Sandia National Laboratories
Livermore, California

An aerial photograph of the Sandia National Laboratories campus in Livermore, California. The image shows a large, rectangular campus with numerous buildings, parking lots, and roads. The campus is surrounded by greenery and trees. The photograph is taken from a high angle, looking down at the campus.

Summary

R. C. Holland

Site Environmental Report for 1998

Sandia National Laboratories' California Laboratory (Sandia/California) publishes a complete environmental report annually to communicate environmental monitoring results and efforts to reduce pollution at the site. Information presented includes impacts to the surrounding area and the local community from operations at Sandia/California. The *Site Environmental Report* is distributed to the Department of Energy; Federal, State, and local regulatory agencies; community officials; and the public (available in public reading rooms).

This booklet summarizes the information provided in the Sandia/California *Site Environmental Report for 1998*. It is intended to serve the general public by presenting environmental information in less technical language than is used in the formal report.

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SANDIA NATIONAL LABORATORIES, CALIFORNIA

SUMMARY

SITE ENVIRONMENTAL

REPORT FOR 1998

**SANDIA NATIONAL LABORATORIES' ENVIRONMENT,
SAFETY, AND HEALTH VISION**

Sandia National Laboratories is committed to protecting the environment and to preserving the health and safety of the individual and the community. We shall provide leadership by setting an example for a safe and healthful workplace and by pioneering industrial practices that protect the environment. We will maintain our performance to be a trusted environment, safety, and health resource. Sandia considers the protection of the environment, as well as human life and health, to be its top priority.

SITE ENVIRONMENTAL REPORT

ENVIRONMENTAL HIGHLIGHTS FOR 1998

- Based on the information gained by monitoring the environment, Sandia/California operations did not harm the surrounding environment or the public.
- Sandia/California was granted permission to close the Navy Landfill during 1998. All closure requirements have been met.
- Sandia/California has applied for a risk-based closure of the Fuel Oil Spill site. Closure is considered appropriate since the diesel plume has shown very little movement since 1975, and naturally occurring soil bacteria will decompose the diesel fuel over time.
- Sandia/California's wastewater slightly exceeded sanitary sewer discharge limits for metals twice in 1998. These exceedances did not disrupt operations at the local sewage treatment plant, according to plant staff. Sandia/California complied with all other Federal, State and local laws and regulations governing emissions to the environment.

SANDIA NATIONAL LABORATORIES, CALIFORNIA

HIGHLIGHTS

- Began operation in 1956
- Owned by the Department of Energy, operated by Lockheed Martin Corporation as one of the United States' multipurpose national laboratories
- Located next to the city of Livermore, 40 miles east of San Francisco, on 413 acres

Sandia National Laboratories is a prime contractor to the Department of Energy, engaged in research and development in the national interest. As one of the United States' multipurpose national laboratories, Sandia develops solutions to a wide range of problems facing the country. Over the years, our mission has expanded to include advanced military technology, energy and environmental research, arms control/nonproliferation, and advanced manufacturing technologies. In addition, Sandia shares certain technologies with private industry to help strengthen our nation's economic competitiveness in world markets.

The facilities at Sandia's California site are designed for small-scale scientific and applied engineering research. The site has neither production nor large-scale manufacturing operations.

The Sandia/California site covers 413 acres, which include 213 acres of developed areas.

Sandia/California is located on the outskirts of the City of Livermore, in eastern Alameda County, 40 miles east of San Francisco (see Fig. 1). The site lies at the western base of the Altamont Hills and is across the street from Lawrence Livermore National Laboratory. The site is surrounded by low-density residential areas, light agricultural areas, and small commercial developments.

As a research and development facility, Sandia/California uses small quantities of a variety of radioactive and potentially hazardous chemical materials. Most of the radioactive materials are encapsulated (sealed sources) and pose no threat of release to the environment. No Sandia/California work results in the release of radioactive materials. Potentially hazardous materials used on site include acids, bases, solvents, and many common industrial chemicals.

SITE ENVIRONMENTAL REPORT

Figure 1. Sandia/California in a regional setting.

Sandia/California has no nuclear facilities and emits no appreciable amounts of radiation to the environment.

