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 2009. **Table 2-1** is a summary of active permits in 2009 at the Livermore site and Site 300. **Table 2-2** lists environmental inspections and findings from them at both LLNL sites in 2009.

2.1 Environmental Restoration and Waste Management

2.1.1 Comprehensive Environmental Response, Compensation and Liability Act

Ongoing remedial investigations and cleanup activities 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 trichloroethene (TCE) and perchloroethylene (PCE).

During 2009, restoration activities at the Livermore site were primarily focused on restoring operations at treatment facilities that were shut down or required repair due to the fiscal year 2008 budget shortfall. In December 2008 EPA expressed concern about the lengthy process to restart components of the CERCLA remedy and issued an enforcement letter to DOE dated January 6, 2009, assessing penalties for violations of the CERCLA Section 120 FFA. This was followed by a series of meetings and negotiations with the Remedial Project Managers (RPMs) to discuss the issues and constraints associated with restart of treatment facilities and to identify actions needed to meet CERCLA requirements. EPA and DOE reached a settlement of this enforcement action in March 2009 and the RPMs signed a Consensus Statement.

Also in 2009, Table 5 of the Remedial Action Implementation Plan was amended to include 32 new FFA milestones (Dresen et al. 1993). The Livermore GWP met all 2009 regulatory and DOE milestones on schedule including restarting 23 treatment facilities that were shutdown due to the fiscal year 2008 budget reduction. In addition, the Livermore site GWP submitted the following deliverables to the regulatory agencies:

- Building 212 Soil Removal Project Status Report
- Resolution of Mixed Waste Management Issues Associated with Operation of Soil Vapor and Ground Water Treatment Facilities at LLNL, Livermore Site
- Schedules for the bioremediation treatability test at TFD/VTFD Helipad, upgrades for TF5475-2, TF518-PZ, and VTF518-PZ, and focused feasibility study for TF518 North, TF5475-1, TF5475-3, and VTF5475
- Treatability Study Summary and Proposed Cleanup Alternatives for TFA West
- Quarterly and Annual Self Monitoring Reports

Other work conducted in 2009 included Enhanced Source Area Remediation (ESAR) related work that was mostly limited to minor modifications to the facilities that will be part of the ESAR activities to accommodate field treatability tests. These modifications included instrumentation of treatability test wells with level transducers to observe the influence of nearby pumping at the Treatment Facility (TF) D Helipad and limited testing of a pump that can withstand high temperatures at the Vapor Treatment Facility (VTF) E Eastern Landing Mat ESAR site. In addition, two new extraction wells were drilled and constructed in the TFB area located near the western border of the Livermore site where concentrations remain above the maximum contaminant level (5 micrograms per liter) for trichloroethene (TCE). See Buscheck et al. (2010) for the current status of cleanup progress.

Treatment Facilities. During 2009, the Livermore GWP maintained 29 groundwater and 9 soil vapor treatment facilities. The groundwater extraction wells and dual phase extraction wells extracted about 832 million L of groundwater during 2009. The dual phase extraction wells and soil vapor extraction wells together removed 999 thousand m^3 of soil vapor.

In 2009, the Livermore GWP treatment facilities removed about 86 kg of VOCs. Since remediation efforts began in 1989, more than 14.3 billion L of groundwater and approximately 10.5 million m^3 of soil vapor have been treated, removing about 2792 kg of VOCs.

Community Relations. Livermore site community relations activities in 2009 included communication and meetings with neighbors and 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 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). 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.

Table 2-1. Active permits in 2009 at the Livermore site and Site 300.

Type of permit	Livermore site[a]	Site 300[a]
Hazardous waste	EPA ID No. CA2890012584. Hazardous Waste Facility Permit Number 99-NC-006 (RCRA Part B permit)—to operate hazardous waste management facilities. Registered Hazardous Waste Hauler authorized to transport wastes from Site 300 to the Livermore site. Permit number 1351. Conditionally Exempt Specified Wastestream Permit to mix resin in Unit CE231-1. Conditional Authorization Permit to operate sludge dewatering unit in Building 322A. PT0305819. RCRA large-quantity hazardous waste generation facility—ACDEH.	EPA ID No. CA2890090002. Hazardous Waste Facility Permit—CSA (Building 883) and EWSF. Hazardous Waste Facility Permit —EWTF. Hazardous Waste Facility Post-Closure Permit—Building 829 High Explosives Open Burn Treatment Facility. PT0010318. Hazardous waste generation facility—SJCEHD.
Medical waste	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.	NA
Air	BAAQMD issued 164 permits for operation of various types of equipment. BAAQMD issued a revision to the SMOP, which was initially issued in 2002 to ensure the NOx and HAPs emissions from the site do not exceed federal Clean Air Act Title V emission limits. BAAQMD issued 7 Asbestos Removal Permits and 3 Demolition Permits. CARB issued 6 permits for the operation of portable diesel air compressors and generators.	SJVAPCD issued 36 permits for operation of various types of equipment. SJVAPCD approved a Prescribed Burn Plan for the burning of 2176.5 acres of grassland. BAAQMD issued 1 permit for the operation of an emergency diesel generator. BAAQMD approved a Prescribed Burn Plan for the burning of 139.1 acres of grassland.
Storage tanks	Seven operating permits covering 10 underground petroleum product and hazardous waste storage tanks.	One operating permit covering three underground petroleum product tanks assigned individual permit numbers.
Sanitary sewer	Discharge Permit 1250[b] for discharges of wastewater to the sanitary sewer. Permit 1510G for discharges of groundwater from CERCLA restoration activities.	WDR R5-2008-0148 for operation of sewage evaporation pond.

