP includes lithium hydride, nitric acid and hydrofluoric acid.

2.1.4 Resource Conservation and Recovery Act and Related State Laws

The Resource Conservation and Recovery Act (RCRA) provides the framework at the federal level for regulating solid wastes, including wastes designated as hazardous. The California Hazardous Waste Control Law (HWCL) and California Code of Regulations (CCR) Title 22 set

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requirements for managing hazardous wastes and implementing RCRA in California. LLNL works with DTSC to comply with these regulations and obtain hazardous waste permits.

The hazardous waste management facilities at the Livermore site consist of permitted units in Area 612 and Building 625 plus Buildings 693, 695, and 696, which make up the Decontamination and Waste Treatment Facility (DWTF). Permitted waste-management units include container storage, tank storage, and various treatment processes (e.g., wastewater filtration, blending, and size reduction). LLNL submitted the permit renewal application to DTSC in April 2009, followed by submittal of the human health risk assessment (HHRA) in December 2010 as part of the permit renewal process. DTSC approved the Building 419 Closure Plan in October 2009. Closure activities that were completed include sampling of the facility structure, abatement and demolition of the facility, and partial concrete, asphalt, and soil sampling around the facility's footprint. During 2010/2011, LLNL submitted several Class 1 permit modification requests to DTSC, all of which have been approved and implemented.

The hazardous waste management facilities at Site 300 consist of three operational RCRA-permitted facilities. The Explosives Waste Storage Facility (EWSF) and the Explosives Waste Treatment Facility (EWTF) are permitted to store and treat explosives waste, respectively. The Building 883 container storage area (CSA) is permitted to store routine facility-generated waste such as spent acids, bases, contaminated oil, and spent solvents. Site 300 has one post-closure permit for the RCRA-closed Building 829 High Explosives Burn Pits. LLNL is currently in the process of renewing the hazardous waste facility permit for EWSF, EWTF, and Building 883 CSA. The Building 829 permit will not expire until April 2, 2013. Transportation of hazardous or mixed waste over public roads occurs by DTSC-registered transporters, including LLNL.

2.1.5 California Medical Waste Management Act

All LLNL medical waste management operations are conducted in accordance with the California Medical Waste Management Act (CMWMA). The program is administered by the California Department of Public Health (DPH) and is enforced by the Alameda County Department of Environmental Health (ACDEH). LLNL's medical waste permit is renewed on an annual basis and covers medical waste generation and treatment activities for the six Biosafety Level (BSL) 2 facilities, and the BSL 3 facility at Building 368.

2.1.6 Radioactive Waste and Mixed Waste Management

LLNL manages radioactive waste and mixed waste in compliance with applicable sections of DOE Order 435.1, and the LLNL-developed *Radioactive Waste Management Basis for the Lawrence Livermore National Laboratory* (LLNL 2009), which summarizes radioactive waste management controls relating to waste generators and treatment and storage facilities. Additional information on the management of radioactive and mixed wastes, prepared by EFA, is available to LLNL employees in the *Environment, Safety and Health (ES&H) Manual*. LLNL does not release to the public any property with residual radioactivity above the limits specified in DOE Order 458.1. Excess property of this type is either transferred to other DOE facilities for reuse or transferred to LLNL's Radioactive and Hazardous Waste Management Division for disposal.

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2.1.7 Federal Facility Compliance Act

LLNL continues to work with DOE to maintain compliance with the Federal Facilities Compliance Act (FFCA) Site Treatment Plan (STP) for LLNL, which was signed in February 1997. LLNL completed 10 milestones during 2011. In addition, four milestones were determined to no longer be applicable and removed from the STP, and four waste streams were treated prior to milestones being established/enforceable.

An additional 141 m³ of newly generated mixed waste was accepted into the approved storage facilities and added to the STP. LLNL removed approximately 165 m³ of mixed waste from LLNL in 2011, reflecting an overall reduction of 24 m³ of mixed waste being stored by LLNL.

Reports and certification letters were submitted to DOE as required. LLNL continued the use of available commercial treatment and disposal facilities that are permitted to accept LLNL mixed waste. These facilities provide LLNL greater flexibility in pursuing the goals and milestones set forth in the STP.