Sandia/California has an extensive environmental protection program to ensure that site activities are managed safely and with respect for the environment. We monitor site emissions to ensure that administrative and physical controls are working. Through monitoring, we can directly measure our compliance with laws and regulations, as well as the

effectiveness of our programs to protect human health and the environment.

LAWS AND REGULATIONS

Sandia/California is committed to conducting its operations in accordance with all applicable environmental laws and regulations, permit conditions, and Department of Energy orders. Furthermore, we strive to reduce emissions to the lowest levels reasonably achievable. Table 1 lists major Federal laws that apply to our site's operations.

Sandia/California also complies with a variety of State and local environmental regulations. Each year, we evaluate our environmental management performance and report the site's compliance with these laws.

Table 1. Major Federal Environmental Regulations Applicable to SNL/California

Legislation	Description
Resource Conservation and Recovery Act (RCRA)	RCRA regulates hazardous, nonhazardous, and medical waste. It also regulates underground storage tanks containing hazardous substances and petroleum products.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA)	CERCLA and SARA establish liability, compensation, cleanup, and emergency response for hazardous substances released to the environment.
Emergency Planning and Community Right-to-Know Act (EPCRA)	EPCRA (SARA Title III) requires that hazardous substances used on site be reported to State and local governments and to the general public.
Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES)	Through the NPDES, the CWA regulates liquid discharges for both wastewater and storm water discharges from industrial activities.
Clean Air Act (CAA) National Emission Standards for Hazardous Air Pollutants (NESHAPs)	The CAA and NESHAPs set air quality standards for hazardous air emissions, such as radionuclides and benzene.
Toxic Substances Control Act (TSCA)	The TSCA controls the use and exposure of new industrial chemicals. It also regulates the use and disposal of polychlorinated biphenyls (PCBs).
National Environmental Policy Act (NEPA)	NEPA establishes criteria for evaluating potential environmental impacts of Federal activities and alternatives.

SITE ENVIRONMENTAL REPORT

MONITORING OUR ENVIRONMENT

Sandia/California maintains an extensive monitoring program to ensure that the quality of the environment is preserved. We monitor all significant effluents. We publish the results of these efforts in order to inform government agencies and the general public.

HIGHLIGHTS

We monitor the following:

- Water
 - sanitary sewer effluent
 - storm water runoff
 - surface water*
- Groundwater
- External radiation*

Specific monitoring activities are highlighted in the following sections.

*Monitored by Lawrence Livermore National Laboratory.

WATER MONITORING

OVERVIEW

- Sandia/California routinely samples sanitary sewer effluent and storm water runoff from the site.
- Sandia/California uses liquid effluent control systems to control wastewater discharges and to protect the sewer system from spills or unexpected chemical releases.

The Environmental Operations Department at Sandia/California carefully controls and monitors site storm water runoff and water released to the sanitary sewer system.

The City of Livermore issued a wastewater discharge permit to Sandia/California. This permit sets limits on the wastewater Sandia discharges to the municipal sanitary sewer system. To make sure Sandia/California meets the limits stated in the permit, we monitor our laboratory liquid effluents through liquid effluent control systems. These systems consist of large tanks, which collect wastewater for analysis. They provide protection against spills or unexpected releases of chemicals. Wastewater from key facilities is analyzed for pollutants. The wastewater is released to the sanitary sewer system when it is within Sandia/California's permit limits.

Large holding tanks are part of Sandia/California's liquid effluent control system. These tanks collect wastewater so that Sandia/California personnel can sample and analyze the water to make sure it can be released safely to the sanitary sewer.

SITE ENVIRONMENTAL REPORT

Sandia/California also has an active Storm Water Management Program to reduce pollutant discharges to the storm drainage system to the maximum extent possible.

RESULTS

- In 1998, Sandia/California slightly exceeded its wastewater discharge limits twice.

In 1998, all liquid effluent from the site complied with the site outfall discharge limits for regulated organic pollutants. Two wastewater samples collected in March had a copper concentration that exceeded the discharge limit.

GROUNDWATER MONITORING

Sandia/California began monitoring groundwater in 1984. Since then, we have expanded the number of both wells and areas monitored. We test the groundwater regularly for hazardous chemicals, radioactivity, and substances the Environmental Protection Agency considers indicators of water quality.

