

Santa Susana Field Laboratory Monthly Status Report August 2017

This monthly update is to inform the community about Santa Susana Field Laboratory (SSFL) investigation and cleanup activities that occurred in August 2017 as well as those that are planned for September 2017 under the California Department of Toxic Substances Control's (DTSC) oversight. A project overview for The Boeing Company (Boeing), United States Department of Energy (DOE) and National Aeronautics and Space Administration (NASA) SSFL areas is included at the end of this report. Documents referenced in this monthly status report that have been reviewed and commented on by DTSC are hyperlinked for easy access. Documents that are currently under DTSC's review will be made available once DTSC's review comments have been issued.

1 SSFL ACTIVITIES COMPLETED DURING AUGUST 2017

DTSC

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

DTSC's CEQA contractor, Environmental Science Associates (ESA), is gathering information to develop a Programmatic Environmental Impact Report (PEIR) for the SSFL project. The [draft PEIR](#) was issued for public review on September 7, 2017.

SITE WIDE AIR MONITORING PLAN

Boeing, DOE and NASA submitted a joint [Baseline Air Monitoring Work Plan](#) in April 2016 to evaluate baseline concentrations of dust, volatile organic compounds, and radionuclides in the vicinity of SSFL prior to commencing cleanup activities. This data will be used to evaluate what, if any, impacts to air quality are caused by cleanup activities. DTSC released [comments](#) on the Baseline Air Monitoring Work Plan to Boeing, DOE, and NASA on December 9, 2016. On June 30, 2017 DTSC received the [Final Baseline Air Monitoring Work Plan](#). On July 5, 2017 DTSC received [responses to the comments](#). DTSC reviewed the responses to comments and the final document and issued [additional comments](#) on July 20, 2017 and [clarification to the July 20, 2017 comment letter on August 4, 2017](#). Boeing, DOE and NASA are preparing the revised final document.

NASA

SOILS:

NASA submitted a revised *Soil Data Summary Report* to DTSC on February 22, 2017. This document is a revision to an [earlier draft document](#) (dated May 2015) reviewed and [commented](#) on by DTSC in March 2016. The report summarizes the results of soil samples collected to define the extent of chemical contamination at NASA-administered sites at SSFL. DTSC is reviewing the document.

GROUNDWATER:

On May 9, NASA submitted a draft RCRA Facility Investigation (RFI) report summarizing the results of NASA's 2013-2016 groundwater source investigations conducted at four sites (the Former Liquid Oxygen (LOX) Plant Area, the Expended Launch Vehicle (ELV)-Building 204 Area, and the former Alfa-Bravo and Coca-Delta Test Stand Areas). DTSC is reviewing the report.

On July 5, 2017, NASA submitted the Human Health and Ecological Risk Assessments for NASA Areas of Impacted Groundwater (AIGs), dated June 22, 2017. This document is a section of the May 2017 NASA Groundwater RI report referenced above. DTSC is reviewing the document.

DEMOLITION:

Removal of inactive infrastructure and support equipment outside the former NASA engine test stands continued at the former Delta and Alfa areas. NASA is also retaining contractors for the removal of ancillary infrastructure and support buildings at the Bravo and Coca area over the coming months. NASA demolition activities at SSFL are conducted under Ventura County authority.

PERMITTING:

In June 2016, NASA submitted a draft post-closure permit renewal application for the [Area II Surface Impoundments](#). DTSC is currently reviewing the Area II Surface Impoundment post-closure permit application for technical completeness. The effect of recent legislative changes to post-closure permit requirements under California Code of Regulations Title 22, Article 6 are also being evaluated as part of the review.

The post-closure requirements for the Area II Surface Impoundments are regulated by DTSC under RCRA laws and regulations because these impoundments are former hazardous waste facilities. The required cleanup levels for the impacted soil will continue to be dictated by the [2010 Administrative Order on Consent for Remedial Action \(AOC\)](#).

DOE

SOILS:

On December 29, 2016, DOE submitted a Draft Chemical Data Summary Report. The report summarizes the results of soil samples collected to define the extent of chemical contamination in soil in Area IV and the Northern Buffer Zone at SSFL. This document is currently being reviewed by DTSC, and can be viewed at DOE's [Chemical Data Summary Report](#) website.

In February 2017, DOE issued a [Draft Environmental Impact Statement for Remediation of Area IV and the Northern Buffer Zone](#). DOE is currently developing response to comments received during the public comment period.

DOE recently submitted a Biological Assessment, dated August 2017, to the U.S. Fish and Wildlife Service (USFWS) and California Fish and Wildlife Service, and copied DTSC. DTSC is currently reviewing this document. DOE noted the document's intent is to provide information necessary to request, initiate and support formal consultation with the USFWS, as required by law (Section 7 of the Endangered Species Act), regarding the proposed SSFL remediation project for species and critical habitats listed in the Biological Assessment.

