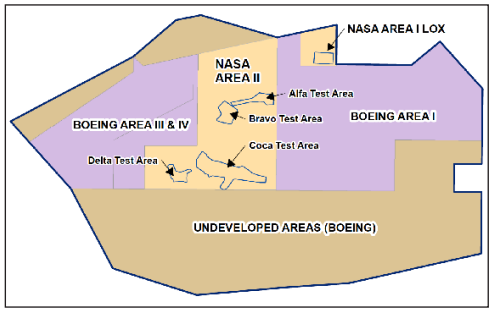
Past & Present

An Overview of the NASA Investigation and Cleanup at the SANTA SUSANA FIELD LABORATORY

OVERVIEW

SSFL AT A GLANCE



NASA administers Area II and a small portion of Area I at SSFL.

The Santa Susana Field Laboratory (SSFL) is located on approximately 2,850 acres of open, rocky terrain above the Simi Hills in Ventura County, California, roughly 30 miles northwest of downtown Los Angeles. The Simi Hills are bordered on the east by the San Fernando Valley and to the north by Simi Valley. The facility opened in 1948 when North American Aviation (later NAA Rocketdyne Division, then Rockwell International, and, more recently, Boeing) began research, development and testing of rocket engines, in cooperation with the U.S. Army Air Forces. The site is divided into four Administrative Areas — Area I through IV. Most of Areas I, III and IV, and two "undeveloped areas," are owned and operated by the Boeing Company. The Department of Energy (DOE) leased a portion of Area IV for energy research. Area II, and a small portion of Area I, are owned by the U.S. Government and administered by NASA. NASA acquired Area II, consisting of 409.5 acres, from the U.S. Air Force in 1973. In 1976, NASA acquired a 41.7-acre parcel of Area I.

NASA rocket engine testing took place in Area II at four "test areas" – Alfa, Bravo, Coca and Delta – each having multiple test stands to static fire various rocket engines. Test stands consisted of open-framed metal structures with concrete foundations. The Test Stands were initially built between 1954 and 1957 but modified through the years to accommodate various engine types and sizes. The geology of the site favored its use for test stand construction. Bedrock provided natural anchorages for the test stands and the rocky terrain formed natural trenches and drainages that were ideal for the engine testing process. These advantages saved crucial time and money during the Space Race era.

PAST

HISTORY NASA at SSFL

NASA conducted its first liquid-fueled "static" test at SSFL in 1962. A static test is one in which the engine is mounted to the test stand and fired, as opposed to being launched. This would be the first of hundreds of engine tests conducted at SSFL to support the Saturn Apollo Program, which had 33 missions and ultimately landed a man on the moon in July 1969. Between 1964 and 1968, much of the Saturn V engine testing took place at the large Coca I and Coca IV Test Stands, which underwent modifications through the years to meet the needs of larger engines. NASA also conducted tests to support the Space Shuttle Main Engine, the first reusable liquid booster engine for human space flight. Coca I and Coca IV Test Stands were used for over 700 "hot fire" tests and more than 500 related laboratory tests from 1973 to 1988. By 2006, all test stands at SSFL had been taken out of service.

All test stands ceased operating by 2006. Site tours allow visitors the opportunity to get an up-close view.

PAST PRACTICES AREA II

Historic releases during engine testing resulted in chemicals making their way into soil, surface water and groundwater at SSFL. In 1984, trichloroethylene (TCE) was discovered in water supply wells in Area II. NASA, the Boeing Company and the DOE each have the responsibility for site investigation and cleanup in areas where they once operated--NASA in Area II and a small portion of Area I; Boeing in Areas I, III, part of Area IV, and the undeveloped areas; and DOE in part of Area IV. The State of California Department of Toxic Substances Control (DTSC) is the regulatory agency overseeing the cleanup. NASA is committed to working with the DTSC and to conducting a cleanup that fully protects public health and the natural environment, as well as the cultural legacy of the site. We are equally committed to communicating with the public about the progress being made during those efforts.

