



FieldNOTES

APRIL 2011

A Newsletter
on NASA's
Cleanup Efforts at
Santa Susana
Field Laboratory



NASA administers 451.2 acres in two areas of Santa Susana Field Laboratory (SSFL) used historically for the research, development and testing of rocket engines associated with the Apollo and Space Shuttle programs. NASA is committed to a cleanup of those areas to a level protective of public health and the environment.

WELCOME!

We're delighted to welcome you to **FieldNOTES**. We thought it would be fun to ask people in the community what we should call our newsletter. We held a mini contest and several of you responded with some great ideas. We agreed that **FieldNOTES** was a nice play on words and our thanks goes to William Preston Bowling for the winning title.

Our premier edition of **FieldNOTES** is brimming with news about our cleanup efforts on the land NASA administers in Areas I and II at Santa Susana Field Laboratory (SSFL). Implementing these activities takes a dedicated team committed to achieving our cleanup goals. In these pages, we'll introduce you to some key people and the work that's going on here at SSFL - in all phases of the cleanup program, in environmental compliance and in cultural and natural resources management.

As a major communications piece, this inaugural newsletter was printed and mailed to reach a very wide audience. NASA is committed to reducing the use of paper and we will send future editions of this newsletter and most other written communications **only** via email. (See details to sign up below.)

It continues to be a busy time for NASA here at SSFL. We recognize the importance of being actively involved daily and engaged locally with stakeholders. All of us remain committed to informing and involving the community. Your input and that of your neighbors and community members continues to energize and enhance the work we are doing.

Para más información en español llame
Gabriel Romero, NASA Teléfono 818-354-8709

we're on
the web
<http://ssfl.msfc.nasa.gov>
SEE INSIDE

let's stay
CONNECTED

Please take a moment to sign up for our newsletter and to receive additional information about our efforts at SSFL.

1. email mfellows@nasa.gov
2. type the words **sign up** in the subject line
3. press send

WE'RE ON THE WEB

Our aim is to provide information about SSFL to you in a timely manner and in a variety of ways so you can choose what's best for you. That's why we at NASA are pleased to invite you to visit our website.

It packs more news and more connections in one easy-to-use location and it is right at your fingertips! You'll find the website chock full of SSFL details of yesterday, today and tomorrow.

Find out about SSFL history from pre-1900s to the major rocket engine programs. There is information on current investigations and cleanup activities with links to reports and documents and related agency websites.

Progress Made on Soil Removal Work



In early October 2010, NASA began soil removal activity on land it administers in Area II near a former incinerator and related ash pile (which burned

non-hazardous wastes - from the mid-1950s through the 1970s) and sewage treatment plant (operational from 1961 to 1987). Soil removal in 2010, which targeted dioxin, was conducted in areas containing some oak trees. "We got at the soil we needed to with very minimal disturbance to the surrounding environment. That was our goal," said Randy Dean, a CH2MHill contractor to NASA. It was like watching a choreographed performance. Crews working in unison: workers with shovels carefully digging and loosening the top layer of soil, closely shadowed by workers wielding an industrial vacuum whisking away the soil to an awaiting closed container truck. "In this manner, no oak tree roots were exposed or damaged during the soil removal," added Dean. All heavy equipment (small excavator and transport vehicles) stayed well beyond the oak tree drip line.

For a presentation on soil, go to our website or <http://go.usa.gov/YF5>

Approximately 273 cubic yards of soil were removed and properly disposed of at Waste Management's landfill in Lancaster, California. (Typical commercial

U.S. dump trucks carry about 10 cubic yards.) Final confirmation samples showed results that were below (that is, better than) cleanup goals. Site restoration activities of

re-contouring the excavated areas and hydro-seeding were completed in early December.

"Phase II has gone very smoothly," said Dean. And every good performance needs an audience. Late last summer as Phase II began, NASA invited the public to visit the site during soil removal. "We were pleased to accompany some community members interested in seeing soil removal in action," said NASA Community Involvement Manager, Merrilee Fellows. One community member, Chris Rowe, followed up her site visit with an email expressing her "genuine appreciation for the invitation." Wrote Ms. Rowe, "I was glad to see that remediation was being done with vacuum units rather than a heavy excavation. This enables me to tell those people that I know in the community what I see NASA and Boeing doing ... you were protecting that oak grove." To see several photographs and a presentation on soil, go to our website or <http://go.usa.gov/YF5>.

NASA is removing soil contamination sources in phases as part of an Interim Source Removal Action (ISRA) to protect surface water quality. Phase I in the Area II Landfill vicinity was completed in 2009. Phase II was conducted during 2010 and will continue into 2011, followed by a Phase III. ISRA is being conducted at SSFL under the direction of the Regional Water Quality Control Board. ★

NASA invited the public to visit the site during soil removal.

Just want the basics?
Go to Frequently Asked Questions.

Need a definition?
Search the glossary section.

Want more background information?
Download our fact sheets and other handy materials.

