

THE UNITED STATES DEPARTMENT OF ENERGY/NATIONAL NUCLEAR SECURITY
ADMINISTRATION IS CONDUCTING A FIVE-YEAR REVIEW OF THE EAST/WEST
FIRING AREA OPERABLE UNITS AT LAWRENCE LIVERMORE NATIONAL
LABORATORY'S SITE 300

The U.S. Department of Energy (DOE)/National Nuclear Security Administration has initiated the second Five-Year Review of its environmental cleanup of the East/West Firing Area Operable Units 5 and 6, at Lawrence Livermore National Laboratory's Site 300.

THE REVIEW PROCESS

Superfund law requires that the protectiveness of cleanup actions be evaluated every five years when contaminants at a site remain above levels that allow unrestricted access. The purpose of the Five-Year Review is to evaluate the progress of the cleanup remedy toward achieving the Site's cleanup objectives, and whether the remedy continues to be protective of human health and the environment.

This Five-Year Review report will summarize the nature and extent of contamination, and describe the progress of cleanup, at the East/West Firing Areas (OUs 5 and 6). The draft Five-Year Review report will be available for public review at the Laboratory's Environmental Repository in the Tracy Public Library, 20 East Eaton Avenue, Tracy, CA 95377, [telephone (209) 835-2221]; the Laboratory Office of Government and External Affairs [(925) 423-3125]; and online at <http://enviroinfo.llnl.gov/cercla>. The 60-day review period will begin on February 12, 2024.

La Ley Superfund exige que las acciones para restaurar sitios sean evaluadas cada cinco años mientras los contaminantes permanecen por encima de niveles que permiten el acceso sin restricciones al sitio identificado. El propósito de la Revisión Quinquenal es para evaluar el progreso hacia los objetivos establecidos para lograr la limpieza del sitio designado y si el remedio continúa protegiendo la salud humana y el medio ambiente.

El informe de la Revisión Quinquenal resume la naturaleza y el alcance de la contaminación y describe el progreso logrado por el Departamento de Energía hacia la limpieza del campo de tiro en las áreas este/oeste. El borrador del informe de la Revisión Quinquenal para las unidades operables del campo de tiro en las áreas del este/oeste estará en el depósito ambiental del laboratorio localizado en la biblioteca pública de Tracy, 20 East Eaton Avenue, Tracy, CA 95377, [teléfono (209) 835-2221]; en el Oficina de Gobierno y Asuntos Exteriores del Laboratorio [teléfono (925) 423-3125]; y en línea en <http://enviroinfo.llnl.gov/cercla>. El período de revisión de 60 días comenzará el 12 de febrero de 2024.

SITE HISTORY

LLNL's Site 300 is a U.S. DOE experimental test facility operated by Lawrence Livermore National Security, LLC. Site 300 is used for the research, development, and testing of high explosives (HE) materials. Site 300 is located in the Altamont Hills between Livermore and Tracy, California. Site 300 was placed on the National Priorities List in 1992.

A Site-Wide Record of Decision was signed in 2008 and established the cleanup remedies and cleanup standards for OUs 1 through 8 at Site 300. Initially, specific Five-Year Reviews were performed for each OU. A Five-Year Review for OU5 (Building 850/Pit 7 Complex OU) was completed in 2016, and Five-Year Reviews for OU6 (Building 854 OU) were completed in 2008 and 2014. Five-Year Reviews for the Site 300 OUs are now combined into three consolidated Five-Year Reviews. The first combined Five-Year Review for the East/West Firing Areas (OUs 5 and 6) was completed in 2019.

The Building 850 / Pit 7 Operable Unit (OU5) includes the Building 850 firing table area, and the Pit 7 Complex, composed of unlined mixed waste landfills (Pits 3, 4, 5, and 7). Explosives experiments in support of weapons research and development were conducted at the Building 850 firing table from 1958 until 2008. As a result of the aerial dispersal of test assembly debris during explosions, surface soil was contaminated with metals, HE compounds, and depleted uranium. Perchlorate, polychlorinated biphenyls (PCBs), dioxins, and furans were also released to the environment from past operations. In 2008, a total of 27,592 cubic yards of PCB-, dioxin, and furan-bearing surface and subsurface soil were excavated, consolidated, and solidified in a Corrective Action Management Unit (CAMU) adjacent to the firing table as a non-time critical removal action to mitigate risk to on-site workers and animals.

