

CHAPTER 7.0

APPLICABLE LAWS, REGULATIONS, AND OTHER REQUIREMENTS

7.0 INTRODUCTION

As part of the NEPA process, the SWEIS must consider if actions described under its alternatives would result in a violation of any federal, state, or local laws or requirements (40 Code of Federal Regulations [CFR] 1508.27) or require a federal permit, license, or other entitlement (40 CFR 1502.25). This chapter provides a baseline summary assessment of the major existing environmental requirements, agreements, and permits that relate to continuing operations at LANL.

Requirements governing operations at LANL arise primarily from six sources: Congress, federal agencies, executive orders, the New Mexico State Legislature, state agencies, and local governments. In general, the federal statutes establish national policies, create broad legal requirements, and authorize federal agencies to create regulations that conform to the statute. Detailed implementation of these statutes is delegated to various federal agencies, such as DOE, the U.S. Department of Transportation (DOT), and the EPA. For many environmental laws under the jurisdiction of EPA, state agencies may be delegated responsibility for the majority of program implementation activities, such as permitting and enforcement, but EPA usually retains oversight of the delegated program.

In addition to implementing some federal programs, state legislatures develop their own laws. In New Mexico, the statutes passed by the New Mexico State Legislature are found in the New Mexico Statutes Annotated, and regulations are found in the New Mexico Administrative Code (NMAC). State statutes, much like federal statutes, establish broad

policies and legal requirements. State regulations, developed by state agencies, establish specific legal requirements as authorized by the statutes.

Executive orders establish policies and requirements for federal agencies. Executive orders are applicable to executive branch agencies, but do not have the force of law or regulation.

Regulatory agreements and compliance orders may also be initiated to establish responsibilities and time frames for federal facilities to come into compliance with provisions of applicable federal and state laws. There are also other agreements, memorandums of understanding, or formalized arrangements that establish cooperative relationships and requirements.

DOE has authority to regulate some environmental activities, as well as the health and safety aspects of operation of its nuclear facilities. The *Atomic Energy Act of 1954* (AEA), as amended (40 United States Code [U.S.C.] §2011), is the principal authority for DOE regulatory activities not externally regulated by other federal or state agencies. Regulation of DOE activities is primarily established through the use of DOE orders and regulations. External environmental laws, regulations, and executive orders can be categorized as applicable to broad environmental planning and consultation requirements, or as applicable to regulatory environmental protection and compliance activities, although some requirements are applicable to both planning and operations compliance.

7.1 DOE REGULATORY AUTHORITIES FOR ENVIRONMENT, SAFETY AND HEALTH

7.1.1 Atomic Energy Act of 1954

The AEA (42 U.S.C. §2011 *et seq.*) makes the federal government responsible for regulatory control of the disposal of radioactive waste, as well as production, possession, and use of three types of radioactive material: source, special nuclear, and byproduct material. Regulations promulgated by the U.S. Nuclear Regulatory Commission (NRC) under the AEA establish standards for the management of these radioactive materials, licensing of nuclear facilities, and the protection of the public and property against radiation. The AEA authorizes DOE to set radiation protection standards for itself and its contractors for DOE nuclear facilities, and provides exclusions from NRC licensing for defense production facilities. NRC regulates private and commercial nuclear activities, but currently has no regulating authority at most DOE facilities. In December 1996, DOE announced that it would begin a process of transferring oversight of nuclear safety to the NRC for all DOE nuclear facilities (DOE 1996). The transfer will require legislative action.

The AEA authorizes DOE to establish standards that protect health and minimize danger to life or property from activities under DOE's jurisdiction. The mechanisms through which DOE manages its facilities are the promulgation of regulations and issuance of DOE orders and associated standards and guidance. Requirements for environmental protection, safety and health are implemented at DOE sites, primarily through contractual mechanisms that establish the applicable DOE requirements for management and operating contractors.

DOE orders apply to LANL through the management and operating contract with the University of California (UC) (DOE 1997b). The applicable DOE orders or parts thereof, and applicable external and internal standards, are listed and maintained current in Appendix G of the contract and are enforced and modified through contractual mechanisms. Appendix G of the contract establishes a wide range of internal requirements for business systems and reporting, safeguards and security, and environment, safety, and health. In the current contract (effective October 1, 1997), all applicable environment, safety, and health protection standards (including both external and DOE requirements) are found in a set of Work Smart Standards in Appendix G of the contract.

The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations generally do not directly apply to DOE nuclear facilities and management and operating contractors. However, for protection of worker safety and health, the Work Smart Standards adopted in Appendix G of the contract include the applicable occupational safety and health regulations (29 CFR 1900); American National Standards Institute (ANSI) standards; National Fire Protection Association (NFPA) standards; U.S. Department of Defense (DoD) standards (for explosives operations); DOE orders (for firearms safety, explosives safety, nuclear facilities safety, pressure safety, construction safety, packaging and transportation, and emergency management); various other codes, manuals, and standards for safety; and various LANL internal standards. This set of Work Smart Standards contractually establishes worker safety and health protection requirements for LANL, as well as emergency response and public protection requirements where there is no external regulatory authority.

Nuclear safety regulations are found in Title 10 of the CFR. Several nuclear safety rules and environmental procedural rules are in effect (for example, 10 CFR 835, *Occupational Radiation*

Protection), and more are in final stages of promulgation. Nuclear safety regulations are effective under the schedule and implementing requirements in each rule, regardless of whether they are included in the contract. DOE contractors are also required to comply with all applicable external laws and regulations, regardless of contract language.

The principal DOE orders having a direct impact on environmental protection and compliance activities at LANL are summarized in the following sections.

7.1.1.1 *DOE Order 451.1A, National Environmental Policy Act Compliance Program*

This order establishes DOE internal requirements and responsibilities for implementing NEPA, the *Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA* (40 CFR 1500 through 1508), and the *DOE NEPA Implementing Procedures* (10 CFR 1021).

7.1.1.2 *DOE Order 5400.1, General Environmental Protection Program*

This order establishes the environmental protection program requirements, authorities, and responsibilities for DOE operations for ensuring compliance with applicable federal, state, and local environmental protection laws and regulations, executive orders, and internal DOE policies. This order provides for environmental protection standards, notification of and reporting requirements for discharges and unplanned releases, environmental protection and program plans, and environmental monitoring and surveillance requirements. It establishes formal recognition that DOE's environmental management

activities are extensively, but not entirely, regulated by EPA, state, and local environmental agencies, and it provides requirements for satisfying these externally imposed regulations. In addition, it establishes requirements for those environmental protection programs that are not externally regulated.

7.1.1.3 *DOE Order 5400.5, Radiation Protection of the Public and Environment*

This order establishes standards and requirements for operations of DOE and its contractors with respect to protection of members of the public and the environment against undue risk from ionizing radiation. This order provides for general standards; requirements for radiation protection of the public and the environment; derived concentration guides (DCGs) for air and water; and guidelines, limits, and controls for residual radioactive materials. The order also establishes DOE's objective to operate its facilities and conduct its activities so that radiation exposures to members of the public are maintained within the limits established by this order, and to control radioactive contamination through the management of DOE's real and personal property. The requirements of this order are incorporated into the proposed 10 CFR 834, which is being promulgated as a nuclear safety regulation.

7.1.1.4 *DOE Order 5820.2A, Radioactive Waste Management*

DOE Order 5820.2A establishes the policies, guidelines, and minimum requirements by which DOE and its contractors manage radioactive waste, mixed waste, and contaminated facilities. This order establishes the DOE policy that radioactive and mixed wastes be managed in a manner that ensures

protection of the health and safety of the public, DOE, contractor employees, and the environment. In addition, the generation, treatment, storage, transportation, and/or disposal of radioactive wastes, and the other pollutants or hazardous substances they contain, must be accomplished in a manner that minimizes the generation of such wastes across program office functions and complies with all applicable federal, state, and local environmental, safety, and health laws and regulations and DOE requirements.

These DOE orders are implemented by DOE, and by UC/LANL (through contractual direction). With the exception of radioactive materials, all environmental protection and compliance activities at LANL are externally regulated by other federal and state agencies. Environmental planning and consultation requirements are applicable to DOE and LANL in accordance with the specific language in each law, regulation, or executive order. The above-listed DOE orders and any applicable nuclear safety regulations are discussed in the following sections as they relate to external environmental planning and consultation requirements, or as applicable to regulatory environmental protection and compliance activities.

7.2 LAWS, REGULATIONS AND EXECUTIVE ORDERS RELATED TO ENVIRONMENTAL PLANNING AND CONSULTATION

7.2.1 *National Environmental Policy Act of 1969, as Amended and Executive Order 11514, as Amended by Executive Order 11991*

The NEPA of 1969, as amended (42 U.S.C. §4321 *et seq.*), requires federal agencies to evaluate the effect proposed actions would have

on the quality of the human environment and to document this evaluation with a detailed statement. NEPA requires consideration of environmental impacts of an action during the planning and decision-making stages of a project.

Implementing regulations for NEPA have been developed by the CEQ, which oversees the NEPA process for the Executive Branch of the federal government. These regulations (40 CFR 1500 through 1508) set forth the general requirements that federal agencies must follow. DOE also has issued agency NEPA implementing procedures that are codified at 10 CFR 1021.

There are other environmental and cultural resource consultation requirements that must be complied with to ensure NEPA compliance. Each of these other laws or executive orders has unique review and compliance procedures established that are independent of NEPA. Accordingly, although compliance with these statutes comprises an important subset of the NEPA process, compliance with applicable requirements is mandatory for all projects, independent of NEPA. For example, under NEPA review, proposed actions are evaluated for possible effects on cultural resources (archaeological sites or historic buildings) in accordance with the *National Historic Preservation Act of 1966* (16 U.S.C. §470); for their potential impact on floodplains or wetlands in accordance with relevant executive orders; and for effects on threatened, endangered, or sensitive species in accordance with the *Endangered Species Act* (16 U.S.C. §1531). A discussion of the planning and consultation requirements for these types of resources is found in the following sections.