How about more in-depth coverage?
Get the latest at "NASA SSFL News and News Archive". While there, click on the "RSS feed button" and you'll receive future updates that automatically download NASA news headlines and summaries.

NASA SIGNS AGREEMENT WITH DTSC ON Soil Cleanup

NASA signed the Administrative Order on Consent (AOC) with the California Environmental Protection Agency in December 2010. Under the AOC, NASA will work with the California Department of Toxic Substances Control (DTSC) to identify chemical constituents, the nature and extent of any remaining chemical contamination based on sampling results NASA had previously submitted to DTSC, and any additional sampling that DTSC determines is necessary. Once areas with levels considered to be "above background" are identified, NASA will develop a plan (called a Remedial Action Implementation Plan) for how the soils cleanup will be conducted. "NASA recognizes that environmental considerations play an important part in any cleanup," said NASA Project Director Allen Elliott. "We have been coordinating efforts with DTSC and will continue to do so as we move forward with cleanup activities at SSFL." The AOC provides for NASA to evaluate the impacts of the cleanup actions in accordance with the National Environmental Policy Act (NEPA). (See related article.) "This evaluation includes extensive community involvement," said Elliott. "This has been and will continue to be a priority for NASA." ★

NASA recognizes that environmental considerations play an important part in any cleanup.

EIS to Begin

NASA will develop an Environmental Impact Statement (EIS) as outlined in the Administrative Order on Consent signed by NASA in December 2010. (See related article.) The EIS will be developed under the National Environmental Policy Act (NEPA), which requires all Federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and the reasonable alternatives to those actions. Under NEPA, "environmental values" include the natural and physical environment such as air, water, geography, geology, as well as the effect on people's relationship with the environment such as health, safety, jobs, schools, housing and aesthetics. NASA has developed agency policies that go hand in hand with the NEPA review. "We understand that integrating environmental considerations in planning proposed actions is important," said NASA's SSFL NEPA Manager Amy Keith. "NEPA requires that we fully evaluate environmental, technical and economic considerations, and that the public be involved. NASA also will coordinate requirements of the National Historic Preservation Act (NHPA) with the NEPA process."

An EIS documents the proposed actions expected to have a significant impact. It looks at both short-term and long-term effects and considers possible measures to reduce or mitigate those effects. The EIS process begins with notifying the public and providing opportunities for public input. The basic steps involved are as follows:

Publishing a Notice of Intent for EIS in the Federal Register

Conducting public scoping meetings where comments are gathered to define the issues that should be analyzed

Preparing the draft EIS

Receiving and responding to public comments on the draft EIS

Preparing the final EIS

Announcing the decision in the Record of Decision

"NASA will be working with community stakeholders and the public for input as the first step in the EIS process," said Keith. "We will advertise public scoping meetings in local newspapers." In addition, people will be able to send comments and questions via email and regular mail. The draft EIS is currently scheduled to be released approximately 18 months from the initial scoping meeting. ★

At a Glance

NASA's **Community Information Session** on May 4, 2010 in Chatsworth drew some 80 people to view a series of displays and talk directly with experts like NASA's Ashley Boudreaux about the SSFL cleanup project (top left).

William Preston Bowling of ACMELA.org attended the CIS along with NASA Assistant Administrator Olga Dominguez and NASA SSFL Project Director Allen Elliott (center left).

NASA completed an **Integrated Cultural Resources Management Plan (ICRMP)** in 2010, providing decision-makers with the necessary information for the management of significant cultural resources recorded during various site-wide surveys. The pictograph (top right) and rocket test stand (bottom right) are both resources within NASA-administered property. The Burro Flats Painted Cave and Community Mill archaeological site has been listed on the National Register of Historic Places (NRHP) since 1975. The rocket stand shown, along with other historic structures, is eligible for NRHP listing.

NASA's SSFL Cultural Resources Manager at the time Donna Leach (in the foreground) guided a tour for Native American tribal members visiting ancestral grounds at the Burro Flats Painted Cave. Fact sheets on the historical and archaeological surveys and the full ICRMP are available on the SSFL website (bottom left).



Santa Susana Field Laboratory Environmental Cleanup & Closure Website

<http://ssfl.msfc.nasa.gov>

SITE-WIDE GROUNDWATER Remedial Investigation

More than 20,000 groundwater samples have been collected from more than 485 groundwater monitoring locations over nearly a quarter century and have produced almost a half-million analytical records. Samples collected from the groundwater monitoring network cover an area of about 11 square miles and extend to depths beyond 1,000 feet. Over 7,800 rock core samples have been collected from more than 40 locations to depths of 1,400 feet and analyzed over the last 12 years to supplement the groundwater sampling results. This substantial body of data has been collected during the Remedial Investigation (RI) phase of the cleanup process over a period exceeding more than two decades. "It's quite a milestone to have synthesized all of this science into one report," said NASA Project Director Allen Elliott. Findings from these investigations have been summarized in a Draft Site-wide Groundwater Remedial Investigation Report and submitted

For the Record

To investigate chemicals in the environment, two SSFL Operable Units were established. The Surficial Media Operable Unit (SMOU) includes soil, soil gas, sediment, surface water, shallow groundwater and weathered bedrock. The Chatsworth Formation Operable Unit (CFOU) includes the vadose zone bedrock (dry), saturated bedrock and deep groundwater, collectively referred to as the site-wide groundwater investigation.

in December 2009 by NASA, Boeing and DOE to DTSC, the agency overseeing the cleanup process. The report is expected to be available for public comment in 2011. (Other environmental media investigation results have been and are being reported separately. See side bar at left.)