In 2012, US Environmental Protection Agency (US EPA), in coordination with DTSC and DOE, [completed sampling efforts](#) to define the nature and extent of Area IV radiologic contamination.

DOE conducted soil treatability studies to evaluate onsite soil treatment technologies that could potentially reduce the volume of contaminated soil to be excavated and transported from Area IV. The treatability studies addressed soil partitioning, mercury valence state in soil, bioremediation, phytoremediation, and natural attenuation, as well as residual fuel hydrocarbon characterization methods. The soil treatability studies study plans, evaluation reports and Summary Report have been uploaded to the [DTSC-SSFL DOE Soil Treatability Studies](#) web page.

GROUNDWATER:

DOE has completed its field investigation of groundwater contamination at DOE sites at SSFL. The findings from the RFI groundwater investigation are presented in "Preliminary Draft RCRA Facility Groundwater Investigation Report (GW RFI) Area IV, Santa Susana Field Laboratory, Ventura County, California", dated June 16, 2017. The draft document is currently in review by DTSC.

DOE is planning to implement a Groundwater Interim Measure (GWIM) at the Area IV Former Sodium Disposal Facility (FSDF). While water levels at and near FSDF previously dropped in response to prolonged drought conditions, precipitation this last rainy season was enough to replenish the shallow groundwater. With the recent rise in water levels, detection of elevated VOC concentrations in shallow groundwater at the FSDF has resumed. In August 2017, DOE indicated that implementation of the GWIM at FSDF will require collection of additional data for soil vapor, groundwater and bedrock, in order to fine tune our understanding of the nature and extent of FSDF's "source area" of elevated VOC contamination in near-surface bedrock. The collected data will be used for calculating the mass of VOCs in the bedrock. The VOC mass estimate for FSDF will provide an important parameter for remedy determination. Following completion of the source area investigation, dewatering of the perched groundwater zone at FSDF will commence, the extracted groundwater will be temporarily stored on site and will be characterized for disposal purposes, and transported off site for treatment at a licensed water treatment facility. DTSC is reviewing DOE's source area investigation scope and anticipates future submittal of a GWIM Implementation Plan.

DTSC has [reviewed and commented](#) on DOE's submittal "[Draft White Paper on Thermal Remediation Technologies for Treatment of Chlorinated Solvents](#)". This document was submitted because in-situ thermal remediation has been identified as a potentially applicable remedy to address mass removal of chlorinated solvents and other contaminants of concern in groundwater. During August 2017, DOE and DTSC have participated in discussions regarding DTSC's comments, and DOE will respond to DTSC's comments prior to submittal of the final document.

BUILDING DEMOLITION:

The DOE [Standard Operating Procedure for Demolition of Facilities in Area IV](#) describes DOE's protocols and procedures for demolition decisions related to DOE buildings in Area IV. DOE's Area IV demolition activities are conducted under DOE and Ventura County authority.

PERMITTING:

DOE is currently addressing DTSC's comments regarding [Hazardous Waste Management Facility \(HWMF\)](#) and [Radioactive Materials Handling Facility \(RMHF\)](#) closure plans. Once comments are adequately addressed, DTSC will issue a formal public notice and invite public review and comments as well as hold a public meeting to further describe the closure process. The closure plans will not receive final approval until both DTSC's PEIR and DOE's Environmental Impact Statement (EIS) are completed and certified.

Closure of the RMHF and HWMF buildings themselves is regulated by DTSC under RCRA laws and regulations, as both are regulated under the hazardous waste facilities program. The soils beneath the RMHF and HWMF will be investigated and remediated in accordance with the AOC.

BOEING

Boeing is finishing soils investigation work in Area I, Area III, and the southern buffer zone. Boeing's surficial media characterization work is divided into units identified as Boeing RFI Subareas:

- 1A North, 1A Central, 1A South
- 1B North, 1B Southwest, 1B Southeast
- 5/9 North, 5/9 South, and
- Group 10

SURFICIAL MEDIA INVESTIGATION:

Boeing is using the Data Quality Objectives (DQOs) process and standard operating procedures for planning and conducting sampling work to complete the characterization of surficial media. The purpose of the current phase of surficial media investigation work is to collect sufficient data to fill data gaps that were identified in the 2007 and 2008 Group RFI Reports. All Boeing sites are in the data evaluation and reporting work phases.

- **Subarea 5/9 South** - Systems Testing Lab (STL-IV), Compound A, Sewage Treatment Plant (STP)-3, and Environmental Effects Laboratory (EEL), and areas not associated with RFI sites in Subarea 5/9 South
 - Boeing submitted responses to comments and revised RFI Data Summary Reports for Subarea 5/9 South on April 27, 2017.
 - DTSC is reviewing the Report.
- **Subarea 1A Central** - Building 359, Advanced Propulsion Test Facility (APTF), and Happy Valley North and areas not associated with RFI sites in Subarea 1A Central
 - Boeing submitted responses to comments and revised RFI Data Summary Reports for Subarea 1A Central on May 24, 2017.
 - DTSC is reviewing the Report.
- **Subarea 10** (Southern Buffer Zone)
 - Boeing submitted the RFI Data Summary Report for Subarea 10 on June 19, 2017.
 - DTSC is reviewing the report.