Table 2-1 (cont.). Active permits in 2009 at the Livermore site and Site 300.

Type of permit	Livermore site[a]	Site 300[a]
Water	WDR No. 88-075 for discharges of treated groundwater from Treatment Facility A to recharge basin.[c] NPDES Permit No. CA0030023 for discharges of storm water associated with industrial activities and low-threat nonstorm water discharges to surface waters. NPDES General Permit No. CAS000002,) for discharges of storm water associated with construction activities affecting 0.4 hectares (1 acre) or more. FFA for groundwater investigation/remediation.	WDR No. 93-100 for post-closure monitoring requirements for two Class I landfills. WDR R5-2008-0148 for discharges to percolation pits and septic systems. NPDES General Permit No. CAS000001 for discharge of storm water associated with industrial activities. NPDES Regional General Permit No. CAG995001 for large volume discharges from the drinking water system. FFA for groundwater investigation/remediation. 33 registered Class V injection wells.

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 2009.

(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.

Table 2-2. Inspections of Livermore site and Site 300 by external agencies in 2009.

Site	Medium	Description	Agency	Date	Finding
Livermore site	Waste	Hazardous waste facilities Compliance Evaluation Inspection (CEI)	DTSC	4/29/09 5/5/09 –5/6/09 5/14/09	No violations
		Certified Unified Program Agency (CUPA) Inspection	ACDEH	8/26/09 8/28/09	Final inspection report not yet received.
		Medical Waste Inspection	ACDEH	2/19/09	No violations
	Air	Air pollutant emission sources	BAAQMD	12/3/09 12/14/09 12/17/09	No violations
		Asbestos	BAAQMD	8/27/09	No violations
		SMOP	BAAQMD	12/3/09 12/14/09 12/17/09	No violations
	Sanitary sewer	Categorical sampling/inspection Building 153 and Building 321C. Café grease interceptor inspections.	WRD	9/24/09	No violations
		Annual compliance sampling at the Sewer Monitoring Complex	WRD	9/29/09– 9/30/09	No violations
	Storage tanks	Compliance with underground storage tank requirements and operating permits	ACDEH	9/9/09 9/15/09	No violations
	Pesticides	Pest control records inspections	ACCDA	12/15/09	No violations
Site 300	Waste	Permitted hazardous waste operational facilities: EWTF, EWSF, Building 883 CSA, and hazardous waste generator areas: B801 photo processing rooms 115 and 116,B875 Heavy Equipment Maintenance Area and a review of hazardous waste-related documentation	US EPA Region IX	7/28/09	No violations were issued; however, two potential violations were identified in the US EPA Inspection Report: (1) At Building 875, a 55-gallon drum containing used oil was incorrectly described on the hazardous waste label as “waste oil.” The label was removed in the presence of the inspector and replaced with a corrected label with “Used Oil” written in the waste description field on the hazardous waste label, and (2) an empty container in Building 801 room 115 (photo processing area) was identified as a California-only potential violation because it did not have a completed hazardous label affixed to the container. This was not a potential violation that required corrective action because the new container was empty. New, empty, and clean containers are not subject to federal or state hazardous waste regulation.
	Air	Air pollutant emission sources	SJVAPCD	4/14/09 4/16/09 4/27/09	No violations

Table 2-2 (cont.). Inspections of Livermore site and Site 300 by external agencies in 2009.

