



# 2023 YEAR in REVIEW

## NASA SANTA SUSANA FIELD LABORATORY

NASA administers 451.2 acres in two areas of the Santa Susana Field Laboratory (SSFL) used historically for the research, development, and testing of rocket engines associated with programs such as Apollo and the Space Shuttle. This Year in Review is intended to present highlights from the work accomplished at SSFL over the past year as NASA continues to work toward achieving a cleanup that is fully protective of public health and preserves the site's natural, historic, and Native American cultural resources for future generations.

### GROUNDWATER

Amid the activation of NASA's pilot studies that actively treat groundwater, ongoing sampling and monitoring, and the continued development of final groundwater cleanup plans, 2023 marked significant progress for NASA's groundwater cleanup at SSFL. NASA completed the permitting and construction of the Bedrock Vapor Extraction (BVE) pilot study system, which began operating in February. Over the year, the BVE system removed more than 1,000 pounds of trichloroethylene (TCE) from the groundwater beneath the Alfa Test Area. NASA also completed the construction and startup testing of its second groundwater pilot study—Enhanced In-Situ Bioremediation (EISB)—in May, which extracted and recirculated 291,000 gallons of groundwater between the study extraction and injection wells during 2023.

Throughout the year, NASA installed and tested groundwater and vapor monitoring wells under Department of Toxic Substances Control (DTSC)-approved work plans to fill in data gaps to aid in the development of final groundwater cleanup plans. NASA also continued work on the Phase 1 Corrective Measures Study (CMS), which evaluates corrective actions and recommends corrective measures to clean up groundwater at SSFL. NASA met with DTSC and the Los Angeles Regional Water Quality Control Board several times during the year to discuss comments and revisions to the draft CMS so that NASA can submit the Final Phase 1 CMS to DTSC in early 2024. Finally, in October, NASA completed and released a per- and polyfluoroalkyl substances (PFAS) Site Investigation (SI) for NASA areas at SSFL, part of an agency-wide initiative to identify past uses and possible source locations of PFAS at NASA centers.



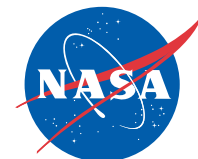
*Groundwater crews conduct packer testing and depth discrete groundwater sampling at ND-160, a 1,000-foot deep data gap well located near Alfa Test Stand 2 in NASA's Area II.*



*This photo from a 2012 NASA Interim Soil Removal Action illustrates the need for clean soil backfill for the restoration and revegetation of the native habitat in areas requiring soil removal.*

During 2023, NASA continued working with DTSC to resolve technical challenges associated with implementing the 2010 Administrative Order on Consent (AOC) cleanup. NASA received approval for a work plan requested by DTSC and initiated a study with the Department of Energy (DOE) that analyzes and evaluates two specific technical issues associated with an AOC soil cleanup at SSFL: (1) finding adequate backfill that both meets AOC look-up table values and is capable of supporting natural habitat restoration, and (2) determining processing capabilities and attainable reporting limits for analytical laboratories that could conduct post-soil cleanup confirmation sampling. NASA also began working with DTSC to develop an initial phase of soil cleanup that focuses on areas with high concentrations of total petroleum hydrocarbons (TPH) and volatile organic compounds (VOC) that would allow NASA to begin a soil cleanup while the technical teams continue to resolve backfill issues and other remaining technical challenges.

### SOILS



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### DEMOLITION

NASA made continued progress with its demolition program in 2023, kicking off Phase 6 in February in the Coca Test Area. Phase 6 comprises the demolition of Coca Test Stand 4 as well as the hydrogen sphere located in the Coca Test Area. During the year, demolition crews made progress with the deconstruction and removal of Test Stand 4, and the Phase 6 work is ongoing. In December, the Phase 7 demolition team began mobilizing to the field in preparation for the demolition of Coca Test Stand 2, which is set to begin in early 2024 and will continue concurrently with Phase 6. Phase 7 includes the demolition of Coca Test Stand 1 and the much smaller remnant of Coca Test Stand 2, which predates the other two existing stands and is located adjacent to Stand 1.



*Demolition crews, shown here working at the flame bucket of Coca Test Stand 4, have made significant progress with Phase 6 demolition.*



*The Traditional Cultural Property (TCP) spans across the SSFL site.*

The management of cultural resources in NASA-administered areas is integral to all of NASA's activities at SSFL, from the ongoing engagement with the regional Native American tribes and the presence of Native American monitors during all ground-disturbing work to the stewardship and administrative protection of culturally significant artifacts and areas. In addition to these ongoing activities, during 2023, NASA recovered artifacts from within the Coca Test Stands and control house that will be retained for curation or historic preservation. Another important milestone this year was the receipt of comments from the California State Historic Preservation Officer (SHPO) in August regarding the nomination of the Burro Flats Archeological District as a Traditional Cultural Property (TCP) on the National Register of Historic Places (NRHP). [Note: The California State Historical Resources Commission (SHRC) initially approved the TCP in August 2020. Following SHRC approval and the signature of the California SHPO, NASA sent the TCP nomination to the Keeper of the NRHP. The nomination was returned to NASA by the Keeper in October 2020 for technical revision, and NASA revised the text based on these comments and returned the nomination to California SHPO in February of 2021.] The receipt of SHPO's comments allowed NASA to make some minor edits to the TCP nomination and return it to SHPO to proceed with the listing process.

### CULTURAL RESOURCES

### FOR MORE INFORMATION

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