2.1.8 Toxic Substances Control Act

The Federal Toxic Substances Control Act (TSCA) and implementing regulations found in Title 40 of the Code of Federal Regulation, Parts 700–789 (40 CFR 700-789) govern the uses of newly developed chemical substances and TSCA-governed waste.

In 2011, LLNL did not generate, store or dispose of any TSCA-regulated PCB waste.

2.2 Air Quality and Protection

2.2.1 Clean Air Act

All activities at LLNL are evaluated to determine the need for air permits or equipment registrations. Air permits are obtained from the Bay Area Air Quality Management District (BAAQMD) for the Livermore site and from the San Joaquin Valley Air Pollution Control District (SJVAPCD) and/or BAAQMD for Site 300. The BAAQMD also administers a boiler registration program for natural gas fueled boilers with rated heat input capacities greater than 2 million British Thermal Units per hour (Btu/hr) and less than 10 million Btu/hr.

Both the BAAQMD and the SJVAPCD are overseen by the California Air Resources Board (CARB). CARB also oversees the statewide permitting for portable diesel fuel-driven equipment such as portable generators and portable air compressors. In addition, CARB presides over the state-wide registration of in-use off-road diesel vehicles, such as diesel powered forklifts, loaders, backhoes, graders, and cranes.

In 2011, LLNL operated 180 permitted air-pollutant emission sources at the Livermore site and 36 permitted air-pollutant emission sources at Site 300. In addition, the Livermore site continues to maintain a Synthetic Minor Operating Permit (SMOP), which was initially issued by the BAAQMD in 2002 and revised in 2009, to ensure the Livermore site does not emit regulated air pollutants in excess of federal Clean Air Act (CAA) Title V limits. As such, LLNL is able to

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demonstrate that it does not have any major sources of air pollutant emissions per 40 CFR 70.2. In 2011, LLNL also maintained the registrations for 38 natural gas boilers with the BAAQMD and continued the registrations for 79 in-use off-road diesel vehicles with CARB.

Under the authority of California Assembly Bill 32 (AB32), the State of California has adopted several new regulations regarding emissions of greenhouse gases (GHG). In 2011, California required the mandatory reporting of stationary-source air emissions from combustion of natural gas that exceeded 25,000 metric tons per year of CO₂ equivalent emissions. For the previous three mandatory reporting years (CY2009, CY2010, and CY2011), the Livermore site has been slightly below the reporting threshold. LLNL continues to implement reductions and controls that should reduce CO₂ emissions in future years. LLNL is replacing diesel engines, boilers and hot water heaters on a continuing basis, and the new equipment is more efficient than the replaced equipment, in terms of fuel use and air emissions, such as CO₂. LLNL has been working with outside contractors to improve boiler control systems, which is reducing fuel usage and CO₂ emissions. LLNL Site 300 emissions of CO₂ are much lower than Livermore site emissions, and there is no natural gas service at Site 300 that would generate CO₂ emissions.

Also under the authority of AB32, California has adopted special regulations pertaining to sulfur hexafluoride (SF₆), because of its high GHG potential. In CY2011, LLNL was required to submit an annual report to CARB describing the research uses of SF₆ and the measures taken to control the SF₆ emissions from such research activities, and was required to keep records on the amounts of SF₆ contained in and used for electrical switchgear. The reduction of greenhouse gases has been further encouraged by Executive Order 13514, which establishes an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies.

In addition, the federal EPA has a mandatory reporting regulation for stationary-emission sources, similar to California's regulation. LLNL is currently below the reporting threshold for EPA mandatory reporting at both the Livermore site and Site 300.

2.2.2 National Emission Standards for Hazardous Air Pollutants, Radionuclides

To demonstrate compliance with 40 CFR Part 61, Subpart H (National Emission Standards for Hazardous Air Pollutants [NESHAPs] for radiological emissions from DOE facilities), LLNL monitors certain air-release points and evaluates the maximum possible dose to the public. The *LLNL NESHAPs 2011 Annual Report* (Wilson 2012), submitted to EPA, reported that the estimated maximum radiological doses that could have been received by a member of the public in 2011 were 0.17 μSv (0.017 mrem) for the Livermore site and 0.0000009 μSv (0.0000009 mrem) for Site 300. The totals are well below the 100 μSv/y (10 mrem/y) dose limits defined by the NESHAPs regulations.