- **Subarea 5/9 North** - Silvernale, Engineering Chemistry Laboratory (ECL), and areas not associated with RFI sites in Subarea 5/9 North
 - Boeing submitted the RFI Data Summary Report for 5/9 North on July 26, 2017.
 - DTSC is reviewing the report.
- **Subarea 1A South** - Canyon, Happy Valley South, Laser Engineering Testing Facility (LETF)/CTL-I, and areas not associated with RFI sites in Subarea 1A South
 - Boeing submitted the RFI Data Summary Report for 1A South on August 22, 2017.
 - DTSC is reviewing the report.
- **Subarea 1B Southeast** – Chemical Test Lab (CTL)-III, Perimeter Pond, and areas not associated with RFI sites in Subarea 1B Southeast.
 - Data gap sampling is complete and preparation of the summary report is ongoing.
 - DTSC anticipates receiving the report in September 2017.
- **Subarea 1B North** - Bowl, R-1 Pond, and areas not associated with RFI sites in Subarea 1B North
 - Data gap sampling is complete and preparation of the summary report is ongoing.
 - DTSC anticipates receiving the report in October 2017.
- **Subarea 1A North** - B-1, Instrument & Equipment Laboratory (IEL), Area 1 Landfill, and areas not associated with RFI sites in Subarea 1A North
 - Data gap sampling is complete and preparation of the summary report is ongoing.
 - DTSC anticipates receiving the report in December 2017.
 - Former Shooting Range
 - The Former Shooting Range is not part of Subarea 1A North but the site information is included here as the Former Shooting Range is located on the Mountains Recreation Conservancy Authority, Sage Ranch property which is adjacent to Subarea 1A North and some soil data overlap between the Former Shooting Range area and Subarea 1A North.
 - The work is being conducted under an [approved work plan and addendum](#).
 - Field work to investigate soils to define the extent of lead shot and clay pigeons as well as characterize the soil for lead, arsenic, antimony, and polynuclear aromatic hydrocarbon concentrations began in late September and was completed on January 18, 2017.
 - Laboratory analysis for soil sampling is complete.
 - Boeing constructed a fence to prevent access to a 1,200 foot section of the Sage Ranch Loop Trail where sampling results indicate remediation is necessary to address lead concentrations in soil.
 - Boeing released a statement to community members regarding the status of the sampling results, the need for remediation, and the closure and re-routing of a portion of the trail.
 - The [Draft Former Rocketdyne-Atomics International Rifle and Pistol Club Shooting Range Investigation Area Data Summary Report and Findings Report](#) was submitted to DTSC on April 11, 2017. DTSC provided [comments on the report to Boeing](#) on May 5, 2017. DTSC received responses to DTSC comments on July 11, 2017. DTSC is reviewing the responses to comments.

- **Subarea 1B Southwest** - Area I Burn Pit, CTL-V, and areas not associated with RFI sites in Subarea 1B Southwest
 - Data gap sampling is complete and preparation of the summary report is ongoing.
 - DTSC anticipates receiving the report in December 2017.
- **Risk Assessment**
 - Risk Assessments were included in the two draft RFI Data Summary and Findings Reports submitted to date (Subareas 5/9 South and 1A Central).
 - Based on DTSC review comments and changes in risk assessment input parameters by the USEPA, the risk assessment process will need to undergo some changes.
 - Boeing submitted a revised risk assessment work plan on May 18, 2017.
 - DTSC is reviewing the work plan.

GROUNDWATER:

- Faults
 - DTSC is currently reviewing a draft technical memorandum evaluating faults.
- Groundwater Flow Model.
 - Boeing continues to work to update the 3D Groundwater Flow Model.
- Boeing groundwater characterization work in Area IV
 - Seven wells were installed by Boeing in Area IV; evaluation of the hydrologic data is ongoing.
- On June 8 Boeing submitted a draft Remedial Investigation (RI) report summarizing the results of groundwater characterization work for Area I, Area III and the Southern Buffer Zone. DTSC is reviewing the document.
- On August 24, Boeing submitted a Work Plan addendum to further explain their approach for conducting Corrective Measures Studies on groundwater and vadose zone bedrock. DTSC is reviewing the document.

BUILDING DEMOLITION:

The Superior Court of California, County of Sacramento, continues to evaluate the ongoing litigation over the demolition of Boeing buildings in SSFL Area IV. Per the December 11, 2013, temporary injunction, DTSC will not issue correspondence regarding the matter until the court issues a decision. A court hearing on the matter is tentatively scheduled for mid 2018.