The aquifers (rock formations containing water) beneath the Sandia/California site are not used directly for drinking water, but they are connected to aquifers used to produce drinking and irrigation water.

Sandia/California collects samples of well water to monitor groundwater quality.

Under the direction of the State of California, Sandia/California monitors the groundwater at three areas on site. One is known to be contaminated, one is an inactive landfill, and one monitors a segment of the site to provide an "early warning" of contamination. These three areas are discussed below.

Fuel Oil Spill

In 1975, as the result of an accidental puncture of an underground transfer line, 59,500 gallons of diesel fuel were spilled into the surrounding soil from an above-ground storage tank. Sandia/California began to monitor the groundwater underneath the spill site in 1985. It occasionally contains small amounts of diesel fuel, but most of the contamination is in the soil above the water table. A pilot study of in situ bio-remediation is on going at this location. However, Sandia/California has submitted a risk-based closure plan for the Fuel Oil Spill site based on the stability of the plume and the natural action of soil bacteria in breaking down the diesel fuel.

Navy Landfill

The Navy landfill area was used for disposing of construction debris by the U.S. Navy during and shortly after World War II, and again by Lawrence Livermore National Laboratory in the 1950s and early 1960s. Sandia/California began groundwater monitoring in the area in 1986. There is no record of dangerous materials being disposed of at this landfill. Closure of the Navy Landfill was completed during 1998 in accordance with a closure plan approved by the Regional Water Quality Control Board. Well NLF-6 will continue to be sampled for organic compounds during 1999.

Arroyo Seco

Sandia/California installed monitoring wells along the Arroyo Seco in 1986 because the Arroyo is the most likely place for any new contamination to be detected. One well is upstream of the site to show any contamination already in the water before it flows onto the site, and three wells are downstream to show any contamination added by site operations. We have found no pollutants in the groundwater at concentrations near or greater than the Environmental Protection Agency's limits for drinking water.

RESULTS

- The only area of known groundwater contamination at Sandia/California is in the Fuel Oil Spill area. A pilot study of in situ bioremediation is on going at this location.
- Site operations pose no threat to any drinking water sources.

EXTERNAL RADIATION MONITORING

Sandia/California and Lawrence Livermore National Laboratory extensively measure external radiation doses at the Livermore site perimeter* and throughout the Livermore Valley. The average annual external radiation dose measured at the Livermore site perimeter in 1998 was statistically no different than the background radiation dose measured off-site. That is, if a person had resided at the site fence line 24 hours a day, every day in 1998, he or she would not have received any measurable dose of direct radiation from site operations.

*The "Livermore site perimeter" here refers to both Lawrence Livermore National Laboratory and Sandia/California.

SITE ENVIRONMENTAL REPORT

ENVIRONMENTAL CLEANUP ACTIVITIES

Sandia/California is cleaning up two areas on site: the Fuel Oil Spill and the Navy Landfill.

FUEL OIL SPILL

In 1975, as the result of an accidental puncture of an underground transfer line, 59,500 gallons of diesel fuel were spilled into the surrounding soil from an above-ground storage tank. Sandia/California monitors the groundwater beneath the spill area to check the spread of contamination.

Environmental cleanup activities at the fuel oil spill.

In 1993, the Regional Water Quality Control Board directed Sandia/California to treat the groundwater to limit the flow of contaminated water away from the spill site. To treat the groundwater, we pump it to the surface, decontaminate it, and then release it to the sanitary sewer or use it in landscape watering. A pilot scale, bio-remediation project is in operation at the site.

NAVY LANDFILL

Although records show that no hazardous materi-

als were disposed of at this landfill, Sandia/California continues to monitor the area for possible contamination. We submitted reports in 1990 and 1994 to the Regional Water Quality Control Board documenting our findings of no contamination. In 1998, closure activities at the Navy Landfill were completed. Sampling of well NLF-6 will continue during 1999.

FOR MORE INFORMATION

If you want more information than provided in this summary booklet, you may want to read the detailed report. You may obtain copies of this summary booklet or the *Site Environmental Report for 1998* free of charge by contacting:

Sandia National Laboratories
Public Information Office
P.O. Box 969
Livermore, CA 94551
Attention: Barry Schrader
Phone: (925) 294-2447

SITE ENVIRONMENTAL REPORT

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