2.3 Water Quality and Protection

LLNL complies with requirements of the federal Clean Water Act (CWA), Porter-Cologne Water Quality Control Act, and Safe Drinking Water Act (SDWA); the California Aboveground

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Petroleum Storage Act, Water Code, and Health and Safety Code; and City of Livermore ordinances, by complying with regulations and obtaining permits issued by several agencies whose mission is to protect water quality.

LLNL complies with the requirements of National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirement (WDR) permits, and Water Quality Certifications issued by Regional Water Quality Control Boards (RWQCBs) and the State Water Resources Control Board (SWRCB) for discharges to waters of the U.S. and waters of the State. Discharges to the City of Livermore's sanitary sewer system are governed by permits issued by the Water Resources Division (WRD). The SDWA requires that LLNL register Class V injection wells with EPA, and LLNL obtains permits from the Army Corps of Engineers (ACOE) for work in wetlands and waters of the U.S.

The CWA and California Aboveground Petroleum Storage Act require LLNL to have and implement Spill Prevention Control and Countermeasure (SPCC) plans for aboveground, oil-containing containers. The ACDEH and the San Joaquin County Environmental Health Department (SJCEHD) also issue permits for operating underground storage tanks containing hazardous materials or hazardous waste (see **Table 2-2**). LLNL's permitted underground storage tanks, for which permits are required, contain diesel fuel, gasoline, and used oil; aboveground storage tanks, for which permits are not required, contain fuel, insulating oil, and process wastewater.

2.4 Other Environmental Statutes

2.4.1 National Environmental Policy Act and Floodplains and Wetland Assessments

The National Environmental Policy Act (NEPA) of 1969 is the U.S. government's basic environmental charter. When considering a proposed project or action at LLNL, DOE/NNSA must (1) consider how the action would affect the environment and (2) make certain that environmental information is available to public officials and citizens before decisions are made and actions are taken. The results of the evaluations and notice requirements are met through publication of "NEPA documents," such as environmental impact statements (EISs) and environmental assessments (EAs) under DOE NEPA Implementing Procedures in 10 CFR 1021.

In 2005, DOE/NNSA completed the *Final Site-Wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement* (2005 SWEIS) (U.S. DOE/NNSA 2005). In 2011, DOE/NNSA prepared a Supplement Analysis (DOE/EIS-0348-SA-03) of the 2005 SWEIS to consider whether the 2005 SWEIS should be supplemented, a new environmental impact statement (EIS) should be prepared, or no further NEPA documentation is required (U.S. DOE/NNSA 2011). The SA examined changes in programs, projects, or operations since the 2005 SWEIS was prepared; new and modified plans, projects, and operations for the period from 2010 to 2015; as well as new information that was not available for consideration when the 2005 SWEIS was prepared. The SA process involved an extensive public outreach campaign, including a 45-day public comment period. The SA

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concluded that a supplement to the 2005 SWEIS or a new SWEIS is not needed, and therefore, no further NEPA documentation is needed for the new and modified projects and modifications in site operations considered in the SA. The 2011 SA to the SWEIS and the 2005 SWEIS are available on the web at <http://www-envirinfo.llnl.gov>.

In 2011, no other EISs, or EAs were completed. A Categorical Exclusion under DOE NEPA Regulations (10 CFR 1021) was completed for Building 850 Mitigation Pond (Pool BC) at Site 300 (ESH-EFA-NEPA-11-1178). There were no proposed actions at LLNL that required separate DOE floodplain or wetlands assessments under DOE regulations in 10 CFR Part 1022.

2.4.2 National Historic Preservation Act

The National Historic Preservation Act (NHPA) provides for the protection and preservation of historic properties that are significant in the nation's history. LLNL resources subject to NHPA consideration range from prehistoric archeological sites to remnants of LLNL's own history of scientific and technological endeavors. The responsibility to comply with the provisions of the NHPA rests with DOE/NNSA as the lead federal agency in this undertaking. LLNL supports the agency's NHPA responsibilities with direction from DOE/NNSA.