Executive Order 11514, *Protection and Enhancement of Environmental Quality*, as amended by Executive Order 11991, requires federal agencies to monitor and control their activities continually to protect and enhance the

quality of the environment. The executive order contains requirements to ensure that federal agencies include the public in the decision-making process. The DOE NEPA implementing regulations (10 CFR 1021) and DOE Order 451.1A address this executive order through implementation of 40 CFR 1500–1508.

7.2.2 *Endangered Species Act, as Amended, and Related Requirements*

This act requires that federal agencies ensure that any actions authorized, funded, or carried out by federal agency are not likely to jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify critical habitat. The act is jointly administered by the U.S. Department of Commerce and the U.S. Department of the Interior (DOI). The *Endangered Species Act* (16 U.S.C. §1531 *et seq.*) requires federal agencies to consult with the U.S. Fish and Wildlife Service (FWS). While biological assessment procedures may be integrated into the NEPA process, the consultation requirements with FWS must still be followed for any LANL activity with the potential to affect threatened or endangered species. Implementing regulations are delineated in *Endangered and Threatened Wildlife and Plants* (50 CFR 17) and *Interagency Cooperation* (50 CFR 402). The state has also issued regulations pertaining to plants specific to the state entitled, *Endangered Plants* (75-6-1, NMSA 1978).

There are several additional federal statutes that provide protection to sensitive or otherwise regulated wildlife species, two of which are the *Migratory Bird Treaty Act*, as amended (16 U.S.C. §703), and the *Bald Eagle Protection Act*, as amended (16 U.S.C. §668). The first act protects migratory birds by specifying mode of harvest, hunting seasons, and bag limits. The act is intended to protect birds that have common migratory patterns

within the U.S., Canada, Mexico, Japan, and Russia. Implementing regulations are found in *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants* (50 CFR 10) and *Migratory Bird Hunting* (50 CFR 20). The second act makes it unlawful to take (capture, kill, or destroy), molest, or disturb bald (American) and golden eagles, their nests, or their eggs anywhere in the U.S. A permit must be obtained from the DOI to relocate a nest that interferes with resource development or recovery operations. Implementing regulations are delineated in *Eagle Permits* (50 CFR 22).

The *New Mexico Wildlife Conservation Act* (17-2-37 *et seq.*, NMSA 1978) also establishes requirements for protecting wildlife, primarily related to taking for sport purposes and permits for collecting and use.

DOE meets the requirements of these laws by contacting and consulting with federal and state agencies responsible for protecting animal and plant species within the State of New Mexico. FWS, the U.S. Forest Service (USFS), the National Park Service (NPS), the Bureau of Indian Affairs (BIA), the National Biological Service, New Mexico Environment Department (NMED), and the New Mexico Department of Game and Fish (NMDGF), are contacted regarding concerns each agency may have about LANL activities.

In accordance with Section 7 of the *Endangered Species Act*, a biological assessment and Section 7 Endangered Species Consultation for activities included in the SWEIS are being conducted with the FWS.

7.2.3 *National Historic Preservation Act, as Amended*

This act provides that sites with significant national historic value be placed on the National Register of Historic Places (NRHP). Government agencies must locate and inventory

historic properties and cultural resources under their jurisdiction prior to undertaking an activity that might harm them, with the intent of minimizing such harm through appropriate mitigation actions. As required by Section 106 of the *National Historic Preservation Act* (16 U.S.C. §470), proposed LANL activities are evaluated in consultation with the State Historic Preservation Office(r) (SHPO) for possible effects on cultural resources. Most surveys are conducted on DOE property; however, when appropriate, surveys are conducted on land owned by other federal agencies, state-owned land, tribal lands, or other private holdings, and LANL holds discussions, as appropriate, with various Indian tribes to determine how new LANL activities might affect cultural resources. The tribes are also requested to provide input on what mitigation measures they want implemented before LANL begins an activity. DOE must also obtain comments from the Advisory Council on Historic Preservation prior to undertaking a potentially damaging activity at LANL. Implementing regulations include *Protection of Historic and Cultural Properties* (36 CFR 800). Consultation requirements are applicable to actions discussed in the SWEIS, as well as any future activities at LANL.

7.2.4 *National Historic Preservation, Executive Order 11593*

This executive order requires federal agencies, including DOE, to locate, inventory, and nominate properties under their jurisdiction or control to the NRHP if those properties qualify. DOE is required to provide the Advisory Council on Historic Preservation the opportunity to comment on possible impacts of a proposed activity on any potentially eligible or listed resources.

7.2.5 *American Indian Religious Freedom Act of 1978*

This act establishes that it is U.S. policy to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise their traditional religions, including access to sites, uses and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites. In accordance with the *American Indian Religious Freedom Act* (42 U.S.C. §1996), LANL activities are planned so that they do not adversely affect the practice of traditional religions. Tribal groups are notified of projected construction activities and are requested to inform DOE if any activity will affect a traditional cultural property.

7.2.6 *Native American Graves Protection and Repatriation Act of 1990*

This act states that tribal descendants shall own American Indian human remains and cultural items discovered on federal lands after November 16, 1990. When items are discovered during an activity on federal lands, the activity is to cease and appropriate tribal governments are to be notified. Work on the activity can resume 30 days after the receipt of certification that notice has been received by the tribal governments. As required by the *Native American Graves Protection and Repatriation Act* (NAGPRA) (25 U.S.C. §3001), LANL has completed a summary list of cultural items excavated in the past from archaeological sites on LANL property, including prior to 1990. Copies of this summary were sent to local Pueblos having ancestral ties to the Pajarito Plateau. This summary provides a basis for future repatriation of cultural items to tribal governments.

7.2.7 Archaeological Resource Protection Act, as Amended

The *Archaeological Resource Protection Act* (16 U.S.C. §470aa) requires the preservation and management of archaeological resources on lands administered by federal agencies. LANL maintains a cultural resources management database, and this information continues to be used in planning remediation and other construction activities to prevent damage to or destruction of archaeological resources at LANL. Archaeological survey reports are prepared by LANL cultural resource specialists and are submitted to Native American communities for review and concurrence.

7.2.8 Indian Sacred Sites, Executive Order 13007

Executive Order 13007 requires: “In managing federal lands, each executive branch agency with statutory or administrative responsibility for the management of federal lands shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sites.” Requests by the Pueblos to use sacred sites on LANL are accommodated to the extent practicable, and consultation regarding potential impacts to sacred sites is conducted through the NEPA review process and through ongoing processes established in the Pueblo Accords and Cooperative Agreements, which are discussed below.

7.2.9 Pueblo Accords

Four federally recognized Indian tribes, the Pueblos of Cochiti, Jemez, Santa Clara, and San Ildefonso, have special relationships with the

land now occupied by LANL. Federal laws and executive orders guarantee tribal members access to religious sites and recognize tribal rights to cultural properties, burial materials, and other articles of antiquity. However, Congress has assigned responsibilities to DOE that preclude open access to LANL land. Thus, some of the tribes’ interests in, and uses for LANL land are difficult to reconcile.

To achieve mutual goals of improved understanding and cooperation, the four Pueblos and DOE are recognized as sovereign entities that will interact with one another on a government-to-government basis. DOE and each of these four Pueblos have executed formal accord documents setting forth these relationships (DOE 1992a, DOE 1992b, DOE 1992c, and DOE 1992d). The governor of each Pueblo signed an accord on behalf of the Pueblo. Each accord was also signed by the Assistant Secretary for Defense Programs on behalf of DOE and was approved as to form by the Area Director of the BIA, DOI.

The accords provide a framework for government-to-government relationships between each of the Pueblos and DOE. Further, the accords identify general procedures by which the sovereign entities will interact. By signing the accords, DOE has made a commitment to provide information and involve the Pueblos in long-range planning and decisions. The accords state DOE’s commitment to working with its contractors and subcontractors and with other federal, state, and local agencies to clarify the roles and responsibilities of these entities that appear to conflict or overlap as they relate to the Pueblos.

DOE has also executed Cooperative Agreements with each of the four Pueblos that provide funding to the tribes for cooperative activities (DOE 1993, DOE 1994a, DOE 1994b, and DOE 1997a). UC, which operates LANL for DOE, also signed Cooperative Agreements with the Pueblos of Jemez, Cochiti, San Ildefonso, and Santa Clara (UC 1994a,

UC 1994b, UC 1994c, and UC 1996). The agreements address Pueblo participation in health and safety matters; in LANL activities concerning the SWEIS and other NEPA activities; in environmental restoration, waste and environmental planning and management; and in other cooperative and collaborative efforts.

7.2.10 *Protection of Wetlands, Executive Order 11990, and Floodplain Management, Executive Order 11988*

Executive Order 11990 requires government agencies to avoid short- and long-term adverse impacts to wetlands whenever a practicable alternative exists. Executive Order 11988 directs federal agencies to establish procedures to ensure that the potential effects of flood hazards and floodplain management are considered for any action undertaken. Impacts to floodplains are to be avoided to the extent practicable. DOE issued regulations (10 CFR 1022) that establish procedures for compliance with these executive orders. DOE follows these regulations in evaluating proposed actions for wetlands and floodplain impacts. No floodplain/wetlands impacts were identified for the SWEIS that require coordination under these executive orders.

7.2.11 *Environmental Justice, Executive Order 12898*

This order directs each federal agency to identify and address disproportionately high adverse human health or environmental impacts on minority and low-income populations resulting from an agency's programs, policies, or activities. The order further directs each federal agency to collect, maintain, analyze, and make information publicly available on the race, national origin, and income level of populations in areas surrounding facilities or sites expected to have a substantial environmental, human

health, or economic effect on these populations. This requirement applies when such facilities or sites become the subject of a substantial federal environmental administrative or judicial action. Environmental justice impacts are being identified and addressed through the SWEIS, and the policies and data analysis requirements of this executive order remain applicable to future actions at LANL.