Site	Medium	Description	Agency	Date	Finding
Site 300 (cont.)	Water	Permitted operations	CVRWQCB	4/9/09 11/9/09	No violations
	Storage tanks	Compliance with underground storage tank requirements and operating permits	SJCEHD	3/23/09 9/21/09	No violations

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

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 the site. See Webster-Scholten (1994), and Ferry et al. (1999) for background information on LLNL environmental characterization and restoration activities at Site 300. See Dibley et al. (2010) for the current status of cleanup progress. In 2009, the Site 300 Environmental Restoration Project (ERP) met all regulatory and DOE milestones on schedule including submitting the semiannual Compliance Monitoring Reports, draft final and final Building 854 Final 5-Year Review, and the draft, draft final, and final Compliance Monitoring Plan/Contingency Plan. In addition, the Site 300 ERP completed the cleanup of polychlorinated biphenyl (PCB)-, dioxin-, and furan-contaminated soil surrounding the Building 850. Prior to PCBs becoming regulated substances, capacitors were destroyed on the Building 850 Firing Table during experiments. Dioxins and furans were created by the combustion of the PCBs during these experiments. Cleanup was necessary to mitigate cancer risk to on-site workers resulting from the potential inhalation or ingestion of re-suspended particulates and direct dermal exposure to contaminated surface soil as well as to mitigate potential hazard to burrowing owls. Approximately 22,172 m^3 of PCB-contaminated soil were excavated from the hillsides, solidified using Portland cement, and placed in the former Corporation yard of Building 850.

The Building 812 milestones scheduled for completion in 2009 were put on hold while the CERCLA path forward for the Operable Unit was renegotiated with the regulatory agencies.

Treatment Facilities. During 2009, the Site 300 ERP operated 13 groundwater and 5 soil vapor treatment facilities at Site 300. The groundwater extraction wells and dual phase extraction wells extracted about 33 million L of groundwater during 2009. The dual phase extraction wells and soil vapor extraction wells together removed 2.6 million m^3 of soil vapor.

In 2009, the Site 300 treatment facilities removed about 16 kg of VOCs, 0.12 kg of perchlorate, 1500 kg of nitrate, 0.14 kg of the high explosive compound RDX, and 0.0031 kg of silicone-based oil. Since remediation efforts began in 1990, more than 1423 million L of groundwater and approximately 14 million m^3 of soil vapor have been treated, removing about 540 kg of VOCs, 0.91 kg of perchlorate, 8100 kg of nitrate, 1.3 kg of RDX, and 9.5 kg of silicone-based oil.

Community Relations. The Site 300 CERCLA Project maintains continuing communications with the community of Tracy and nearby neighbors. Community relations activities in 2009 included maintenance of information repositories and an administrative record; participation in community meetings and workshops; tours of site environmental activities; offsite, private, well-

sampling activities; mailings to stakeholders; and providing responses to public and news media inquiries. LLNL hosted TAG meetings with Tri-Valley CAREs to provide a forum for focused discussions on CERCLA activities at Site 300.

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 2-3.**

Table 2-3. Compliance with EPCRA.

EPCRA section	Brief description of requirement	LLNL action
302	Notify SERC of presence of extremely hazardous substances.	Originally submitted 5/87.
303	Designate a facility representative to serve as emergency response coordinator.	Update submitted 1/28/09 to San Joaquin County for Site 300 and 2/27/09 to Alameda County for Livermore site.
304	Report releases of certain hazardous substances to SERC and LEPC.	No EPCRA-listed extremely hazardous substances were released above reportable quantities in 2009.
311	Submit MSDSs or chemical list to SERC, LEPC, and Fire Department.	Update submitted 3/31/09.
312	Submit hazardous chemical inventory to local administering agency (county).	Submitted to San Joaquin and Alameda counties on 1/28/09 and 2/27/09, 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 6/23/09 and 6/17/09, respectively; DOE forwarded it to U.S. EPA and California EPA 6/29/09.

On June 17, 2009, 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) 2008. 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 2008 TRI Form R for lead at Site 300 was submitted to DOE/NNSA on June 23, 2009. Over the past few years the lead releases have decreased due to increased use of frangible bullets.

2.1.3 California Accidental Release Prevention (CalARP) Program

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 updated in August 2005. 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 September 2009 to cover new processes that would be handling hydrofluoric acid above state threshold quantities. The Livermore site RMP now 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 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 Buildings 693, 695, and 696 of 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 and is currently updating the health risk assessment (HRA) as part of the permit renewal process. DTSC approved the Building 419 Closure Plan in October 2009. Closure activities at Building 419 have commenced and will continue through September 2011. During 2008/2009, LLNL submitted several permit modification requests to DTSC, all of which 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 Health Services (DHS) 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 EPD, 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 5400.5. 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.

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 22 milestones during 2009, and of those, 12 had due dates beyond 2009 (ranging from 2010 to 2011).