In 2005, in consultation with DOE/NNSA, the California State Historic Preservation Officer (SHPO) formally determined that five archaeological resources, five individual buildings, two historic districts (encompassing 13 additional individual buildings), and selected objects in another building at LLNL are eligible for listing in the National Register of Historic Places (NRHP). To assist DOE and SHPO in developing an agreement as to how to manage the NRHP-eligible properties, LLNL prepared a draft Programmatic Agreement (PA), which includes a draft Archaeological Resources Treatment Plan and a draft Historic Buildings Treatment Plan as attachments. These plans describe specific resource management and treatment strategies that DOE/NNSA, in cooperation with LLNL, could implement to ensure that NRHP-eligible historic properties under LLNL's jurisdiction are managed and maintained in a way that considers the preservation of historic values in compliance with Sections 106 and 110 of the NHPA. As of the end of 2011, the draft PA and treatment plans were being reviewed by SHPO.

In 2011, LLNL also completed a five-year reevaluation of the historic building assessment originally completed in 2004 (published in 2007). The five-year cycle of reevaluations for NRHP-eligibility are a requirement of the draft Programmatic Agreement. Final recommendations from the re-evaluation include allowing two of the five existing NRHP-eligible buildings to be removed from the inventory of historic properties and allowed to evolve as needed to meet LLNL's scientific mission requirements. These two buildings have been preserved via recordation, a mitigation option identified in the draft Historic Buildings Treatment Plan. One building was recommended for addition to the inventory of NRHP-eligible buildings. The Final report was sent to LSO on November 29, 2011.

2.4.3 Antiquities Act of 1906

Provisions of the Antiquities Act provide for protection of items of antiquities (i.e., archaeological sites and paleontological remains). The five NRHP-eligible archaeological sites

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noted in Section 2.4.2 are protected under the Antiquities Act. No paleontological remains subject to the provisions of the Antiquities Act were identified in 2011.

2.4.4 Endangered Species Act and Sensitive Natural Resources

LLNL meets the requirements of the federal and state Endangered Species Act (ESA), the Eagle Protection Act, the Migratory Bird Treaty Act, and other applicable regulations as they pertain to endangered species, threatened species, and other special-status species (including their habitats) and designated critical habitats that exist at the LLNL sites. The following list highlights 2011 compliance activities:

- DOE/NNSA requested formal consultation with the U.S. Fish and Wildlife Service (FWS) on July 29, 2011 for two Livermore site projects [the East Campus Site Improvements (ECSI) project and the installation of an access road near Treatment Facility B (TFB)] through the submittal of a Biological Assessment (BA). On October 18, 2011, the FWS issued a Biological Opinion (BO) and Incidental Take Statement for these projects.
- On August 18, 2011, DOE/NNSA requested formal consultation for a soil characterization project in the area surrounding Building 812 at Site 300 that will be completed as part of the CERCLA process. On December 15, 2011, the FWS issued a BO and Incidental Take Statement for this project.

2.4.5 Federal Insecticide, Fungicide, and Rodenticide Act

LLNL complies with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which provides federal control of the distribution, sale, and use of pesticides and requires that commercial users of pesticides are certified pesticide applicators. The California Department of Pesticide Regulation (DPR) has enforcement responsibility for FIFRA in California; DPR has in turn given enforcement responsibility to county departments of agriculture. All pesticides at LLNL are applied, stored, and used in compliance with FIFRA and other California, Alameda County, and San Joaquin County regulations governing the use of pesticides. The staff of the Landscape and Pest Management Shop at the Livermore site and the Laborer/Gardener Shop at Site 300 includes certified pesticide applicators. These shops ensure that all storage and use of pesticides at LLNL is in accordance with applicable regulations. LLNL also reviews pesticide applications to ensure they do not result in impacts to water quality or special status species.

2.5 Environmental Permits, Inspections, and Occurrences

LLNL's various missions require a variety of permits. **Table 2-2** is a summary of active permits in 2011 at the Livermore site and Site 300. The External agencies that issue the permits may also perform inspections required by the permits. **Table 2-3** lists environmental inspections and findings from both LLNL sites in 2011.