7.2.12 *New Mexico Environmental Oversight and Monitoring Agreement*

The Environmental Oversight and Monitoring Agreement, known as the Agreement in Principle (AIP), between DOE and the State of New Mexico, provides for technical and financial support by DOE for state activities in environmental oversight, monitoring, access, and emergency response. The agreement, which was initially signed in October 1990, covers Los Alamos and Sandia National Laboratories, the Waste Isolation Pilot Plant (WIPP), and the Inhalation Toxicology Research Institute. Under the agreement, NMED is the lead state agency and provides independent environmental monitoring and emergency planning review services related to all DOE activities at these sites in New Mexico. On October 2, 1995, DOE and NMED extended the AIP for an additional 5 years (DOE 1995).

7.2.13 *Recreational Fisheries, Executive Order 12962*

This order directs federal agencies to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreation fishing opportunities; establishes a National Recreational Fisheries Coordination Council and mandates the preparation of a comprehensive Recreational Fishery Resources Conservation Plan; requires federal agencies to aggressively work to identify and minimize conflicts between

recreational fisheries and their respective responsibilities under the *Endangered Species Act of 1973*; and expands the role to the Sport Fishing and Boating Partnership Council.

7.2.14 Migratory Bird Treaty Act

This act (16 U.S.C. §703) makes it unlawful to pursue, hunt, take, capture, kill (or attempt any of the preceding) any migratory bird or nest or eggs of such bird.

7.3 LAWS, REGULATIONS, AND EXECUTIVE ORDERS RELATED TO REGULATORY ENVIRONMENTAL PROTECTION AND COMPLIANCE

Regulatory environmental protection requirements are designed to protect human health and the environment, including the air, water, and land. Environmental protection statutes and regulations derived from authorities in statutes: (1) create procedures for examining actions that may harm the environment before carrying out that action; (2) establish standards that protect human health and the environment; (3) provide limits for releases into the environment; and (4) create management requirements for specific substances (e.g., asbestos and pesticides).

Federal Compliance with Pollution Control Standards, Executive Order 12088, amended by Executive Order 12580, requires federal agencies, including DOE, to comply with applicable administrative and procedural pollution control standards established by, but not limited to, the *Clean Air Act (CAA)*, *Noise Control Act*, *Clean Water Act*, *Safe Drinking Water Act*, *Toxic Substance Control Act*, and the *Resource Conservation and Recovery Act (RCRA)*. In general, DOE and LANL must comply with applicable federal and state requirements to the same extent as any other

entity. Noncompliance with these requirements can lead to enforcement actions.

Since LANL was constructed and began operations in the 1940's, before the advent of current environmental requirements, operational nuclear safety and national security were the dominant factors in the early design and operation of facilities. With the enactment of environmental laws and regulations from the 1960's to the present, resources and philosophies have changed to shift to a greater emphasis on environmental protection and achieving compliance with all applicable environmental requirements. Due to its long history, LANL has had difficulty in achieving compliance with some regulatory requirements, and has a legacy of environmental clean-up requirements from past management practices for waste, spills, and releases. Several compliance orders and agreements are also in effect with regulatory agencies to bring LANL into full compliance with specific regulatory requirements.

Depending on the regulatory background and framework of each federal and state law, there may be a primary regulatory enforcement authority at the federal level or at the state level. For some environmental resources, there may be both federal and state laws with applicable requirements, or DOE orders and regulations may be the primary considerations. Permitting for emissions and/or effluent discharges may also be at the federal level, state level, or both levels.

Applicable regulatory environmental laws and regulations can be categorized by media into air, water, land (which includes waste management, toxic substances, pollution prevention, and environmental restoration), and community right-to-know and emergency planning. For each resource category, there is a framework consisting of federal, state, local or DOE order requirements, which together regulate operations at LANL.

7.4 AIR RESOURCES

7.4.1 *Clean Air Act, as Amended*

The CAA (42 U.S.C. §7401 *et seq.*) establishes air quality standards to protect public health and the environment from the harmful effects of air pollution. The act requires establishment of national standards of performance for new stationary sources of emissions limitations for any new or modified structure that emits or may emit an air pollutant, and standards for emission of hazardous air pollutants (HAPs). In addition, the CAA requires that specific emission increases be evaluated to prevent a significant deterioration in air quality.

The *Clean Air Act Amendments of 1990*, signed into law on November 15, 1990, both enhanced and expanded existing authorities and created new programs in the areas of permitting, enforcement, operations in nonattainment areas (areas not meeting air quality standards), control of acid rain, regulation of air toxins, mobile sources, and protection of the ozone layer. Section 118 of the act and Executive Order 12088 require that each federal agency, such as DOE, with jurisdiction over any property or facility that might result in the discharge of air pollutants, comply with “all federal, state, interstate, and local requirements” with regard to the control and abatement of air pollution to the same extent as any nongovernmental entity.

EPA is the regulating authority for the CAA. However, EPA has granted the State of New Mexico primacy for regulating air quality under an approved State Implementation Plan (SIP). Authority for implementing the regulations promulgated for stratospheric ozone protection and the accidental release provisions of the act have not yet been delegated to the state. EPA also administers the National Emission Standards for Hazardous Air Pollutants (NESHAP) for radioactive emissions, including radon (subparts B, H, I, K, Q, R, T, and W). In New Mexico, all of the CAA regulations, with

these exceptions, have been adopted by the state as part of the SIP, and are regulated under the *New Mexico Air Quality Control Act* (74-6-1, NMSA 1978).

NESHAP limits the radiation dose to the public from airborne radionuclide emissions from DOE facilities to 10 millirem per year effective dose equivalent (40 CFR 61.92). The standards also prescribe emission monitoring and test procedures for determining compliance with the 10 millirem per year standard, and reporting and permit provisions. EPA issued Notices of Noncompliance to DOE in 1991 and 1992 for not meeting all the provisions of 40 CFR 61, Subpart H. A Federal Facilities Compliance Agreement signed June 13, 1996, with EPA Region 6, provided an enforceable mechanism for bringing LANL into compliance (EPA 1996a). The compliance agreement required full compliance for all sources by March 1997, and LANL achieved full compliance in June 1996. In November 1994, Concerned Citizens for Nuclear Safety (CCNS) filed a CAA citizens’ suit against DOE and UC, alleging LANL was not in compliance with Subpart H. In January 1997, DOE and UC entered into both a settlement agreement and consent decree. Highlights of the settlement agreement and consent decree include DOE-funded independent technical audits of LANL’s radionuclide air emissions compliance program, the addition of some environmental monitoring stations, and quarterly public meetings conducted by UC on the environment.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, also incorporates the EPA NESHAP standard for public doses from air emissions and provides for additional monitoring and evaluation of total public radiation dose from other pathways. Unplanned releases of radioactive effluents to the air are also reported and analyzed under provisions of DOE Order 5400.5. LANL has reported 13 air releases of radioactive materials through effluent stacks in the period 1991 through 1996. These reported releases usually involved a

higher than normal operational limit radionuclide measurement determined through stack monitoring processes in place, or an unplanned release. These have usually included small quantities of tritium, and also occasionally very small quantities of other radionuclides. Only one release of tritium, in January 1994, exceeded the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) (42 U.S.C. §9601) reportable quantity. All air releases were analyzed for impact on the environment and the public both in terms of dose and need for corrective action in accordance with DOE requirements in DOE Order 5400.5, DOE Order 232.1, and 40 CFR, Subpart H.

The federal regulations promulgated to implement the requirements of CAA Title VI, “Stratospheric Ozone Protection,” are codified in *Protection of Stratospheric Ozone* (40 CFR 82). The primary purpose of these regulations is to eliminate the production of certain ozone-depleting substances and require users of the substances to reduce emissions to the atmosphere through recycling and mandatory use of certified maintenance technicians. These requirements are applicable to LANL, and are implemented accordingly.

On June 20, 1996, EPA promulgated *Accidental Release Prevention Requirements: Risk Management Programs* under CAA, Section 112 (r)(7), which amended 40 CFR 68. The intent of this regulation is to prevent accidental releases to the air and mitigate the consequences of such releases by focusing prevention measures on chemicals that pose the greatest risk to the public and the environment. This regulation will require the preparation of risk management plans for listed regulated chemicals at LANL by June 1999, and within 3 years after listing any new regulated chemical.

On July 18, 1997, the EPA adopted a new National Ambient Air Quality Standard (NAAQS) for particulate matter (PM) with a

diameter less than or equal to 2.5 micrometers (PM_{2.5}), and reference methods for determining attainment with the standard. Also on July 18, 1997, EPA revised the NAAQS and associated reference method for determining ozone attainment. Both standards will be incorporated into the SIP for New Mexico and be applicable to LANL. Determination of attainment of both standards is based on a reference method utilizing 3-year averaging.

In addition to the existing federal programs, the *Clean Air Act Amendments of 1990* mandate new programs that may affect future LANL programs. These programs require technology for controlling hazardous air pollutants and replacing chlorofluorocarbons. Regulations are still being developed to implement these aspects of the act.

7.4.2 New Mexico Air Quality Control Act

Nonradioactive air emissions from LANL facilities are subject to the regulatory requirements established under the *New Mexico Air Quality Control Act* (sections 74-2-1 *et seq.*, NMSA 1978). The New Mexico Environmental Improvement Board, as provided by the *New Mexico Air Quality Control Act*, regulates air quality through a series of air quality control regulations in NMAC. These regulations are administered by NMED. NMAC provides emission standards for emission sources and processes such as open burning, boilers, and asphalt plants. Some of the main regulations relevant to LANL operations are discussed below.