Boeing sent DTSC a previously un-submitted 2013 Demolition Work Plan for Building 4100 (Area IV) on May 25, 2017. Boeing's cover letter indicated this document was intended for DTSC records. DTSC issued a letter to Boeing on June 21, 2017 indicating that DTSC will take no action on the document due to the ongoing court orders and litigation on Boeing Area IV demolition activities. The document and the DTSC letter were posted to the SSFL public website.

PERMITTING:

In October 2015, Boeing submitted a draft post-closure permit renewal application for the [Areas I and III Surface Impoundments](#) and a separate Closure Plan for the Thermal Treatment Facility. DTSC is currently reviewing the Areas I and III Surface Impoundment post-closure permit application for technical adequacy. DTSC has temporarily suspended review of the Closure Plan for the Thermal Treatment Facility pending ongoing discussion of risk assessment requirements.

The post-closure requirements for the Area I and III Surface Impoundments and closure requirements for the Thermal Treatment Facility are regulated by DTSC under RCRA laws and regulations because both are former hazardous waste facilities. The required cleanup levels for the impacted soil and groundwater will continue to be dictated by the 2007 Consent Order. On May 24, 2016, DTSC conducted a Site Compliance Inspection at the Area I and III Surface Impoundments. [A report summarizing the findings of this inspection](#) dated July 21, 2016 was issued in October 2016.

SITEWIDE GROUNDWATER CHARACTERIZATION AND CLEANUP

The SSFL groundwater characterization and cleanup program is being conducted by the three responsible parties; Boeing, DOE and NASA. The groundwater characterization and cleanup program consists of:

- Investigation and characterization of groundwater contamination;
- Groundwater monitoring;
- Groundwater interim measures; and
- Treatment of contaminated groundwater with permitted discharge from the Groundwater Extraction and Treatment System.

GROUNDWATER REMEDIAL INVESTIGATION (GWRI)

Data gaps were identified in the [2009 GWRI Report](#) by the RPs. DTSC also identified additional data gaps that were presented in the GWRI comments. The data gap work has been divided into six categories:

- Data gaps identified in the Remedial Investigation (RI) Report;
- Source Zone Characterization;
- Characterization of seeps and springs;
- Characterization of faults;
- Groundwater flow model; and Contaminant transport modeling.

STATUS OF GWRI DATA GAP WORK

Boeing, DOE and NASA have submitted Draft RFI Reports report summarizing the results groundwater investigations conducted at their respective sites. DTSC is reviewing the documents. Additionally, Boeing, DOE and NASA are working on a single, overarching site summary document for groundwater characterization at the SSFL site.

Groundwater modeling efforts are proceeding:

- Groundwater flow model
 - The conditionally approved, groundwater flow model work plan presents an approach for a mountain scale groundwater flow model.
 - Work from the fault studies and data from monitoring wells installed since 2009 will be used to supplement the groundwater flow model. DTSC, Boeing, DOE and NASA are considering applying the revised model at the remedy design stage of the project.
- Contaminant transport modeling
 - Boeing, DOE and NASA continue to develop the approach for contaminant transport modeling.

SITEWIDE GROUNDWATER TREATABILITY STUDIES

Treatability studies are being conducted on several technologies to be evaluated in the feasibility study. The treatability studies address both soil/bedrock and groundwater contamination. Treatability studies can be either field studies or laboratory studies.

- Four groundwater laboratory studies are being conducted:
 - Chemical oxidation using potassium permanganate;
 - Thermal heating of rock core;
 - DOE developed a [white paper study of thermal heating of fractured bedrock](#) and submitted it to DTSC in April 2016. DTSC has reviewed and [commented](#) on this paper.
 - Microbial characterization and Bio-Stimulation of rock core, pore water;
 - Boeing submitted the report called *Laboratory Evaluation of Biostimulation to Treat Chlorinated Ethenes in the Chatsworth Formation* and submitted it to DTSC on July 10, 2017.
 - DTSC is reviewing the report.
- Two field studies are being conducted:
 - In-situ chemical oxidation (ISCO) using potassium permanganate;
 - Boeing developed a [summary report](#) for ISCO and submitted it to DTSC on June 14, 2016.
 - DTSC issued [comments](#) to Boeing on June 16, 2017. Boeing provided responses to DTSC comments on August 28, 2017. DTSC is currently reviewing the responses.
 - Bedrock vapor extraction (BVE);
 - Conducted at NASA's former Bravo test area in late 2014.
 - NASA has submitted the Technical Memorandum: [Results from Bravo Bedrock Vapor Extraction Treatability Study](#) dated November 2015 to DTSC.
 - DTSC has reviewed and [commented](#) on the report.