At the Pit 7 Complex, firing table debris and gravel from explosive tests conducted at Site 300 firing tables was disposed in unlined landfills from 1958 to 1989 (Pits 3, 4, 5, and 7). During years of above-average rainfall, groundwater has risen into the bottoms of the unlined landfills and the underlying contaminated bedrock, releasing tritium, uranium, volatile organic compounds (VOCs), perchlorate, and nitrate to groundwater. In 1992, an engineered cap was constructed over Pit 7, as well as Pit 4 and a portion of Pit 3, in compliance with Resource Conservation and Recovery Act (RCRA) requirements. In 2008, the Pit 7 Drainage Diversion System (DDS) was installed to reduce the magnitude of water elevation rises in response to storm events.

The Building 854 Operable Unit (OU6) includes the Building 854 and Building 855 Complexes, constructed between 1959 and 1970. The Building 854 Complex was used to test the stability of weapons and weapon components. The Building 855 Complex was used from 1960 until 1973 for assembly and disassembly of test devices. An associated rinse water disposal lagoon was used for the disposal of liquids, and Buildings 857 and 858 were used for operational testing and storage of HE materials. VOCs such as trichloroethene (TCE), PCBs, dioxins, and furans have been released to the environment as a result of these past operations. TCE was released to the subsurface in the Building 854 OU through leaks and discharges of TCE-based fluids from secondary heat-exchange brine systems. The Building 854 Complex and Building 855 rinse water disposal lagoons contained contaminants that impacted underlying soil and groundwater. In 1983, TCE-contaminated soil was excavated at the northeast corner of Building 854F. PCB-, dioxin-, and furan-contaminated soil within the Building 855 former rinse water lagoon was excavated in 2005.

CLEANUP OBJECTIVES AND REMEDIES

The selected remedy for the OU5 Building 850 area includes: (1) monitoring of tritium in groundwater as a component of monitored natural attenuation (MNA) to evaluate its effectiveness in reducing tritium activities to meet cleanup standards, (2) monitoring of nitrate and uranium in groundwater to ensure that concentrations/activities and/or extent of these COCs in groundwater do not change such that they pose a risk to human health or the environment, (3) monitoring of tritium in surface water at Well 8 Spring to determine if risk and hazard management measures, such as access restrictions, continue to be necessary to prevent tritium inhalation exposure to on-site workers, and (4) excavation, consolidation, and solidification of PCB-, dioxin-, and furan-contaminated surface soil at Building 850 in the CAMU to mitigate risk to on-site workers and animals.

The selected remedy for the OU5 Pit 7 Complex includes: (1) remedial action and detection monitoring of VOCs, tritium, uranium, nitrate, and perchlorate in groundwater to evaluate the effectiveness of the remedy in reducing contaminant concentrations to meet cleanup standards and to detect any new releases from the buried waste, (2) MNA to reduce tritium activities to below MCLs and limit the migration of tritium in groundwater, (3) the DDS to divert excess surface water runoff and shallow subsurface recharge from the hillslopes to the west and east of the Pit 7 Complex landfills during high intensity storms and periods of extreme rainfall to minimize groundwater rises into the pit waste and underlying contaminated bedrock, and (4) the PIT7-SRC groundwater treatment system to reduce constituent of concern (COC) concentrations and mass in Pit 7 Complex groundwater.

The selected remedy for the Building 854 Operable Unit (OU6) includes: (1) groundwater monitoring to evaluate the effectiveness of the remedial action, to determine when cleanup standards are met, and to ensure there is no impact to downgradient water supply wells, (2) risk and hazard management to prevent on-site worker exposure to VOCs volatilizing from subsurface soil until risk and hazard are mitigated through active remediation, and (3) extracting and treating VOCs, perchlorate and nitrate in groundwater to mitigate unacceptable VOC inhalation risk for on-site workers, prevent further impacts to groundwater and off-site plume migration, and reduce contaminant concentrations in groundwater to cleanup standards.

Additionally, the selected remedies for OUs 5 and 6 include land use controls to prevent human exposure to contaminants in impacted environmental media and protect the integrity of the remedies until all cleanup objectives and standards are met.

FIVE-YEAR REVIEW RESULTS

The results of the Five-Year Review analysis will be presented in the final version of the document after concurrence by the U.S. Environmental Protection Agency and DOE. The results of the analysis will define how the remedies are protective of human health and the environment and any additional actions necessary to ensure protection of human health and the environment.

FOR MORE INFORMATION:

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