7.4.2.1 Construction Permits

Provisions of 20 NMAC 2.72 require construction permits for any new or modified source of any regulated air contaminant if they exceed threshold emission rates. More than 500 toxic air pollutants are regulated, and each

chemical's threshold hourly rate is based on its toxicity. Each new or modified air emission source is reviewed, and conservative estimates are made of maximum hourly chemical use and emissions. These estimates are compared with the applicable 20 NMAC 2.72 limits to determine whether additional permits are required.

7.4.2.2 *Operating Permits*

On July 21, 1992, EPA promulgated 40 CFR 70, *Operating Permit Program*, which implements Title V of the CAA. The purpose of this program is to: (1) identify all the air quality regulations and emission limitations applicable to an air pollution source; and (2) establish monitoring, record keeping, and reporting requirements necessary to demonstrate continued compliance with these requirements. This regulation required each state to develop an operating permit program meeting the minimum requirements set forth in 40 CFR 70 and submit their program to EPA for review by November 1993. The NMED Operating Permit Program established under 20 NMAC 2.70 was approved by EPA in December 1994. It requires that all major producers of air pollution obtain an operating permit from NMED. Due to LANL's potential to emit large quantities of regulated air pollutants (nitrogen oxides and carbon monoxide—primarily from steam plants), LANL is considered a major source.

In accordance with 20 NMAC 2.70, LANL submitted an operating permit application to NMED in December 1995. NMED has issued a Notice of Completeness for the application but has not yet issued an operating permit.

7.4.2.3 *Prevention of Significant Deterioration*

This regulation (20 NMAC 2.74) has stringent requirements that must be addressed before construction of any new, large stationary source

can begin. Under 20 NMAC 2.74, wilderness areas, national parks, and national monuments receive special protection; thus, the proximity of Bandelier National Monument's (BNM) Wilderness Area could have an impact on any proposed new construction at LANL. All of the new or modified air emission sources at LANL are reviewed for compliance with the requirements of 20 NMAC 2.74. Because the total emissions of any criteria pollutant from LANL are below the regulation's threshold of 250 tons a year, currently this regulation does not apply to LANL.

7.4.2.4 *Emission Standards for Hazardous Air Pollutants*

In its regulation governing emission standards for HAPs (20 NMAC 2.78), NMED has adopted by reference all of the federal NESHAP provisions, except those for radionuclides. The only two nonradionuclide NESHAP provisions applicable to LANL are those for asbestos and beryllium.

Under NESHAP for asbestos, LANL is required to notify NMED of asbestos removal operations and disposal quantities and to ensure that these operations produce no visible emissions. Asbestos removal activities involving less than 160 square feet (15 square meters) are covered by an annual small-job notification to NMED. Projects involving greater amounts of asbestos require separate advance notification to NMED. Quantities of asbestos wastes for both small and large jobs are reported to NMED on a quarterly basis. These reports include any asbestos contaminated, or potentially contaminated, materials with radionuclides. Radioactivity contaminated material is disposed of in a designated radioactive asbestos burial area. Nonradioactive asbestos is transported off the site to designated commercial asbestos disposal areas.

The beryllium NESHAP includes requirements for preconstruction and preoperation approval

of beryllium machining operations and for start-up testing of stack emissions from these operations. Before the beryllium NESHAP became applicable for DOE operations in the mid 1980's, NMED, DOE, and LANL agreed to follow the NMED new-source preconstruction/preoperation approval process for large, existing beryllium-machining operations at LANL. Since then, several very small beryllium machining operations that were already in existence have been registered with NMED.

7.4.3 Noise Control Act of 1972

By the *Noise Control Act of 1972* (42 U.S.C. §4901), Congress directed all federal agencies to carry out the programs under their control to promote an environment free from noise that jeopardizes public health or welfare. Furthermore, it requires any federal agency engaged in any activity resulting, or which may result, in the emission of noise, to comply with federal, state, interstate, and local requirements respecting control and abatement of environmental noise to the same extent that any person is subject to such requirements. Beyond the general obligation in the act and implementing regulations, there are no specific federal requirements regulating environmental noise, nor are there state requirements. Noise exposures to occupational workers are regulated under OSHA, and for DOE contractors through an equivalent program implemented by DOE orders. The Los Alamos County Code (Chapter 8.28) does have noise restrictions, with identified permissible noise levels for residential areas during specified times. Permits can be requested for exceedances for noise generating activities of a temporary nature.

7.5 WATER RESOURCES

7.5.1 Clean Water Act, as Amended

The *Clean Water Act* (33 U.S.C. §1251) has a goal to “restore and maintain the chemical, physical and biological integrity of the nation’s waters,” including to “provide for the protection and propagation of fish, shellfish, and wildlife.” The regulations that implement the *Clean Water Act* contain limitations and permitting requirements for discharges of pollutants from point sources; disposal of dredged or fill material at wetlands and other waters of the U.S.; stormwater discharges from construction and industrial runoff; and oil discharges. Key elements of the act include: (1) nationally applicable, technology-based effluent limitations set by EPA for specific industry categories; and (2) water quality standards set by states.

EPA is the regulating authority for point source and stormwater discharge permits in New Mexico. Permits are issued and enforced by EPA Region 6 in Dallas, Texas. New Mexico does not have a state point source discharge permit program. However, NMED performs some compliance evaluation inspections and monitoring for EPA through a water quality grant issued under Section 106 of the act. The U.S. Army Corps of Engineers administers the dredged or fill material permit program (Section 404) of the *Clean Water Act*. LANL submits applications as necessary for disposal of dredged and fill material under Section 404 for construction activities. The *New Mexico Groundwater Protection Act* (74-6B-1 *et seq.*, NMSA 1978), *Water Quality Act* (74-6-1 *et seq.*, NMSA 1978) and implementing regulations establish state standards for protection of surface and groundwater resources that are also applicable to LANL activities.

7.5.1.1 National Pollutant Discharge Elimination System Permit Program/ Liquid Radioactive Discharges

The *Clean Water Act* contains provisions for the National Pollutant Discharge Elimination System (NPDES), a permitting program for the discharge of pollutants from any point source into waters of the U.S. Individual NPDES permits set limitations for specified pollutants at specific outfalls.

LANL has operated under three primary NPDES permits. UC and DOE are co-operators on a site-wide NPDES permit (EPA 1994) issued by EPA Region 6 and effective August 1, 1994, covering the industrial and sanitary effluent discharges at Los Alamos. Industrial discharges from the hot dry rock geothermal facility, Fenton Hill (Technical Area [TA]-57), are permitted separately (EPA 1979). This permit was canceled as of December 1997. A General Permit for storm water associated with industrial activity (EPA 1992) was also issued in September 1992. These permits regulate all routine effluent discharges at LANL. Storm water discharges associated with facility construction or environmental restoration activities are also authorized through the applicable NPDES program. Then they are included in the General Industrial Storm Water Permit or terminated as applicable. The number of NPDES General Permits for construction storm water discharges varies, with usually five to eight in effect at one time.

During the early 1990's, LANL was listed as a "Significant Non-Compliant Federal Facility" by EPA Region 6 for NPDES violations. DOE and LANL have had several Federal Facility Compliance Agreements and parallel administrative orders in effect to correct NPDES deficiencies. The current DOE compliance agreement (Docket No. VI-96-1237, December 12, 1996) (EPA 1996b)

and the current LANL administrative order (AO Docket No. VI-96-1236, December 10, 1996) (EPA 1996c) include schedules for coming into full compliance with the *Clean Water Act* by completing the High Explosives Wastewater Treatment Facility (HEWTF) and Waste Stream Characterization projects. These corrective actions required by the compliance agreement and the administrative order are continuing.

Although maintaining a 98 to 99 percent compliance rate with required permit limitations, LANL has had, and continues to have, chronic problems meeting NPDES industrial/sanitary permit conditions. Exceedances are self reported under the conditions of the permit, and have consisted of occasional exceedances at some outfalls of arsenic, chlorine, total suspended solids, hydrogen-ion concentration, chemical oxygen demand, biological oxygen demand, cyanide, vanadium, copper, iron, oil and grease, silver, phosphorus, and radium. The total number of exceedances for calendar years 1991 through 1996 are shown in Figure 7.5.1.1-1.

LANL actions to improve compliance with permit conditions are continually being taken including, elimination of outfalls, improvements and corrective actions at specific outfalls, and implementation of the Waste Stream Characterization Program and Corrections Project.

Radioactive liquid effluent discharges are regulated by DOE Order 5400.5. One NPDES permitted outfall at TA-50, the Radioactive Liquid Waste Treatment Facility, began operations in 1963. This outfall has continued to discharge residual radionuclides to Mortandad Canyon in liquid effluents to the present time. DOE Order 5400.5 specifies DCGs for liquid radioactive effluents, which provide a reference for determining dose to various exposure pathways. For liquid radioactive effluents, the "as low as reasonably achievable" (ALARA) and "best available

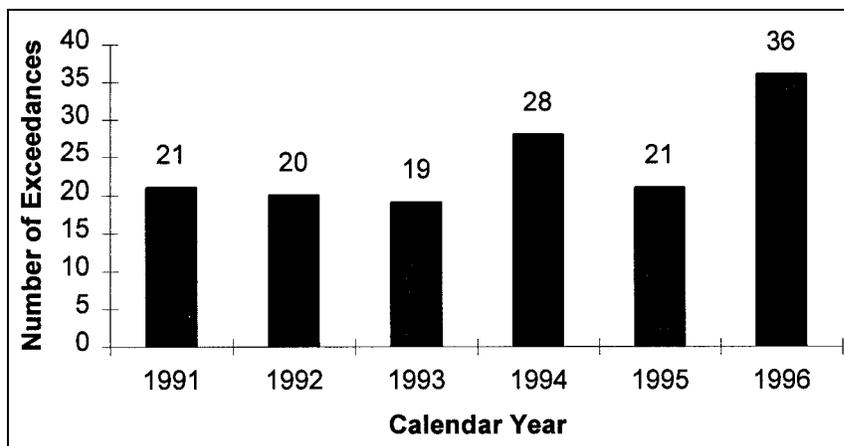


FIGURE 7.5.1.1-1.—National Pollutant Discharge Elimination System Permit Exceedances.

technology” (BAT) processes are adopted to determine the appropriate level of treatment. If discharges are below the DCG reference values at the point of discharge to a surface waterway, generally no further treatment is required due to cost/benefit considerations. Historic discharges to Mortandad Canyon have resulted in above background residual radionuclide concentrations in alluvial groundwater and sediments. For calendar year 1996, two DCGs were exceeded in TA-50 effluents (for americium-241 and plutonium-238). The TA-50 discharge also contains nitrates that have caused the alluvial groundwater to exceed the state groundwater standard of 10 milligrams per liter. LANL is working to continue to upgrade the treatment process at TA-50 to correct these problems. Investigation and cleanup, if required, are conducted through the Environmental Restoration Project, and interim controls (sediment traps) have been implemented to control movement of contaminants off the site.