Notification of environmental occurrences is required under a number of environmental laws and regulations as well as DOE Order 232.2. **Table 2-4** provides a list of environmental incidents reportable under DOE Order 232.2.

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Table 2-2. Active permits in 2011 at the Livermore site and Site 300.

Type of permit	Livermore site ^(a)	Site 300 ^(a)
Hazardous waste	<p>EPA ID No. CA2890012584. Hazardous Waste Facility Permit Number 99-NC-006 (RCRA Part B permit)—to operate hazardous waste management facilities.</p> <p>Registered Hazardous Waste Hauler authorized to transport wastes from Site 300 to the Livermore site. Permit number 1351.</p> <p>Conditionally Exempt Specified Wastestream Permit to mix resin in Unit CE231-1.</p> <p>Conditional Authorization Permit to operate sludge dewatering unit in Building 322A.</p> <p>PT0305819. RCRA large-quantity hazardous waste generation facility—ACDEH.</p>	<p>EPA ID No. CA2890090002. Hazardous Waste Facility Permit—CSA (Building 883) and EWSF.</p> <p>Hazardous Waste Facility Permit—EWTF.</p> <p>Hazardous Waste Facility Post-Closure Permit—Building 829 High Explosives Open Burn Treatment Facility.</p> <p>PT0010318. Hazardous waste generation facility—SJCEHD.</p>
Medical waste	<p>ACDEH issued a permit that covers medical waste generation and treatment activities for the six BSL 2 facilities, and the BSL 3 facility at Building 368.</p>	<p>NA</p>
Air	<p>BAAQMD issued 165 permits for operation of various types of equipment.</p> <p>BAAQMD issued a revision to the SMOP in 2009, which was initially issued in 2002 to ensure the NO_x and HAPs emissions from the site do not exceed federal Clean Air Act Title V emission limits.</p> <p>BAAQMD issued 10 Asbestos Removal and Demolition Permits.</p> <p>CARB issued 5 permits for the operation of portable diesel air compressors and generators.</p>	<p>SJVAPCD issued 34 permits for operation of various types of equipment.</p> <p>SJVAPCD approved a Prescribed Burn Plan for the burning of 2,176.5 acres of grassland.</p> <p>BAAQMD issued 1 permit for the operation of an emergency diesel generator.</p> <p>CARB issued 1 permit for the operation of portable diesel air compressor</p> <p>BAAQMD approved a Prescribed Burn Plan for the burning of 139.1 acres of grassland.</p>
Storage tanks	<p>Seven operating permits covering 10 underground petroleum storage tanks.</p>	<p>One operating permit covering three underground petroleum storage tanks assigned individual permit numbers.</p>
Sanitary sewer	<p>Discharge Permit 1250^(b) for discharges of wastewater to the sanitary sewer.</p> <p>Permit 1510G for discharges of groundwater from CERCLA restoration activities.</p>	<p>WDR R5-2008-0148 for operation of sewage evaporation pond.</p>

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Table 2-2. (cont.) Active permits in 2011 at the Livermore site and Site 300.

Type of permit	Livermore site ^(a)	Site 300 ^(a)
Water	<p>WDR No. 88-075 for discharges of treated groundwater from Treatment Facility A to recharge basin.^(c)</p> <p>NPDES Permit No. CA0030023 for discharges of storm water associated with industrial activities and low-threat non-storm water discharges to surface waters.</p> <p>NPDES General Permit No. CAS000002,) for discharges of storm water associated with construction activities affecting 0.4 hectares (1 acre) or more.</p> <p>FFA for groundwater investigation/remediation.</p>	<p>WDR No. 93-100 for post-closure monitoring requirements for two Class I landfills.</p> <p>WDR R5-2008-0148 for discharges to percolation pits and septic systems.</p> <p>NPDES General Permit No. CAS000001 for discharge of storm water associated with industrial activities.</p> <p>NPDES Regional General Permit No. CAG995001 for large volume discharges from the drinking water system.</p> <p>FFA for groundwater investigation/remediation.</p> <p>32 registered Class V injection wells.</p>

Note: See the **Acronyms and Glossary** section for acronym definitions.