GROUNDWATER MONITORING

[Groundwater monitoring reports](#) are submitted quarterly, with the fourth submittal being an annual report. DTSC reviews the quarterly reports for completeness and compliance but may not issue written comments on the specific quarterly report if significant issues are not present. If compliance issues arise during review of the quarterly groundwater monitoring reports, DTSC directs the Responsible Parties to take action to comply, and follows up to ensure compliance is achieved and maintained.

The annual reports present the results of the previous year's monitoring and undergo a more thorough review. DTSC received the 2016 Annual Reports for [DOE](#), [NASA](#) and [Boeing](#) groundwater monitoring activities on March 9, April 25 and March 1, 2017 respectively. On July 19, 2017, DTSC issued [comments](#) regarding review of these reports.

GROUNDWATER INTERIM MEASURES (GWIM)

The GWIM project includes the operation of fourteen groundwater extraction wells. The water will be pumped to the existing Groundwater Extraction Treatment System (GETS) for treatment. The GETS effluent will be discharge under an NPDES discharge permit from the Los Angeles Regional Water Quality Control Board.

- GWIM and GETS infrastructure is complete and start-up will commence when a permit that allows for continuous discharge is secured.
- Boeing is finalizing discharge requirements with the LARWQCB that will regulate injection of GETS effluent to WS-5. The conditions of the current NPDES permit do not allow for continuous discharge of treated water created by GWIM operations.
- As mentioned above, DTSC and DOE are evaluating a revised approach to GWIM implementation at RS-54A in Area IV.

OPERATION OF WS-9A

WS-9A did not pump in November 2016. WS-9A, located in the southwest corner of Area II, north of the southern buffer zone, is on a pumping program to lower the groundwater elevation near seep SP-890 with a goal of reducing the amount of Trichloroethene (TCE) contamination in groundwater in the immediate area. When operating, groundwater extracted from WS-9A is pumped to the GETS.

- Except for intermittent testing in December 2012 and January 2013, WS-9A has not been pumping since November 2012.
 - The water levels in the seep areas downstream of WS-9A are being monitored. If seepage occurs, it is mechanically collected.
 - Pumping at WS-9A will resume when the GWIM is restarted. The extraction of water at the well will be optimized to perform the intended function at as low a rate as practical.

GROUNDWATER RFI REPORT

Working toward a report [format approved by DTSC](#) in January, 2017, Boeing, DOE, and NASA prepared and submitted individual report sections for their specific groundwater characterization activities. The individual report sections were submitted by Boeing on June 2, 2017, DOE on June 15, 2017, and NASA on May 8, 2017. DTSC is reviewing the reports. The individual sections will be part of single sitewide report deliverable that DTSC anticipates receiving in late 2017.

FEASIBILITY STUDY / CORRECTIVE MEASURES STUDY

DTSC has [conditionally approved](#) the Feasibility Study work plan. Cleanup of sitewide groundwater and surficial media in Boeing areas will be regulated under Chapter 6.5 of Division 20 of the Health and Safety Code (California Hazardous Waste Control Law and the Resource Conservation and Recovery Act authorizations). Soils in DOE and NASA areas will be cleaned up under the respective AOCs, and Soils Remedial Action Implementation Plans (SRAIPs) will be prepared to describe their respective cleanup activities. DTSC has received, and is reviewing Boeing's Corrective Measures Studies Work Plan addendum for groundwater and vadose zone bedrock. DOE and NASA will similarly submit CMS addenda for DTSC review and approval.

PUBLIC OUTREACH

Public Participation activities in August 2017 included:

- Five (5) documents were uploaded to the website:
 1. Final Baseline Air Monitoring Work Plan
 2. Letter from Pete Zorba, NASA to Mark Malinowski, DTSC re Final Baseline Air Monitoring Work Plan
 3. Responses to DTSC Comments on the Draft Baseline Air Monitoring Work Plan
 4. Review of Final Baseline Air Monitoring Work Plan and Responses to Comments
Clarification Regarding DTSC July 20, 2017 Letter on the Final Baseline Air Monitoring Work Plan and Response to Comments

2 SSFL ACTIVITIES ANTICIPATED DURING SEPTEMBER/OCTOBER 2017

DTSC

- The public meetings and hearings for draft PEIR will be held in October. The dates, locations, and times for the public meetings and hearings are shown below. The public meetings and public hearings will provide opportunities to learn more about the SSFL project and for the community to provide comments on the SSFL Draft PEIR and the Draft PMP.