7.5.1.2 Unplanned Discharges, Spills, and Releases

LANL also has had continuing problems with unplanned liquid discharges, or spills of water

contaminants, which are required to be reported to NMED as unpermitted discharges to surface water or groundwater under the New Mexico Water Quality Control Commission (NMWQCC) regulations. Primarily, these have consisted of unpermitted or unplanned releases of potable water, wastewater or sewage, cooling water, and steam condensate from line breaks and overflows, with occasional reportable small quantity releases of mineral oil, gasoline, diesel oil, hydraulic oil, ethylene glycol, and other liquids. Some discharges of oil are also reportable to the National Response Center pursuant to 40 CFR 110.6. Spills and releases are reported in accordance with regulations, and cleanup is conducted by LANL as necessary. NMED administratively reviews and closes actions taken on reported spills as staff and time permits. The total number of liquid spills reportable to NMED for the period 1991 through 1996 are shown in Figure 7.5.1.1-2.

LANL has had six releases involving spills, leaks, or seepage of water with low levels of radioactive contamination in the period 1991 through 1996. These are evaluated and cleaned up if necessary in accordance with DOE Order 5400.5 criteria.

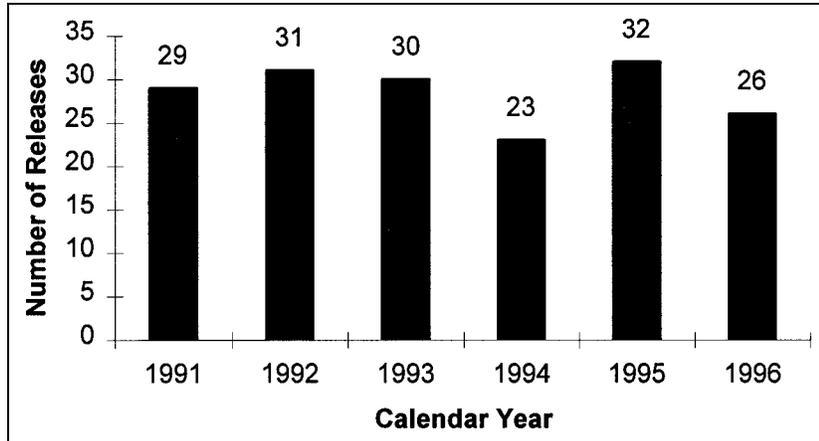


FIGURE 7.5.1.1–2.—*Liquid Release Notifications.*

7.5.1.3 *Spill Prevention Control and Countermeasure Plan*

LANL has a spill control and countermeasure plan for oil spills (LANL 1997), as required by 40 CFR 112 under the *Clean Water Act*. This plan requires that secondary containment be provided for all aboveground storage tanks containing oil. The plan also provides for spill control at oil storage sites at LANL. This plan meets requirements of both EPA and NMED for control of spills to surface areas and below the ground surface.

7.5.1.4 *Sanitary Sewage Sludge Management Program*

In December 1992, EPA promulgated 40 CFR 503, *Standards for Use or Disposal of Sewage Sludge*. The purpose of these regulations is to establish numerical, management, and operational standards for the beneficial use or disposal of sewage sludge through land application or surface disposal. Under the Part 503 regulations, LANL is required to collect representative samples of sewage sludge to demonstrate that it is not a hazardous waste and that it meets the minimum federal standards for pollutant concentrations. In 1996, analytical

sampling demonstrated 100 percent compliance with land application standards. However, low levels of polychlorinated biphenyls (PCBs) detected in the sludge have caused LANL to suspend land application of sludge, in preference to other disposal options. All sewage sludge generated at the TA-46 Sewage Treatment Plant is now handled as PCB-contaminated waste and disposed of off the site rather than by land application.

7.5.1.5 *Safe Drinking Water Act, as Amended*

The *Safe Drinking Water Act* (SDWA) (42 U.S.C. §300f) sets national standards for contaminant levels in public drinking water systems, regulates the use of underground injection wells, and prescribes standards for groundwater aquifers that are a sole source of drinking water. Primary enforcement responsibility for the act is by the states. EPA has given NMED authority to administer and enforce federal drinking water regulations and standards in New Mexico. This act authorizes regulations that establish national drinking water standards for contaminants in public drinking water systems. The implementing regulations are found in *National Interim*

Primary Drinking Water Regulations. The regulations also set maximum contaminant level goals (40 CFR 142) and secondary standards to control contaminants in drinking water that primarily affect aesthetic qualities related to public acceptance of drinking water (40 CFR 143). These standards have been adopted by New Mexico and are included in the *New Mexico Drinking Water Regulations*. The state has issued regulations containing maximum contaminant levels (MCLs) and standards for radioactive contamination (20 NMAC 7.1). EPA maintains oversight responsibilities over the states, sets new contaminant standards as appropriate, and maintains separate enforcement responsibility for the Underground Injection Control Program.

The SDWA applies to federal facilities that own or operate a public water system. A “public water system” means a system for the provision of piped water for human consumption that has at least 15 service connections or regularly serves at least 25 individuals. DOE provides drinking water to LANL, Los Alamos County, and BNM. LANL, as operator of the water system, is required to monitor drinking water quality for organic and inorganic compounds, radionuclides, metals, and coliforms. LANL has established a sampling program for ensuring SDWA compliance.

7.5.1.6 *Groundwater Protection Requirements*

There are numerous federal, state, and DOE requirements related to groundwater protection and management. The State of New Mexico protects groundwater via the NMWQCC regulations, which control discharges of water contaminants onto or below the ground surface to protect all groundwater of the State of New Mexico. Under these regulations, a groundwater discharge plan may be required to be submitted to and approved by NMED for a discharging facility (or by the Oil Conservation Division for energy/mineral extraction

activities). Subsequent discharges must comply with the terms and conditions of the discharge plan. In 1997, LANL had three Groundwater Discharge Plans in effect. The NMWQCC regulations were significantly expanded in 1995 with the adoption of comprehensive abatement regulations. The purpose of these regulations is to abate both surface and subsurface contamination for designated or future uses. Of particular importance to DOE and LANL is the contamination that may be present in alluvial groundwater.

Groundwater monitoring and protection requirements are also included in DOE Order 5400.1, *General Environmental Protection Program*. The order requires LANL to prepare a Groundwater Protection Management Program Plan (GWPMPP) and to implement the program outlined by that plan. The GWPMPP also fulfills the requirements of Chapter IV, Section 9, of DOE Order 5400.1, which requires development of a groundwater monitoring plan. The groundwater monitoring plan identifies all DOE requirements and regulations applicable to groundwater protection and includes strategies for sampling, analysis, and data management. LANL’s GWPMPP was most recently approved by DOE on March 15, 1996 (LANL 1996).

Section 9c of Chapter IV of DOE Order 5400.1 requires that groundwater monitoring needs be determined by site-specific characteristics and, where appropriate, that groundwater monitoring programs be designed and implemented in accordance with RCRA regulations 40 CFR 264, Subpart F, or 40 CFR 265, Subpart F. The section also requires that monitoring for radionuclides be in accordance with DOE Order 5400.5, *Radiation Protection of the Public and the Environment*.

In addition to DOE Order 5400.1, Module VIII of the LANL RCRA permit requires LANL to collect information to supplement and verify existing information on the environmental setting at the facility and collect analytical data

on groundwater contamination. Under Task III, Section A.1, LANL is required to conduct a program to evaluate hydrogeological conditions. Under Task III, Section C.1, LANL is required to conduct a groundwater investigation to characterize any plumes of contamination at the facility.

Historically, the groundwater monitoring requirements of RCRA (40 CFR 264 Subpart F) have not been applied to LANL's regulated hazardous waste management units (treatment, storage, and disposal) because DOE and LANL had submitted groundwater monitoring waiver demonstrations based on the depth to groundwater and lack of physical evidence of contaminant migration to these depths. However, on May 30, 1995, NMED denied DOE/LANL groundwater monitoring waiver demonstrations, and groundwater monitoring program plans were requested for DOE/LANL to bring the laboratory into compliance with RCRA. In the denial letter, NMED recommended the development of a comprehensive groundwater monitoring program plan that addresses both site-specific and LANL-wide groundwater monitoring objectives. This was in part satisfied with submittal of a revised GWPMPP in 1995. In an August 17, 1995, letter, NMED again expressed concerns over groundwater protection, listed four unresolved issues, and requested a RCRA Hydrogeologic Workplan. On December 6, 1996, a draft Hydrogeologic Workplan was submitted to NMED addressing these unresolved issues. LANL is currently implementing actions defined in the Hydrogeologic Workplan. The Hydrogeologic Workplan was approved by NMED March 1998 and revised by LANL May 1998 (LANL 1998).

