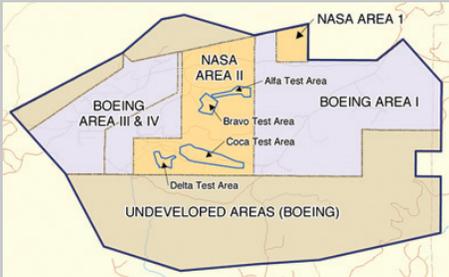




# Past & Present

## SANTA SUSANA FIELD LABORATORY An Overview of NASA-Administered Land



Santa Susana Field Laboratory (SSFL) is located on 2,850 acres of open, rocky terrain above California's Simi Valley, roughly 30 miles northwest of Los Angeles. The facility opened in 1948 and is divided into four Administrative Areas — Area I through IV. Areas III and IV, most of Area I, and two “undeveloped areas” are owned and operated by the Boeing Company. Area II and a small portion of Area I are owned by the U.S. Government and administered by NASA.

After WWII, North American Aviation (later NAA Rocketdyne Division, then Rockwell International, and, more recently, Boeing) began research, development and testing of rocket engines at SSFL, in cooperation with the U.S. Army Air Forces. NASA acquired Area II, consisting of 409.5 acres, from the U.S. Air Force in 1973. A 41.7 acre parcel of Area I, acquired by NASA in 1976, contained a Liquid Oxygen Plant. (The LOX Plant had operated in the 1950s and 1960s in testing liquid-fueled engines.)

SSFL is made up of rugged terrain, with rock outcrops forming natural bowls that were ideal for use in engine testing. NASA rocket engine testing took place in Area II at four “test areas” — Alfa, Bravo, Coca, and Delta — each having multiple engine firing positions, known as Test Stands. The Test Stands, built between 1954 and 1957, consisted of open-framed metal structures with concrete foundations and related buildings.

## History

NASA conducted its first liquid-fueled “static” test (the engine being mounted to the test stand, as opposed to being launched) at SSFL in 1962. This would be the first of hundreds of engine tests at SSFL conducted to support the Saturn Apollo Program, which had 33 missions, and ultimately landed a man on the Moon in July, 1969. From 1964 to 1968, much of the Saturn V engine testing took place at the large Coca I and Coca IV Test Stands, which would undergo modifications through the years to meet the needs of larger engines. NASA conducted tests to support the Space Shuttle Main Engine (SSME), the first reusable liquid booster engine for human space flight. [See sidebar.] Three SSMEs would be used to power each Space Shuttle mission. Coca I and Coca IV Test Stands were used for well over 700 “hot fire” tests — and more than 500 related laboratory tests — on the SSME from 1973 to the last test at Coca in 1988. All Test Stands at SSFL had been taken out of service by 2006.



All test stands ceased operating by 2006. Bus tours, which began in 2009, allow visitors to get an up-close view.

NASA retired the Space Shuttle Program in 2012 after 135 missions. Well before the April 1981 inaugural Space Shuttle liftoff, its engines were being tested at SSFL. What began here in the 1970s was a 30-year journey of more than a half billion miles in space exploration.

## Past Practices

In 1984, TCE was discovered in water supply wells from historic releases during engine testing. This resulted in chemicals making their way into soil, surface water and groundwater. NASA, the Boeing Company and the Department of Energy (DOE) each has the responsibility for site investigation and cleanup in areas where it once operated (NASA in Areas II and a portion of Area I; Boeing in Areas I, III part of Area IV and the undeveloped areas, and DOE in part of Area IV). In Area II for example, some solvents, predominantly trichloroethylene (TCE), were found. At that time, NASA made a commitment to cleanup and today we remain committed to conducting a cleanup to a level that protects public health and the environment. We are equally committed to communicating with the public about the progress being made.

# Groundwater



The GETs treats groundwater from NASA well WS-09A.

On-site groundwater monitoring wells were installed in the mid-1980s and have been regularly sampled since then, with results indicating that the highest levels of TCE were found close to areas where engines were tested. NASA is actively engaged, with Boeing and DOE, in groundwater investigations and cleanup under the Department Toxic Substances Control (DTSC) 2007 Consent Order for Corrective Action. A Groundwater Advisory Panel — scientific experts selected by the group — has been assisting in understanding site-wide conditions that influence the movement of chemicals in groundwater at SSFL. Findings from extensive groundwater characterization were submitted to DTSC in 2009 in the Draft Groundwater Remedial Investigation Report. Concurrent with that report, NASA, Boeing and DOE submitted a Data Gap Analysis Plan. The work proposed in that plan is ongoing. Following DTSC and public review and comment, the parties are developing work plans to address further data gaps. Implementation of this work is anticipated in 2013.

As an interim measure, NASA has been operating a Groundwater Extraction Treatment System (GETS) since 2009. Groundwater is extracted from NASA well WS-09A located in Area II and pumped to the GETS for treatment. The system as a whole is designed to extract groundwater from 14 wells across SSFL.

# Surface Water



Soil removal as part of ISRA.

NASA is in process of removing soil contamination sources as part of an Interim Source Removal Action (ISRA). This effort is aimed at improving surface water quality by removing dioxins and metals from soil at the source area to decrease the potential for their being carried in surface runoff during storms. Phase I, performed in the Area II landfill vicinity, was completed in 2009. Phase II work was completed in 2012 removing over 4,000 cubic yards of soil from an area near a former incinerator and related ash pile. In another effort, Best Management Practices (BMPs) are being implemented to improve stormwater quality and mitigate surface water runoff in the helipad and Service Area Road vicinity.

NASA remains committed to ongoing communication with the public on our activities at SSFL.



A tour of the FSP-4 subgroup in 2012.

# Soils

NASA has identified a number of chemicals in soils resulting from waste practices that were common in the 1950s and 1960s. Some early initiatives to clean up soils included removing 3,000 cubic yards of mercury contamination, and removing several buildings and five underground storage tanks. NASA has been working with DTSC under the 2010 Administrative Order on Consent (AOC) that defines the process for characterization and cleanup of soils at SSFL. NASA-administered land has been divided into five Field Sampling Plan (FSP) subgroups. FSP investigations are being evaluated along with NASA's previous soil sampling results to determine if and where additional sampling is needed. Also, under the AOC, NASA is developing an Environmental Impact Statement (EIS) to evaluate the potential impacts and mitigation associated with proposed action to conduct soil cleanup and demolition activities. In developing the EIS, NASA has conducted a number of surveys to identify the many resources that exist including habitat, plant, bird, and animal surveys. NASA recognizes that there is a rich culture and history associated with this area and has carried out archaeological and historical surveys to identify those resources and to plan for the responsible management of them now and in the future.

# For Information

Additional details regarding the history and cleanup of the site may be found at NASA's website, <http://ssfl.msfc.nasa.gov>. The webpage also offers some fact sheets that summarize specific aspects of the portions of Santa Susana Field Laboratory that are administered by NASA.

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NF-2013-03-562-HQ  
March 2013