

2024 YEAR in REVIEW

NASA SANTA SUSANA FIELD LABORATORY

NASA manages 451.2 acres at the Santa Susana Field Laboratory (SSFL), which consists of two areas historically used for rocket engine research, development, and testing related to programs like Apollo and the Space Shuttle. This Year in Review highlights the key achievements of the past year as NASA continues its efforts to achieve a clean-up at SSFL that is protective of public health and the environment, uses the best available science and technology, and preserves the site's natural and Native American cultural resources for future generations.

GROUNDWATER CLEANUP

In 2024, NASA made significant progress toward finalizing plans for the comprehensive groundwater cleanup at the Santa Susana Field Laboratory (SSFL). Key accomplishments included the completion and submission of the Final Phase 1 Groundwater Corrective Measures Study (CMS) to the Department of Toxic Substances Control (DTSC). This document evaluates cleanup options and recommends corrective measures for the groundwater contamination in NASA-managed areas. Using findings from this study, DTSC is developing a Statement of Basis to select a preferred cleanup remedy. Phase 1 of NASA's groundwater cleanup focuses on addressing former operational source areas where contaminant concentrations are highest, while Phase 2 will tackle the remaining contamination.

Throughout the year, NASA also continued operating two pilot studies to test innovative cleanup technologies: (1) enhanced in situ bioremediation (EISB) to treat chlorinated volatile organic compounds (VOCs), particularly trichloroethene (TCE), from impacted groundwater beneath the Alfa Test Area, and (2) bedrock vapor extraction (BVE) to remove VOCs from the vadose zone beneath the Alfa Test Area.

In December, NASA concluded the 18-month EISB study. Over this period, the EISB system treated approximately 426,000 gallons of groundwater. Early results suggest that EISB is successfully reducing VOC concentrations up to 30 percent in the targeted area. NASA's solar-powered BVE system continued operation throughout 2024, and initial data from this system show it has removed 1,162 pounds of TCE and more than 4,600 pounds of other VOCs from the underlying bedrock matrix in the vadose zone beneath the Alfa Test Area. In December, NASA began a three-month monitoring study to assess the system's long-term effectiveness.

In April, NASA participated in a community tour of SSFL organized in collaboration with DTSC as part of a "Groundwater U" workshop series to share information about groundwater and prepare the public to review and comment on forthcoming groundwater decision documents. The event provided community members with the opportunity to see the EISB and BVE pilot systems firsthand.



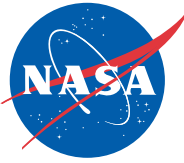
NASA SSFL Project Director Peter Zorba discusses the BVE system with community members during DTSC's Groundwater U site tour in April.

During 2024, NASA continued working with the DTSC technical team to resolve challenges associated with implementing the 2010 Administrative Order on Consent (AOC) cleanup. As part of these efforts, NASA coordinated with DTSC and the other responsible parties—the Department of Energy (DOE) and Boeing—to respond to a request by DTSC to study potential locations for sources of backfill that will be required following soil excavation and cleanup activities at SSFL. In December, NASA began sampling potential backfill sites after conducting an extensive review of locations across an area spanning more than 5,000 square miles.

NASA also worked on a study evaluating the capabilities of laboratories across the country to process the extensive number of soil samples expected during the final soil cleanup. This effort, also coordinated with DOE and Boeing, aims to ensure that laboratories can provide accurate and timely results.

In addition to these efforts, NASA continued to coordinate with DTSC in the development of a focused soil cleanup plan. This plan aims to address high-concentration contamination areas in former operational areas where the AOC implementation issues do not apply, allowing NASA to begin some soil cleanup while technical issues related to the full AOC cleanup are resolved.

SOILS



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DEMOLITION

In 2024, NASA completed the demolition of the Coca Test Stand 1, a more than 200-foot structure, and a smaller remnant of Coca Test Stand 2, marking the conclusion of Phase 7 of the agency's demolition program. This milestone brings NASA closer to the final, comprehensive cleanup of SSFL. Demolition work began in January, and by year's end, the dismantling and removal of Coca Test Stand 1 was complete.



Coca Test Stand 1, February 2024



Coca Test Stand 1, September 2024

To date, over 6,000 tons of hazardous waste have been safely removed, and more than 14,000 tons of clean steel and asphalt have been recycled, leading to the restoration of more than 22 acres of property to its natural habitat.

Upon the completion of Phase 7 demolition, several artifacts from the Coca Test Stands were transferred to museums, where they may be used in future exhibits (as referenced in the *Cultural Resources* section below).

To view a time-lapse video of Coca Test Stand 1 demolition, visit <https://ssfl.msfc.nasa.gov/news#news20241220>.

Throughout 2024, NASA maintained its commitment to cultural resource stewardship by ensuring Native American monitoring was implemented during all ground-disturbing activities, and continuing consultation with the Sacred Sites Council to ensure the protection of Native American archeological and traditional cultural resources during cleanup activities.

Additionally, NASA completed a portable X-ray fluorescence (pXRF) study at the Burro Flats site to analyze the pigments used by Native Americans in rock art, contributing to NASA's efforts to understand the cultural heritage of the area.

NASA also worked to safeguard the historical significance of SSFL. Several artifacts from the Coca Test Stands, which played a key role in space exploration programs like Apollo and the Space Shuttle, were transferred to the California Science Center and the Smithsonian National Air and Space Museum for potential future public display.

CULTURAL RESOURCES

FOR MORE INFORMATION

Visit <https://ssfl.msfc.nasa.gov> or contact:

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