7.6 LAND RESOURCES (WASTE MANAGEMENT, TOXIC SUBSTANCES, POLLUTION PREVENTION, AND ENVIRONMENTAL RESTORATION)

Federal facilities are subject to a variety of federal and state environmental statutes and implementing regulations related to waste management, prevention of pollution, and environmental cleanup. These requirements are primarily oriented toward prevention of pollution of land resources, and cleanup of past spills and releases. These include the RCRA; the *Federal Facility Compliance Act*; the *Toxic Substances Control Act* (TSCA); the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA); and the CERCLA. These acts address the management of waste and hazardous substances, and the release or threat of release of hazardous substances, primarily to soil and groundwater. The *Hazardous Material Transportation Act* is also included, which governs the transportation of hazardous materials and waste.

7.6.1 Resource Conservation and Recovery Act

The RCRA (42 U.S.C. §6901 *et seq.*) regulates the management of solid waste. Solid waste is broadly defined to include any garbage, refuse, sludge, or other discarded material including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining, or agricultural activities. Specifically excluded as solid waste is source, special nuclear, or byproduct material as defined by AEA. Nonhazardous solid waste is regulated under subtitle D of RCRA, the *New Mexico Solid Waste Act* (NMSWA) (74-9-1 *et seq.*, NMSA 1978), and its implementing regulations, the New Mexico Solid Waste Management Regulations (20 NMAC 9). New Mexico has primary regulatory authority. The state does not

have authority to regulate the management and disposal of radioactive waste from DOE facilities operated under AEA.

LANL maintains an industrial solid waste landfill at Area J of TA-54 (on Mesita del Buey), which is subject to and operates under New Mexico's Solid Waste Management Regulations (20 NMAC 9.1). The landfill is used as a disposal site for solid wastes (such as classified wastes, other nonhazardous waste materials, and "special solid waste" as defined by the State of New Mexico) and as a staging area for nonradioactive asbestos waste, which is later shipped off the site to an approved commercial disposal facility. Radioactive asbestos waste and asbestos waste suspected of being contaminated with radioactive material (excluded as solid wastes under the New Mexico regulations) are disposed in a dedicated cell constructed at TA-54, Area G.

LANL disposes of most sanitary solid waste and rubble at the Los Alamos County Landfill and an adjacent rubble pile on East Jemez Road. This landfill lies on DOE property, but is owned and operated by Los Alamos County under a special-use permit (an agreement between DOE's Los Alamos Area Office and the county specifies the types of wastes that may be disposed of in the landfill). LANL contributes about one-third of the total volume of wastes entering this landfill. As the owner and operator, Los Alamos County is responsible for day-to-day operational compliance and obtaining necessary permits from the state under 20 NMAC 9.1.

In 1976, RCRA established requirements and procedures for the management of hazardous wastes. As amended by the *Hazardous and Solid Waste Amendments of 1984* (HSWA), RCRA Subtitle C defines hazardous wastes that are subject to regulation and sets standards for generation of waste and for treatment, storage, and disposal facilities. The HSWA emphasizes reducing the volume and toxicity of hazardous waste. The RCRA and HSWA also establish

permitting and corrective action (i.e., cleanup) requirements for RCRA-regulated hazardous waste facilities.

Original jurisdiction for implementing hazardous waste management aspects of the RCRA was with the EPA; however, the RCRA authorizes EPA to delegate responsibility to individual states as they develop satisfactory implementation programs. EPA granted base RCRA authorization to New Mexico on January 25, 1985, transferring regulatory authority over hazardous wastes under the RCRA to NMED. State authority for hazardous waste regulation is set forth in the *New Mexico Hazardous Waste Act* and Hazardous Waste Management Regulations (20 NMAC 4.1), which adopt, with a few minor exceptions, all of the federal regulations in effect. On July 25, 1990, the State of New Mexico's Hazardous Waste Program was authorized by EPA to regulate mixed waste in lieu of the federal program.

On November 8, 1989, DOE and UC, as co-operators of LANL, were granted a RCRA operating permit, which establishes requirements for hazardous waste management units. A Part A application for mixed waste storage and treatment units throughout LANL was submitted on January 25, 1991. Permit modifications and additional revised Part A and Part B applications have been submitted since 1991 for mixed waste units. All existing mixed waste units are operating either under permit or interim status pending permit issuance.

DOE and EPA signed a Federal Facility Compliance Agreement on March 15, 1994, addressing identified noncompliances with stored mixed waste treatment requirements under the land disposal restrictions (LDRs). This compliance agreement was terminated with issuance by the State of New Mexico of a *Federal Facility Compliance Order* in October 1995 under the *Federal Facility Compliance Act*, which addresses treatment schedules for mixed waste to meet LDR standards.

LANL has received a number of compliance orders issued by NMED for noncompliances with hazardous waste management requirements. DOE and LANL are subject to a three-party consent agreement for compliance orders issued by NMED in 1993 regarding corrective actions that resolved the Transuranic Waste Inspectable Storage Project (TWISP) at TA-54, Area G (NMED 1993). This project involves the recovery of transuranic (TRU) and TRU-mixed waste containers stored on earthen covered pads at TA-54, Area G, and placement of that waste into compliant inspectable storage. The deadline for completion of this project is September 2003.

LANL also is currently subject to an Amended Stipulations, dated May 23, 1995, that is part of a settlement reached in response to Compliance Order NMHWA 94-09 (NMED 1995a). The Amended Stipulation requires LANL to exercise due diligence in addressing and working off 644 gas cylinders that had exceeded the allowable 1-year storage limit for land disposal restriction. All but four of the gas cylinders have been dealt with under the terms of the Amended Stipulation. Until these four cylinders meet the terms of the Amended Stipulation, LANL will continue to submit quarterly progress reports, as required by the Amended Stipulation, to demonstrate due diligence in working off the cylinders. All other compliance orders relating to hazardous waste activities have been closed.

The HSWA (1984) modified the hazardous waste permitting sections of the RCRA (Sections 3004 and 3005). In accordance with these provisions, LANL's permit to operate includes a section (HSWA Module VIII) that prescribes a specific corrective action program for LANL, the primary focus of which is the investigation and cleanup, if required, of inactive sites called solid waste management units (SWMUs). The HSWA Module specifies the corrective action process, which is being implemented at LANL by the Environmental Restoration Project.

The corrective action process at LANL consists of: (1) preparing RCRA facility investigations to identify the extent of contamination in the environment and the pathways along which these contaminants could travel to human and environmental receptors; (2) preparing corrective measures studies if needed to evaluate alternative remedies for reducing risks to human and environmental health and safety in a cost-effective manner; and (3) corrective measures implementation—the remedy chosen is implemented, its effectiveness is verified, and ongoing control and monitoring requirements are established.

7.6.2 Radioactive Waste Management Requirements

Low-level radioactive waste (LLW) is a waste that contains radioactivity and is not classified as high-level radioactive waste, TRU waste, or spent nuclear fuel. Solid LLW usually consists of clothing, tools, and glassware. Low-level radioactive liquid waste consists primarily of water circulated as cooling water. Radioactive waste management at LANL is regulated under the AEA, through applicable DOE orders (primarily DOE Order 5820.2A, *Radioactive Waste Management*, and DOE Order 5400.5, *Radiation Protection of the Public and the Environment*). DOE Order 5400.5 also provides criteria and processes for the release of materials (through sale or disposal) to assure that released materials do not constitute a hazard to the public and the environment due to their radioactive content. This includes materials that are not waste. LANL has reported and taken corrective action for a number of incidents involving the inadvertent release of contaminated materials not releasable under the criteria in DOE Order 5400.5. During the period 1991 through 1996, these incidents have usually consisted of the discovery of contaminated equipment at salvage yards or in other uncontrolled locations, and in two reported incidents at the Los Alamos County Landfill. When incidents are discovered,

actions are taken to immediately control the material as radioactive contaminated, and it is removed to a controlled area or decontaminated in accordance with DOE radiation control requirements.

Low-level radioactive mixed waste (LLMW) is waste containing both hazardous and low-level radioactive components. As a hazardous waste, mixed waste is regulated under the RCRA and New Mexico hazardous waste management regulations. Because it is radioactive, the radioactive component is also regulated under the AEA through applicable DOE orders. LLMW is disposed of at off-site facilities.

Due to the nationwide lack of DOE treatment capacity and capability for mixed waste, LANL has continued to store many mixed wastes on the site. On March 15, 1994, DOE and EPA signed a Federal Facility Compliance Agreement to address compliance with the storage prohibitions for mixed waste at LANL. This agreement was terminated with the issuance of the Federal Facility Compliance Order in October 1995 with NMED implementing the Site Treatment Plan for LANL, under provisions of the *Federal Facility Compliance Act*.

TRU waste, regardless of form or source, is contaminated with alpha-emitting transuranium radionuclides with half-lives greater than 20 years and concentrations greater than or equal to 100 nanocuries per gram at the time of assay. TRU waste at LANL is scheduled to be sent to the WIPP when that facility opens. TRU waste is subject to the waste acceptance criteria (WAC) for WIPP, DOT shipping requirements, and applicable DOE orders dealing with its safe handling and management.

7.6.3 *Federal Facility Compliance Act*

The *Federal Facility Compliance Act* (Public Law [PL] 102–386, 106 Stat. 1505), enacted in 1992, amended RCRA and waives sovereign immunity from fines and penalties for RCRA violations at federal facilities. However, the act postponed the waiver for 3 years for storage prohibition violations with regard to land disposal restrictions for DOE’s mixed wastes. It also required DOE to prepare plans for developing the required treatment capacity for its mixed waste for each site at which it stores or generates mixed waste. Each plan (referred to as a site treatment plan) must be approved by the state or EPA after consultation with other affected states, consideration of public comments, and issuance of an order by the regulatory agency requiring compliance with the plan. The act further provides that DOE will not be subject to fines and penalties for storage prohibition violations for mixed waste as long as it is in compliance with an existing agreement, order, or permit.

The *Federal Facility Compliance Act* requires that site treatment plans contain schedules for developing treatment capacity for mixed waste for which identified technologies exist. For mixed waste without an identified existing treatment technology, DOE must provide schedules for identifying and developing technologies.