LLNL requested and was granted an extension for one additional milestone to allow LLNL time to develop new procedures and work control documents for 1.12 m^3 of waste.

LLNL removed approximately 38 m^3 of mixed waste from LLNL in 2009. An additional 32 m^3 of newly generated mixed waste was accepted into the approved storage facilities and added to the STP, reflecting an overall reduction of 6 m^3 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. All TSCA-regulated waste was disposed of in accordance with TSCA, state, and local disposal requirements with one

exception. Radioactive polychlorinated biphenyl (PCB) waste is currently stored at one of LLNL's hazardous waste storage facilities until an approved facility accepts this waste for final disposal.

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. 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. Both agencies are overseen by the California Air Resources Board (CARB), which also oversees statewide permitting for portable diesel fuel-driven equipment such as portable generators and portable air compressors. In addition, CARB oversees the state-wide registration of In-use Off-road Diesel Vehicles, such as diesel powered forklifts, loaders, backhoes, graders, and cranes.

In 2009, LLNL operated 180 permitted air emission sources at the Livermore site and 37 permitted air emission sources at Site 300. In addition, the Livermore site continues to maintain a Synthetic Minor Operating Permit (SMOP), which was issued by the BAAQMD in 2002, 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 demonstrate that it does not have any major sources of air pollutant emissions per 40 CFR 70.2. In 2009, LLNL also registered 86 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). California requires "mandatory reporting" of stationary source air emissions from combustion of natural gas that exceed 25,000 metric tons per year of CO_2 equivalent emissions. For the previous two mandatory reporting years (CY2008 and CY2009), the Livermore site has been slightly below the reporting threshold. LLNL continues to implement reductions and controls that should reduce CO_2 emissions in future years. LLNL Site 300 emissions of CO_2 are much lower than Livermore site emissions, and there is no natural gas service at Site 300 that would generate CO_2 emissions.

Also under the authority of AB32, California has adopted special regulations pertaining to sulfur hexafluoride (SF_6), because of its high GHG potential. Beginning in CY2011, research facilities, such as LLNL, must submit an annual report describing the research uses of SF_6 and the measures taken to control the SF_6 emissions. LLNL must also report the amount of SF_6 contained in electrical switchgear and the amount of SF_6 that leaks from that switchgear.

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 2009 Annual Report* (Bertoldo et al. 2010), submitted to EPA, reported that the estimated maximum radiological doses that could have been received by a member of the public in 2009 were 0.042 μSv (0.0042 mrem) for the Livermore site and 0.0000027 μSv (0.00000027 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 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 2-1**). 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* (U.S. DOE/NNSA 2005). In 2009, no EISs or EAs were completed for LLNL; however, there were three categorical exclusions completed in 2009—(1) Offsite Compact Proton Therapy Accelerator, (2) Lead Removal for Recycling at the Small Firearms Training Facility, and (3) Site 300 Rifle Range Improvements. Moreover, NEPA values were incorporated in a CERCLA document for *Treatability Study Summary and Proposed Cleanup Alternatives for the TFA West Area, Lawrence Livermore National Laboratory, Livermore Site* (Noyes et al. 2009). 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 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 consultation with the State Historic Preservation Officer (SHPO), DOE/NNSA formally determined that five archaeological resources, five individual buildings, two historic districts (encompassing 13 historic buildings), and selected objects in one 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 appendices. These plans describe specific resource management and treatment strategies that DOE/NNSA, in cooperation with LLNL, could implement to ensure that significant historic properties are managed in a manner that considers their historic value. As of the end of 2009, SHPO was still reviewing the draft PA and treatment plans.

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 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 2009.

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 2009 compliance activities.

- On November 17, 2008, LLNL submitted a Biological Assessment to the U.S. Fish and Wildlife Service (USFWS) for the Building 850 Polychlorinated Biphenyls-Bearing Soil Removal Project. An amendment to the 2002 Biological Opinion for the *Formal Consultation on the Routine Maintenance and Operations Project at LLNL, Site 300 Experimental Test Site* for this project was received on April 9, 2009. Construction associated with the project was completed in 2009. Mitigation measures required by the 2009 amendment will be implemented in 2010 and 2011.
- On May 21, 2009, the *Biological Opinion for the Proposed Arroyo Mocho Road Improvement and Anadomous Fish Passage Project* was amended to include routine erosion control projects along the Arroyo Mocho access road and at the pumping station.

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 Occurrences

Notification of environmental occurrences is required under a number of environmental laws and regulations as well as DOE Order 231.1A and DOE Manual 231.1-2. In 2009, no environmental incidents were reportable under DOE Order 231.1A and DOE Manual 231.1-2 reporting requirements.

Contributing Authors

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