Thursday, October 5, 2017

Valley Ballroom, Grand Vista Hotel
999 Enchanted Way, Simi Valley, CA 93065
Public Meeting Open House: 6:00 pm - 7:00 pm
Public Hearing: 7:00 pm - 9:00 pm

Saturday, October 7, 2017

Social Hall, St. John Eudes Church
9901 Mason Avenue, Chatsworth, CA 91311
Public Meeting Open House: 2:00 pm - 3:00 pm
Public Hearing: 3:00 pm - 5:00 pm

NASA

- DTSC will review NASA's February 2017 revision of the Soil Data Summary Report. It is anticipated that our review will conclude in late 2017.
- NASA will continue demolition and removal of ancillary structures and buildings at the Delta and Alfa sites, to be followed by similar removals at the Bravo, Coca and other NASA areas. NASA does not plan to demolish any historic test stand structures as part of their current program. NASA demolition activities are conducted under Ventura County authority.
- DTSC will continue to review NASA's May 2017 Remedial Investigation (RI) Report and June 2017 Human Ecological Risk Assessment for groundwater, summarizing and evaluating the results of the groundwater investigations conducted at NASA sites in 2013-2016.

DOE

- DTSC and DOE will continue to evaluate a revised GWIM approach for FSDF in Area IV, including development of scope of work for a proposed source area investigation at FSDF.
- DTSC will review DOE's June 2017 RCRA Facility Investigation (RFI) Report summarizing groundwater investigations conducted at DOE sites. DTSC will continue to review the draft Chemical Data Summary Report.

- DTSC will continue to participate in the consultation process to determine the best available source of backfill for DOE's use at Area IV of SSFL.
- DOE will submit the final "Draft White Paper on Thermal Remediation Technologies for Treatment of Chlorinated Solvents".

BOEING

SURFICIAL MEDIA INVESTIGATION

- Preparation of the RFI summary reports and Risk Assessment is ongoing for all Boeing sites and subareas. RFI summary reports and risk assessments will now be submitted separately. DTSC anticipates receiving the RFI DSFR for 1B Southeast in September 2017.
- DTSC is reviewing the 5/9 South and 1A Central RFI DSFRs and responses to comments.
- DTSC is reviewing the Subarea 10 and 5/9 North RFI DSFRs.
- DTSC is reviewing the Boeing responses to DTSC comments on the Draft Former Rocketdyne-Atomics International Rifle and Pistol Club Shooting Range Investigation Area DSFR.
- DTSC is review the Boeing responses to DTSC comments on the summary report for the ISCO Field Experiment.

GROUNDWATER

- Faults
 - DTSC is reviewing Boeing's revised, draft fault technical memorandum that includes the work conducted since the submittal of the 2009 RI Groundwater report.
- Boeing groundwater characterization work in Area IV
 - Evaluation of the hydrologic data for source zones is ongoing.
- Groundwater flow model.
 - Boeing will continue to develop the groundwater flow model.
- Groundwater Report.

DTSC is reviewing the Boeing section of the site-wide Groundwater RFI Report submitted in June 2017.

RISK ASSESSMENT

- DTSC is reviewing Boeing's Draft SRAM-3.

STORMWATER MONITORING AND SAMPLING

- To comply with Los Angeles Regional Water Quality Control Board requirements, Boeing will monitor flow and collect samples as needed during rain events.

AIR MONITORING

- DTSC anticipates receiving the revised final Work Plan in September.

FEASIBILITY STUDY / CORRECTIVE MEASURES STUDY (CMS)

- DTSC is reviewing the Boeing CMS Work Plan Addendum.
- DTSC anticipates receiving CMS Work Plan Addendum for the CFOU from NASA in September.

SITEWIDE GROUNDWATER

DTSC's [comments](#) regarding the 2016 Annual Groundwater Monitoring Reports from Boeing, NASA, and DOE were issued on July 19, 2017.

DTSC is reviewing the individual report sections for Boeing's, DOE's and NASA's specific groundwater characterization activities. The individual sections are intended to be part of single sitewide report deliverable that DTSC anticipates receiving in late 2017.

PUBLIC OUTREACH

Anticipated Public Participation activities in the next 30 days include:

- DTSC will post this DTSC SSFL Monthly Update Report for August online and add it to the "What's New" page.

3 GENERAL PROJECT SCHEDULE

The current schedule goal is to finalize the PEIR in early 2018 and for all three responsible parties to have draft cleanup decision documents to DTSC in late 2018 to early 2019. Cleanup activities are currently anticipated to begin in 2019.

The departure from the 2017 schedule presented in the Consent Order and referred to in the AOCs is due to the recognized complexity of the project, including the rugged physical nature of the site, multiple responsible parties, and the need to complete several phases of investigation to define the nature and extent of impacted soils. In addition, as described in Section 4.3 (of the PMP), during the investigation phases, several cleanup actions were taken.

Project cleanup schedules will be further defined in the remediation planning documents and associated designs, however if soil cleanup begins in early 2019, remediation of all chemically and radiologically impacted soils is anticipated to be completed by the end 2034.