LANL has submitted site treatment plans to NMED to address the development of new treatment capabilities in compliance with the act. A Federal Facility Compliance Order was issued on October 4, 1995, to address treatment schedules for mixed waste (NMED 1995b). The Mixed Waste Land Disposal Restriction Federal Facility Compliance Agreement with EPA of March 15, 1994, was terminated with this new agreement.

7.6.4 Underground Storage Tanks, RCRA Subtitle I

Underground storage tanks (USTs) containing petroleum or hazardous substances are regulated as a separate program under Subtitle I of the RCRA, which establishes regulatory requirements for USTs containing hazardous or petroleum materials. NMED has been delegated authority for regulating USTs under the New Mexico Underground Storage Tank Regulations, which implement the *New Mexico Hazardous Waste Act* and the *New Mexico Groundwater Protection Act*. These regulations include requirements for: (1) design, construction, and installation of new tanks; (2) maintenance of a leak detection system and associated record keeping; (3) reporting of hazardous or petroleum releases; (4) corrective action in the event of a release; and (5) closure of UST systems. All existing tank systems must either meet new tank performance standards or undergo closure by December 22, 1998. All LANL USTs will be upgraded or undergo closure by the December 22, 1998 deadline. LANL complied with the deadline for upgrading, replacing, or properly closing all USTs at LANL.

7.6.5 Comprehensive Environmental Response, Compensation, and Liability Act, as Amended

CERCLA (PL 96-510) (42 U.S.C. §9601 *et seq.*), as amended by *Superfund Amendments and Reauthorization Act* (SARA) of 1986 (PL 99-499), provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous substances disposal sites. The CERCLA also established a fund that is financed by hazardous waste generators and is used to financially support clean-up and response actions of abandoned hazardous waste sites when no financially responsible party(ies)

can be found. Parties responsible for the contamination of sites are liable for all costs incurred in the clean-up and remediation process. EPA is the regulating authority for the act. Some applicable implementing regulations are contained in the *National Oil and Hazardous Substances Pollution Contingency Plan* (40 CFR 300), and *Designation, Reportable Quantities, and Notification* (40 CFR 302).

LANL has been evaluated and did not score high enough to be placed on the National Priority List for past releases into the environment. Therefore, all legacy contamination found in the environment at LANL is primarily cleaned up under RCRA corrective action authority (HWA Permit Module VIII). Executive Order 12580, which applies to facilities that are not on the National Priorities List, delegates responsibility to the heads of executive departments and agencies at those facilities for undertaking remedial and removal actions for releases or threatened releases. This authority applies to any clean-up actions not included as a RCRA corrective action.

The CERCLA was amended by the SARA in 1986. The SARA Title III establishes additional requirements for emergency planning and reporting of hazardous substance releases. The SARA Title III is also known as the *Emergency Planning and Community Right-to-Know Act* (EPCRA), which, due to its unique requirements, is discussed separately below. The SARA also created liability for damages to or loss of natural resources resulting from releases into the environment, and required the designation of federal and state officials to act as public trustees for natural resources. The *New Mexico Natural Resources Trustee Act* (75-7-1 *et seq.*, NMSA 1978) is the state statute designed to protect state natural resources. DOE, as the federal trustee, and the State of New Mexico have authority to act as trustees for most resources at LANL. The DOI retains authority for certain designated sensitive natural

resources. Other natural resource trustees act for lands surrounding LANL, including the Pueblo tribes. Procedures for conducting natural resource damage assessments are codified at 43 CFR 11. A strategy and plan for integrating the natural resource damage assessment requirements into the HSWA corrective action (environmental restoration) process at LANL is being developed.

LANL is subject to and required to report releases to the environment under the notification requirements in 40 CFR 302. In the period 1991 through 1996, LANL has had four releases to the environment exceeding a reportable quantity in 40 CFR 302.4. One was a planned release by remote detonation of an overpacked chlorine cylinder on May 18, 1993, resulting in the release of a maximum of 100 pounds of chlorine under controlled conditions. Another was a stack release of tritium exceeding 100 curies on January 25, 1994, at TA-33. Two additional reportable releases involved the release of a water/ethylene glycol mixture (coolant) in excess of 1 pound on June 18, 1993 and June 22, 1993.

7.6.6 Toxic Substances Control Act

The TSCA (15 U.S.C. §2601 *et seq.*) is administered by EPA. Unlike other statutes that regulate chemicals and their risk after they have been introduced into the environment, the TSCA was intended to require testing and risk assessment before a chemical is introduced into commerce. The TSCA also establishes record-keeping and reporting requirements for new information regarding adverse health and environmental effects of chemicals. The TSCA also governs the manufacture, use, storage, handling, and disposal of PCBs; sets standards for cleaning up PCB spills; and establishes standards and requirements for asbestos identification and abatement in schools.

Because LANL's research and development activities are not usually related to the

manufacture of new chemicals, PCB regulations (40 CFR 761) are LANL's main concern under the TSCA. Activities at LANL that are governed by PCB regulations include, but are not limited to, management and use of authorized PCB-containing equipment, such as transformers and capacitors; management and disposal of substances containing PCBs (dielectric fluids, contaminated solvents, oils, waste oils, heat transfer fluids, hydraulic fluids, paints, slurries, dredge spoils, and soils); and management and disposal of materials or equipment contaminated with PCBs as a result of spills.

The TSCA regulates PCB items and materials having concentrations exceeding 50 parts per million. The regulations contain an antidilution clause that requires waste to be managed based on the PCB concentration of the source (transformer, capacitor, PCB equipment, etc.), regardless of the actual concentration in the waste. If the concentration at the source is unknown, the waste must be managed as though it were a spill of mineral oil with an assumed PCB concentration of 50 to 500 parts per million. At LANL, PCB-contaminated wastes are transported off the site for treatment and disposal unless they also have a radioactive component. Wastes in solid form containing both radionuclides and PCBs are disposed at Area G (TA-54), which has been approved by EPA for such disposal (provided that strict requirements are met with respect to notification, reporting, record keeping, operating conditions, environmental monitoring, packaging, and types of wastes disposed).

LANL has reported four small spills (0.34 fluid ounces [10 milliliters] to 0.5 gallons [1.9 liters]) involving PCB-contaminated materials during the period 1991 through 1996. None of these spills exceeded CERCLA reportable quantities, and they were cleaned up using the policy and guidelines in 40 CFR 761.

LANL currently has no treatment or disposal facilities for liquid wastes that contain both radionuclides and PCBs. Such wastes have been stored at Area L at TA-54 for longer than 1 year (in violation of TSCA regulations that stipulate a maximum of 1 year for “storage for disposal” of PCBs). However, commercial facilities do not exist to accept these wastes because of the radionuclide component. In August 1996, EPA and DOE signed a national Federal Facility Compliance Agreement allowing long-term storage of these radioactive liquid wastes containing PCBs, and establishing requirements for DOE to meet in the interim (EPA 1996d).

The asbestos abatement regulations of the TSCA (40 CFR 763) relate primarily to the identification and abatement of asbestos containing materials in schools. LANL conducts asbestos abatement projects in accordance with OSHA requirements (29 CFR 1926), and applicable requirements of the CAA NESHAP 40 CFR 61, Subpart M for notification and waste management/disposal, and the New Mexico Solid Waste Management Regulations.

7.6.7 Hazardous Materials Transportation Act

This act defines the requirements of DOT applicable to the packaging and transportation of hazardous materials. The regulations list and classify the materials that DOT (the regulating authority) has designated as “hazardous.”

Implementing regulations include *General Information, Regulations, and Definitions* (49 CFR 171); *Hazardous Materials Tables, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements* (49 CFR 172); *General Requirements for Shipments and Packagings* (49 CFR 173); *Carriage by Rail* (49 CFR 174); *Carriage by Public Highway* (49 CFR 177); and

Specifications for Packagings (49 CFR 178). Specific packaging requirements for radioactive materials are in 49 CFR 173, Subpart I. The requirements prescribed in Subpart I are in addition to, not in place of, requirements of the NRC set forth in 10 CFR 71.

DOE must comply with the *Hazardous Materials Transportation Act* (49 U.S.C. §801 *et seq.*) and implementing regulations, and with specific facility WAC when packaging and transporting waste destined for WIPP and other off-site federal or commercial facilities. LANL must also meet applicable manifesting requirements for shipping hazardous materials such as preparing shipping papers, marking and labeling packages, and placarding transport vehicles as outlined in the act and implementing regulations. Because LANL consists of many separate TAs connected in many instances by public roads, inter-TA transportation requirements must consider applicable packaging and transportation requirements for the movement of hazardous materials within LANL as well. This may include meeting the transportation requirements fully, or utilizing road closures or other means to maintain compliance with the regulations. The state agency regulating transportation of hazardous materials is the Motor Transportation Division of the New Mexico Tax and Revenue Department (65-3-13, NMSA 1978). New Mexico has adopted by reference the hazardous materials transportation regulations promulgated by DOT.

7.6.8 Federal Insecticide, Fungicide, and Rodenticide Act

This act regulates the use, registration, and disposal of several classes of pesticides. In order to ensure that pesticides are applied in a manner that protects the applicators, workers, and the environment, LANL must meet requirements of the FIFRA (7 U.S.C. §136 *et seq.*). Implementing regulations include

recommended procedures for the disposal and storage of pesticides (40 CFR 165 [proposed regulation]) and worker protection standards (40 CFR 170). EPA is the regulating authority for LANL. LANL is also regulated by the *New Mexico Pest Control Act*, administered by the Board of Regents of New Mexico State University. The LANL Pest Control Management Plan, which includes programs for vegetation, insects, and small animals, was established in 1984 and is revised as necessary.