- a) Numbers of permits are based on actual permitted units or activities maintained and/or renewed by LLNL during 2011.
- b) Permit 1250 includes some wastewater generated at Site 300 and discharged at the Livermore site.
- c) Recharge basin referenced in WDR Order No. 88-075 is located south of East Avenue within Sandia National Laboratories/California boundaries. The discharge no longer occurs; however, the agency has not rescinded the permit.

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Table 2-3. Inspections of Livermore site and Site 300 by external agencies in 2011.

Medium	Description	Agency	Date	Finding			
Waste	Hazardous waste facilities Compliance Evaluation Inspection (CEI)	DTSC	04/28/11 & 05/02/11	Two violations related to B419 Closure Project. DTSC issued a final CEI report on 8/12/11, which identified a major violation as failure to collect and contain contaminated rainwater and failure to implement the Contingency Plan. A second violation was classified as "Non-minor" was for failure to include information on the manifest showing hazardous waste from B419 was transported by rail.			
			The 2012 CEI was conducted on 11/30/11 & 12/05/11	No violations.			
			Medical Waste Inspection	ACDEH	05/12/11	No violations	
			Waste Tire Inspection	ACDEH	09/22/11	No violations	
				BAAQMD	01/21/11	No violations	
					02/04/11		
					05/15/11		
					05/26/11		
					07/13/11		
					10/27/11		
		11/30/11					
		12/14/11					
Air	Air pollutant emission sources	BAAQMD	01/21/11	No violations			
			02/04/11				
			05/15/11				
			05/26/11				
			07/13/11				
			10/27/11				
			11/30/11				
			12/14/11				
			Synthetic Minor Operating Permit (SMOP)		BAAQMD	01/21/11	No violations
						05/26/11	
		07/13/11					
		08/25/11					
		10/27/11					
		11/30/11					

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Table 2-3. (cont.) Inspections of Livermore site and Site 300 by external agencies in 2011.

Medium	Description	Agency	Date	Finding
Sanitary sewer	Categorical sampling/inspection Building 153 and Building 321C.	WRD	10/03/11	No violations
	Annual compliance sampling at the Sewer Monitoring Complex	WRD	10/04/11	No violations
	Building 490—Magnetorheological Facility	WRD	10/20/11	No violations
	Building 381—National Ignition Facility (NIF) Target Fabrication Laboratory	WRD	10/20/11	No violations
	Café grease interceptor inspections, Buildings 123 and 471	WRD	10/04/11	No violations
Storage tanks	Compliance with underground storage tank requirements and operating permits	ACDEH	08/10–11/11	One violation. 1) Sump for B111 UST failed its hydrostatic leak test. Leak was repaired; sump was retested and passed which resulted to no further action being required.
			09/13/11 & 09/20–21/11	Two violations. 1) Light bulb in alarm panel for B365 UST failed to light when tested. Bulb was immediately replaced which resulted to no further action being required. 2) Two vacuum sensors for the E85 UST failed to detect a vacuum loss when tested. New sensors were installed, tested, and certified which resulted to no further action being required.
Pesticides	Pest control records inspections	ACCDA	01/25/2011	No violations
Waste	Hazardous waste generator areas: B801, rooms 116 photo process and 100 machine shop, B806, room 119, B823 photo process, B899 armory, B883 waste accumulation area, B874 machining, B879 fleet management, B875 heavy equipment, B872 paint shop (activity shut down), B873 pipe, weld, electric shop.	San Joaquin County Environmental Health Department, Certified Unified Program Agency (CUPA)	06/20/11	Violation 1: Failed to check the hazardous waste characteristic “toxic” box on a hazardous waste label. The violation was corrected upon discovery by checking the “toxic” box.
				Violation 2: Failed to update the name of one of the Emergency Coordinators in the B883 Waste Accumulation Area Contingency Plan. The violation was corrected by replacing Rex Beach with Craig Wuest in the Contingency Plan. The violation response letter and Return to Compliance Certification was submitted to San Joaquin County CUPA on July 19, 2011.
Air	Air pollutant emission sources	SJVAPCD	04/06/11 09/12/11	No violations
Water	Permitted operations	CVRWQCB	04/07/11	No violations
Storage tanks	Compliance with underground storage tank requirements and operating permits	SJCEHD	08/02–08/03/11	No violations

Note: See the **Acronyms and Glossary** section for acronym definitions.