4 PROJECT OVERVIEW

The SSFL is located 30 miles northwest of downtown Los Angeles in southeastern Ventura County, near the crest of the Simi Hills at the western border of the San Fernando Valley. A former rocket engine test and nuclear research facility, the 2,849-acre field laboratory is currently the focus of a comprehensive environmental investigation and cleanup program, conducted by Boeing, DOE and NASA, and overseen by DTSC.

Boeing owns and operates Area I, with the exception of the approximately 41 acre former Liquid Oxygen (LOX) Plant area, and all of Areas III and IV. Areas I and III are operated by Boeing. Boeing also owns the approximately 1,143 acre southern buffer zone and 182 acre NBZ. NASA is responsible for cleanup and administration of Area II and the former LOX Plant, but it is owned by the federal government.

Boeing owns and operates Area IV but DOE is responsible for cleanup of soils in Area IV and the NBZ.

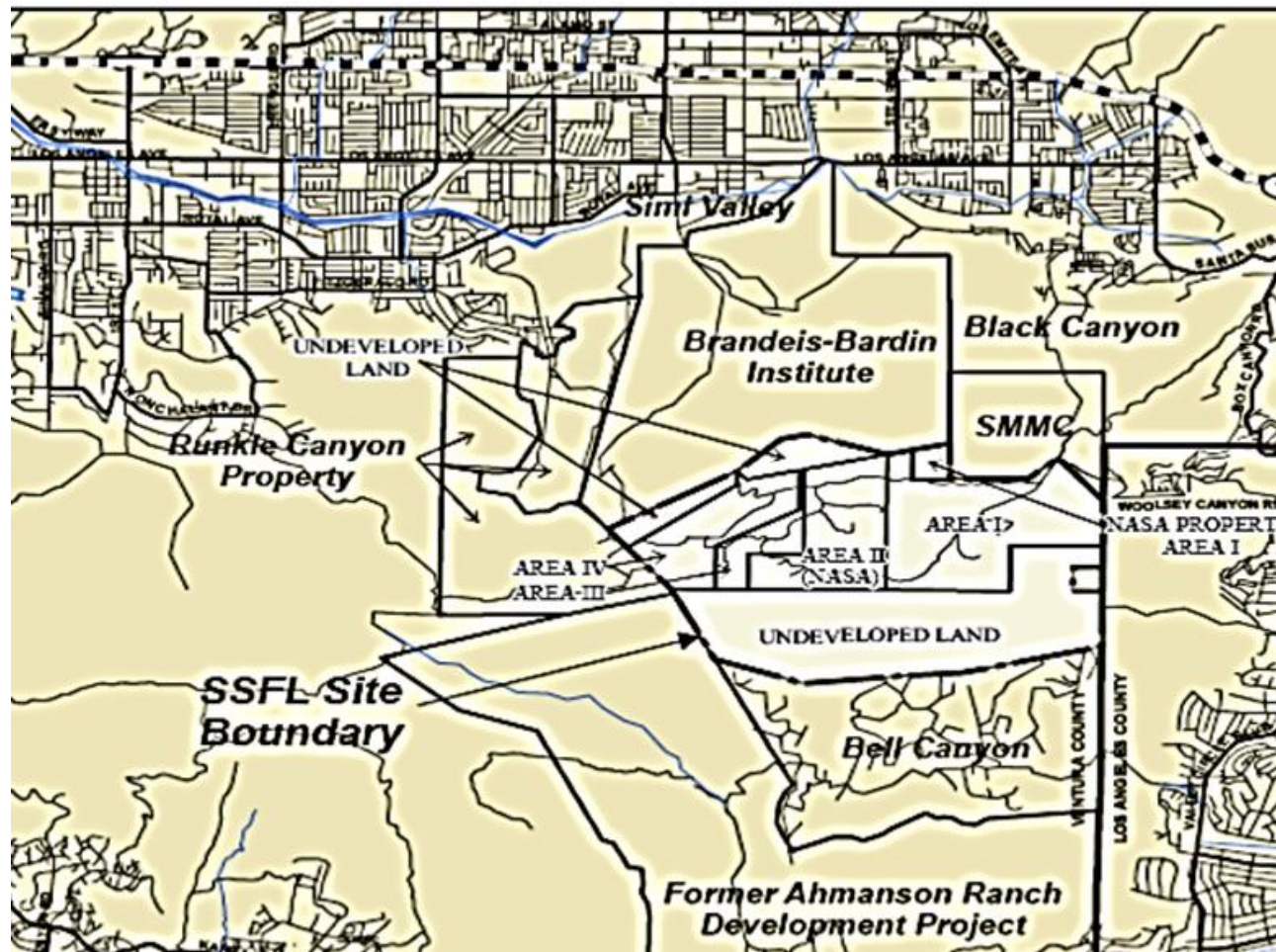


Figure 1 – SSFL and Surrounding Area

DOE

DTSC and DOE participated in chemical soil sampling efforts in Area IV of the SSFL property where former DOE activities occurred on the Site. Area IV is a 290-acre area located in the northwestern section of the site. DOE owns facilities on a 90-acre site within Area IV. Area IV includes the Energy Technology Engineering Center (ETEC) facility where nuclear research, development, and testing began in the 1950's.