7.6.9 Pollution Prevention Act of 1990

The *Pollution Prevention Act of 1990* (42 U.S.C. §13101 *et seq.*) sets the national policy for waste management and pollution control that focuses first on source reduction, followed sequentially by environmentally safe recycling, treatment, and disposal. In response to this act, DOE committed to voluntary participation in EPA's 33/50 Pollution Prevention Program, as set forth in Section 313 of SARA. The goal, for facilities already involved in Section 313 compliance, was to achieve a 33 percent reduction in release of 17 priority chemicals by 1997 from a 1993 baseline. LANL did not have releases that exceeded reportable thresholds for any of the 17 priority chemicals listed. In August 1993, Executive Order 12856 was issued, expanding the 33/50 program and requiring DOE to reduce its total release of all toxic chemicals by 50 percent by December 31, 1999. In response, DOE has developed Departmental Pollution Prevention Goals and Pollution Prevention Program Plans to meet these goals. Each DOE site, including LANL, develops its own site goals contributing to the DOE-wide goals and implements actions to achieve those goals. For Fiscal Year 1996, LANL met or exceeded all waste pollution prevention commitments.

7.7 COMMUNITY RIGHT-TO-KNOW AND EMERGENCY PLANNING

7.7.1 Emergency Planning and Community Right-to-Know Act and Executive Order 12856

This act is also known as SARA Title III. Section 313 of the EPCRA (42 U.S.C. §11001 *et seq.*) requires facilities meeting certain standard industrial classification code criteria to submit an annual toxic chemical release inventory report (*Toxic Chemical Release Reporting: Community-Right-to-Know* [40 CFR 372]). For facilities subject to the EPCRA requirements, a report describing the use of, and emissions from, Section 313 chemicals stored or used on site and meeting threshold planning quantities, must be submitted to EPA and the New Mexico Emergency Management Bureau every July for the preceding calendar year.

Other provisions of the EPCRA require planning notifications (Section 302–303), extremely hazardous substance release notifications (Section 304), and annual chemical inventory/Material Safety Data Sheet reporting (Section 311–312). Implementing regulations include but are not limited to *Emergency Planning and Notification* (40 CFR 355), *Material Safety Data Sheet Reporting* (40 CFR 370.21), and *Inventory Reporting* (40 CFR 370.28).

On August 3, 1993, Executive Order 12856, *Right-to-Know Laws and Pollution Prevention Requirements* directed all federal agencies to reduce and report toxic chemicals entering any waste stream; improve emergency planning, response, and accident notification; and encourage clean technologies and testing of innovative prevention technologies. Federal agencies were also defined as persons for the purposes of the EPCRA, requiring all federal facilities, regardless of standard industrial

classification code to meet the requirements of the act.

LANL does not meet standard industrial classification code criteria for Section 313 reporting but has voluntarily submitted annual toxic chemical release inventory reports since 1987. All research operations are exempt under provisions of the regulation, and only pilot plants, production, or manufacturing operations at LANL are reported.

The *New Mexico Hazardous Chemicals Information Act* (74-4E-1 to 74-4E-9, NMSA 1978) implements the hazardous chemical information and toxic release reporting requirements of SARA Title III for covered facilities in New Mexico. Applicable reporting requirements under the provisions of the EPCRA and the state law are met by DOE and LANL in accordance with the executive order.

APPENDIX 7.A CONSULTATIONS

In the process of preparing this SWEIS, DOE has had discussions with numerous organizations (including the New Mexico Department of Game and Fish, the BIA, the USFS, the NPS, and counties and municipalities near LANL) regarding issues, concerns, and interests associated with the operation of LANL and with the preparation of the SWEIS. Of these discussions, a few of them are considered

to be consultations for the purposes of the SWEIS, where DOE specifically requested positions, advice, or input from organizations. The subjects of these consultations and the agencies or organizations consulted were:

SUBJECT OF CONSULTATIONS	AGENCIES OR ORGANIZATIONS CONSULTED
Threatened and Endangered Species	U.S. Fish and Wildlife Service
Environmental Monitoring Data	New Mexico Environment Department
Cultural Resources	New Mexico State Historic Preservation Office(r)
Traditional Cultural Properties ^a	Pueblo of Acoma Pueblo de Cochiti Pueblo of Jemez Pueblo of Laguna Pueblo of Nambe Jicarilla Apache Tribe Mescalero Apache Tribe Navajo Nation Hopi Tribe Pueblo of Picuris Pueblo of Pojoaque Pueblo of Sandia Pueblo of San Ildefonso Pueblo of Santa Clara Pueblo of Santa Domingo Pueblo of Taos Pueblo of Tesuque Pueblo of Zia Pueblo of Zuni Pueblo of San Juan Western Network New Mexico Acequia Association

^a Many tribal governments and other organizations were contacted. Those listed here are the ones that agreed to a consultation relationship with DOE for the purposes of the SWEIS.

(This Page Intentionally Left Blank)

REFERENCES

- DOE 1992a Accord between the Pueblo of Santa Clara, a Federally Recognized Indian Tribe and the U.S. Department of Energy. December 8, 1992.
- DOE 1992b Accord between the Pueblo of San Ildefonso, a Federally Recognized Indian Tribe and the U.S. Department of Energy. December 8, 1992.
- DOE 1992c Accord between the Pueblo of Jemez, a Federally Recognized Indian Tribe and the U.S. Department of Energy. December 8, 1992.
- DOE 1992d Accord between the Pueblo of Cochiti, a Federally Recognized Indian Tribe and the U.S. Department of Energy. December 8, 1992.
- DOE 1993 Cooperative Agreement DE-FC04-93AL-97270. Los Alamos Pueblos Project. Recipient Santa Clara Pueblo. September 30, 1993.
- DOE 1994a Cooperative Agreement DE-FC04-94AL-99997. Los Alamos Pueblos Project. Recipient Jemez Pueblo. August 13, 1994.
- DOE 1994b Cooperative Agreement DE-FC04-94AL-99996. Los Alamos Pueblos Project. Recipient Cochiti Pueblo. August 13, 1994.
- DOE 1995 New Mexico Agreement in Principle between the DOE Albuquerque Operations Office and the State of New Mexico. October 2, 1995.
- DOE 1996 Report of the Department of Energy Working Group on External Regulation. DOE/US-0001. U.S. Department of Energy. December 1996.
- DOE 1997a Cooperative Agreement DE-FC04-97AL-77460. Los Alamos Pueblos Project. Recipient San Ildefonso Pueblo. February 20, 1997.
- DOE 1997b Contract No. W-7405-ENG-36 with the Regents of the University of California for Management of the Los Alamos National Laboratory. (Effective October 1, 1997.)
- EPA 1979 *Industrial Discharges from the Hot Dry Rock Geothermal Facility at LANL.* NPDES Permit NM0028576. U.S. Environmental Protection Agency, Region 6. October 15, 1979.
- EPA 1992 *General Permit for Storm Water Associated with Industrial Activity at LANL.* NPDES Permit NMR00A384. U.S. Environmental Protection Agency, Region 6. September 1992.

- EPA 1994 *Industrial and Sanitary Effluent Discharges at LANL*. NPDES Permit NM0028355. U.S. Environmental Protection Agency, Region 6. August 1, 1994.
- EPA 1996a Federal Facility Compliance Agreement Regarding Compliance with the Radionuclide NESHAP at Los Alamos National Laboratory. U.S. Environmental Protection Agency, Region 6. June 13, 1996.
- EPA 1996b Federal Facility Compliance Agreement Regarding Compliance with the *Clean Water Act* at Los Alamos National Laboratory. U.S. Environmental Protection Agency, Region 6. December 12, 1996.
- EPA 1996c Administrative Order Regarding Compliance with the *Clean Water Act* at Los Alamos National Laboratory. U.S. Environmental Protection Agency, Region 6. December 10, 1996.
- EPA 1996d Federal Facility Compliance Agreement on Storage of Polychlorinated Biphenyls. U.S. Environmental Protection Agency. August 8, 1996.
- | LANL 1996 *Groundwater Protection Management Program Plan for Los Alamos National Laboratory*, Revision 0.0. Los Alamos National Laboratory. Los Alamos, New Mexico. Approved March 15, 1996 and January 31, 1996.
- LANL 1997 *Spill Prevention Control and Countermeasures Plan for the Los Alamos National Laboratory*, Revision 4. Los Alamos National Laboratory. Los Alamos, New Mexico. March 1997.
- | LANL 1998 *Hydrogeologic Workplan for Los Alamos National Laboratory*. Los Alamos National Laboratory. Los Alamos, New Mexico. May 1998.
- NMED 1993 Consent Agreement for Compliance Orders 93-01, 93-02, 93-03, and 93-04, between the University of California, U.S. Department of Energy, New Mexico Environment Department, and Los Alamos National Laboratory. December 10, 1993.
- NMED 1995a Amended Stipulation for Compliance Order NMHWA 94-09, by and among the New Mexico Environment Department, the University of California, U.S. Department of Energy, and Los Alamos National Laboratory. May 24, 1995.
- NMED 1995b Federal Facility Compliance Order, Compliance with the Site Treatment Plan for the Treatment of Mixed Waste at the Los Alamos National Laboratory. New Mexico Environment Department. Santa Fe, New Mexico. October 4, 1995.

- UC 1994a Cooperative Agreement between the Pueblo of Jemez, a Federally Recognized Indian Tribe and the University of California as Operator of the Los Alamos National Laboratory. University of California. November 14, 1994.
- UC 1994b Cooperative Agreement between the Pueblo of Cochiti, a Federally Recognized Indian Tribe and the University of California as Operator of the Los Alamos National Laboratory. University of California. November 14, 1994.
- UC 1994c Cooperative Agreement between the Pueblo of San Ildefonso, a Federally Recognized Indian Tribe and the University of California as Operator of the Los Alamos National Laboratory. University of California. November 14, 1994.
- UC 1996 Cooperative Agreement between the Pueblo of Santa Clara, a Federally Recognized Indian Tribe and the University of California as Operator of the Los Alamos National Laboratory. University of California. December 12, 1996.

(This Page Intentionally Left Blank)