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Table 2-4. Environmental Occurrences reported under the Occurrence Reporting System in 2011.

Date ^(a)	Occurrence category/ group	Description
6/1/11	Significance Category SC4 Occurrence under Group 9(2) OR 2011-0030	On May 17, 2011, LLNL shipped a load of Low-Level Radioactive Waste to Energy Solutions, LLC, in Clive, Utah. The shipment was received by Energy Solutions on May 19, 2011. The Division of Radiation Control in the Utah Department of Environmental Quality reviewed the manifest and issued a Notice of Deficiency (NOD) on June 1, 2011, for failure to include the number "7" on the waste manifest in field 11 of the document where the hazard class for the waste is identified.
6/20/11	Significance Category SC4 Occurrence under Group 9(2) OR 2011-0032	<p>LLNL Site 300 received a Notice of Violation (NOV) from the San Joaquin County Hazardous Waste Program inspection for two minor violations:</p> <p>Violation 1: Failure to check the hazardous waste characteristic "toxic" box on a hazardous waste label. The violation was corrected upon discovery by checking the "toxic" box.</p> <p>Violation 2: Failure to update the name of one Emergency Coordinator in the B883 Waste Accumulation Area Contingency Plan. The Emergency Coordinator information in the Contingency Plan was updated and the violation response letter and Return to Compliance Certification was submitted to San Joaquin County CUPA on July 19, 2011.</p>
8/15/11	Significance Category SC4 Occurrence under Group 9(2) OR 2011-0043	<p>LLNL received a Notice of Violation (NOV) from the California Department of Toxic Substances Control (DTSC) following a Compliance Evaluation Inspection (CEI) that cited the following two violations related to the Building 419 Decontamination and Demolition Project:</p> <p>Class 1 violation - On June 28, 2011, LLNL did not capture and contain rainwater that fell on the exposed Building 419 slab during an unseasonable rainstorm. The Closure Plan requires that rainwater is captured and sampled prior to release. This was categorized as a Major Violation.</p> <p>Class 1 violation - In reviewing manifests associated with shipping waste from demolition of the Building 419 structure in December 2010, DTSC noted that information regarding a subcontracted hauler was not fully identified on the manifest as required by regulations.</p>
9/21/11	Significance Category SC4 Occurrence under Group 9(2) OR 2011-0049	<p>LLNL received a Notice of Violation (NOV) from the Alameda County Department of Environmental Health (ACDEH) -Certified Unified Program Agency (CUPA) following an annual inspection of Underground Storage Tank (UST) monitoring systems.</p> <p>A minor violation was received during the inspection of the Building 365 UST. During the inspection, the external visual alarm was not functioning. The malfunctioning light bulb was replaced during the inspection and the violation was corrected.</p>
9/22/11	Significance Category SC4 Occurrence under Group 9(2) OR 2011-0051	<p>LLNL received a Notice of Violation (NOV) from the Alameda County Department of Environmental Health (ACDEH) -Certified Unified Program Agency (CUPA) following an annual inspection of Underground Storage Tank (UST) monitoring systems.</p> <p>A minor violation was received during the inspection of the E-85 UST at Building 611. During the inspection, monitoring system sensors (numbers S2 and S3) failed to detect a vacuum loss as required. This was noted as a minor violation. The two sensors were replaced so that the system would function as required.</p>

(a) Date the occurrence was categorized, not discovered.

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Contributing Authors

Dave Armstrong, Steven Cerruti, Valerie Dibley, Jennifer L. Doman, Allen R. Grayson, Kelly Heidecker, Rod Hollister, Hank Khan, Greg Lee, Jennifer C. Nelson, Lisa Paterson, Vicky Salvo, Bill Schwartz, Stan Terusaki, Kent Wilson, Joseph Woods, Peter Yimbo.