The Area IV radiological soil sampling effort, conducted by the US EPA, was completed in 2012. The US EPA approached the investigation by splitting the Area IV and NBZ investigation into historical site assessment (HSA) subareas. The chemical soil sampling efforts followed the same HSA subarea designations. DOE and DTSC participated in Area IV and NBZ co-located soil sampling for chemical contaminants.

DOE completed the chemical soil characterization sampling in 2014.

The sampling included three phases, as specified in the December 2010 AOC, signed by DTSC and DOE:

- Phase 1 - co-located sampling for chemical analysis at US EPA's first phase of radiological sampling locations in Area IV and the NBZ.

- Phase 2 - sampling at randomly selected sampling locations, and
- Phase 3 - identify the locations at the Site where insufficient chemical data exists (chemical data gaps) and sample as appropriate.

In 2012, the US EPA, in coordination with DTSC and DOE, completed its second round of sampling efforts to define the nature and extent of radiologic contamination in Area IV.

US EPA's round two sampling locations were based upon the validated sampling results they received from their Phase 1 sampling.

Not all of US EPA's Round 2 sample locations were sampled for chemical contaminants in 2012 and chemical data gap investigation locations may have been required where no radiological sampling was needed. In 2013-2014, the rationale and selection of chemical data gap investigation sampling locations for Area IV were provided, discussed with the community, and implemented. The Area IV chemical data gap sampling is now complete. The radionuclide and chemical results from these investigations are being used for remediation planning. A Draft Chemical Data Summary Report was submitted to DTSC on December 29, 2016. DOE Draft Environmental Impact Statement was issued to the public on January 6, 2017.

DOE has completed investigations of groundwater source areas at DOE sites in Area IV, with the goal of characterizing the nature and extent of contaminant releases at these areas for groundwater remedial planning. DOE's findings will be presented in a site-wide RCRA Facility Investigation Report, which is anticipated to be submitted in 2017.

NASA

NASA has concluded chemical data gap investigations of soil and surficial media characterization at the 41.7-acre NASA administered portion of Area I (the former LOX Plant), and 404-acre Area II. NASA Area II was used primarily for rocket engine testing and includes the Alfa, Bravo, Coca, former Delta Test Stands and support structures. Under the terms of the December 2010 AOC, NASA implemented six Field Sampling Plans (FSPs) to complete the AOC soil investigations.

The five NASA surficial media FSPs include:

- FSP-1 - Alfa-Bravo Fuel Farm, Coca-Delta Fuel Farm, Propellant Load Facility
- FSP-2 - Incinerator/Ash Pile/STP, Building 204, Storable Propellant Area (SPA), and Skyline Road
- FSP-3 - Alfa Test Stand, Bravo Test Stand
- FSP-4 - LOX Plant, Area II Landfill, ELV
- FSP-5 - Coca Test Stand, former Delta Stand, R2 Ponds

The sampling proposed in the FSPs is complete, and DTSC is reviewing NASA's draft Data Summary Report for soils characterization work in the NASA areas of the site.

NASA is conducting extensive investigations of five major groundwater source areas at Area I LOX Plant and Area II, with the goal of characterizing the nature and extent of contaminant releases at these areas for groundwater remedial planning.

BOEING

Boeing owns most of Area I and all of Areas III and IV. Areas I and III total 792 acres and are operated by Boeing. Boeing also owns the 1,143-acre southern buffer zone and 182 acre NBZ. Soils in Area IV and the NBZ are being characterized in the DOE portion of the project.

Boeing continues to investigate and characterize soils in Area I, Area III, and the southern buffer zone. Since 2013, Boeing has been implementing work plans and work plan addenda prepared to address data gaps identified in the RFI Reports submitted to date. DTSC anticipates these activities will complete the soil characterization of the Boeing sites in 2016.

Boeing sites are located in Reporting Groups 1A, 1B, 5, 9 and 10. Boeing has reorganized the sites in subgroups identified as Boeing RFI Groups:

- 1A North, 1A Central, 1A South
- 1B North, 1B Southwest, 1B Southeast
- 5/9 North, 5/9 South, and
- Group 10

The proposed sampling is substantially complete, and Boeing has begun submitting data summary reports for DTSC review.

Boeing is conducting investigations of groundwater source areas at Boeing sites in Area I and Area III, with the goal of characterizing the nature and extent of contaminant releases at these areas for groundwater remedial planning.

Additional Information can be found on DTSC's website at:
www.dtsc.ca.gov/SiteCleanup/Santa_Susana_Field_Lab