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PRESENT

DEMOLITION PREPARING for CLEANUP

Since 2015, NASA has been removing inactive structures in Area II and its portion of Area I. Demolition is a necessary and important step toward the final cleanup and restoration of the site. As part of this process, NASA is disassembling, deconstructing and removing all manmade structures and objects, that are not essential for current or future cleanup operations. This includes office buildings, inactive power lines, pipelines, empty storage tanks, fencing, and concrete and asphalt. The six remaining test stands, and their control houses have been deferred and are not part of these demolition activities.

Demolition began in the Service Area in early 2015 and is expected to be completed at the end of 2018.

Demolition is conducted in a careful manner to minimize disturbance to natural and cultural resources. Sensitive plant and animal species are monitored by a certified biologist to ensure their protection and Native American Monitors oversee all demolition fieldwork and have the authority to suspend work in the event an artifact is encountered or if there are other concerns regarding cultural resources.

Hazardous and non-hazardous materials are handled, packaged and transported to the appropriate facilities in accordance with safety precautions outlined by local, state and federal regulations. As much material as possible is recycled to reduce the amount being disposed of in landfills. After demolition work is completed in an area, a specialized hydroseed mix of plants native to the site is applied to promote natural re-vegetation and reduce the potential for erosion.

GROUNDWATER INVESTIGATION and CLEANUP

NASA's groundwater cleanup is guided by the 2007 Consent Order for Corrective Action that defines the process for characterization and cleanup of groundwater at SSFL. Onsite groundwater monitoring wells were installed in the mid-1980s in order to understand the groundwater conditions at SSFL. Since then, NASA has conducted approximately 300,000 analyses on 6,000 groundwater samples collected from 1,200 sampling locations across the site. In 2014, NASA began fieldwork to investigate the Areas of Impacted Groundwater (AIGs) to further identify the nature and extent of groundwater contamination and fill in data gaps from earlier investigations. These comprehensive groundwater assessments, completed in 2016, are helping NASA refine its understanding of the groundwater conditions and help forecast the effectiveness of potential remedies and develop a final cleanup plan.

NASA has conducted a number of interim measures to address groundwater contamination. In 2009, NASA began an interim treatment of groundwater using a Groundwater Extraction Treatment System (GETS). The GETS consists of groundwater extraction wells and a network of pipelines that deliver groundwater to a treatment facility centrally located within SSFL. In 2014, NASA installed seven new groundwater extraction wells to increase the volume of water available for treatment at the GETS. NASA has treated nearly 8.4 million gallons of groundwater through interim cleanup measures.

SOILS INVESTIGATION and CLEANUP

NASA has been working with the DTSC under the 2010 Administrative Order on Consent (AOC) that defines the process of characterization and cleanup of soils at SSFL. A number of chemicals have been identified in soils resulting from historic waste practices common in the 1950s and 1960s. NASA has conducted soil investigations for over three decades, including surface soil, subsurface soil, sediment, and soil vapor sampling. Some early initiatives to clean up soils included the removal of 3,000 cubic yards of mercury contamination, and removing several buildings and underground storage tanks.

In 2016, NASA completed its soil investigation in NASA-administered areas at SSFL. The investigation included sampling, laboratory analyses, treatability studies and pilot testing in preparation for conducting a final, comprehensive soil cleanup effort. This extensive collection of soil data was compiled in a Soil Data Summary Report. The report summarizes the nature of chemicals in the soils as well as the vertical and horizontal extent of the contamination within the NASA-administered property at SSFL. NASA estimates the total volume of soil that will need to be remediated or removed is between 600,000-900,000 cubic yards. NASA shared this information with the DTSC to aid in their California Environmental Quality Act (CEQA) process, including the preparation of their Programmatic Environmental Impact Report. NASA is eager to begin final soil cleanup activities once DTSC completes its CEQA process and a final cleanup remedy is selected.

FOR INFORMATION

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For more information about NASA's cleanup at SSFL and to subscribe to our E-list, please visit:

http://ssfl.msfc.nasa.gov