In other groundwater news

NASA, DOE and Boeing have developed the Data Gaps Sampling and Analysis Plan (SAP) assessing the nature and extent of site-related chemicals and radionuclides in groundwater and the unsaturated bedrock at SSFL. The draft SAP, submitted to DTSC in March 2010, provides an approach and scope of work to address the data gaps identified in the Draft Site-wide Groundwater RI report.

In October 2010, NASA submitted a Technical Memorandum to DTSC describing the approach and results of a review that NASA, DTSC and other SSFL partners conducted of each monitoring well, excluding groundwater seeps, at or near SSFL. Each monitoring location was characterized and evaluated for its attributes and purpose within the SSFL groundwater monitoring program.

NASA and other SSFL partners continue to meet with DTSC staff to facilitate a better understanding of technical issues related to groundwater.★



Groundwater U is a series of six education sessions and a field trip designed to help interested stakeholders prepare to review the Draft Site-wide Groundwater Remedial Investigation Report. The public will have the opportunity to provide input on the report when DTSC conducts formal public comment meetings in 2011.

This series is **free** of charge. Registration is recommended. All sessions begin at 6:30 p.m.

Series One ► Grand Vista Hotel
999 Enchanted Way
Simi Valley, CA

March 8
Geology and Hydrology

March 15
Contaminant Fate and Transport

April 5
Groundwater Remediation Approaches

Series Two ► Building 8413 Auditorium
Corporate Point West Hills
8413 Fallbrook Avenue
West Hills, CA

April 28
Groundwater Flow
at the SSFL

May 5
Contaminant Sources
at the SSFL

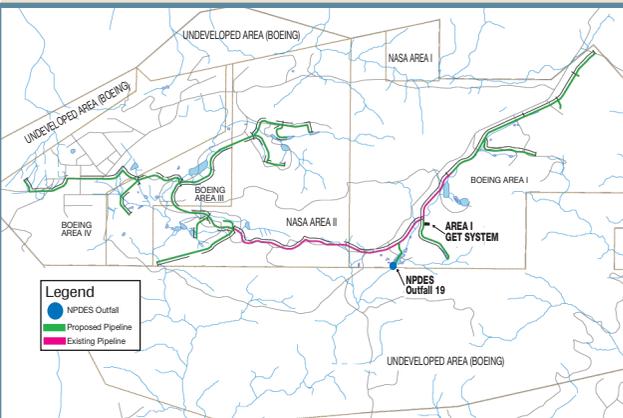
May 19
Contaminant Fate and Transport
at the SSFL

Registration is required for the field trip to be held on April 30.

Information ► Go to
<http://groundwateru1.eventbrite.com>
or call Debbie Kramer at 818-466-8898.

Groundwater Treatment “GETS” READY TO GO

A Groundwater Interim Measures Work Plan was submitted by NASA, Boeing and DOE to the Department of Toxic Substances Control (DTSC) in September 2008. The Work Plan, as required by the DTSC 2007 Consent Order, proposes treating groundwater on an interim basis with a Groundwater Extraction and Treatment System (GETS). The system



as a whole is designed to extract groundwater from fourteen wells across SSFL and deliver it via a network of new pipelines to the centralized treatment facility located on Boeing property in Area I. (See map.) The treatment facility contains equipment for a number of technologies capable of removing chemicals from groundwater.

The facility has been partially operational since early October 2009 with groundwater being extracted from one well (NASA

well WS-09A) located in the southwest portion of Area II. Extracted groundwater from WS-09A has been treated at the facility prior to off-site disposal.

When the GETS is fully operational, groundwater will be delivered via the new pipelines to a large storage tank. Depending on the water quality and chemicals of potential concern present, the water then will be sent through a series of integrated treatment technologies and discharged through a permitted outfall. (See sidebar.)

The extracted groundwater will be sent through a series of integrated treatment technologies for removing chemicals.

In a June 3, 2010 stormwater permit hearing, the Los Angeles Regional Water Quality Control Board (RWQCB) gave permission to relocate Outfall 019, which is the discharge of SSFL treated groundwater. Under the National Discharge Pollutant Elimination System (NDPES) permit, the new outfall serves as the final stop for the treated water on SSFL property before discharging into regional drainage waterways. Outfall 019 has been constructed, and site operators will monitor the GETS discharge to see that treatment is working properly and that it is meeting the goal of improving water quality.

As soon as comments are received from DTSC on the Groundwater Interim Measures Work Plan, construction on the remaining pipelines can begin. It is estimated that pipeline construction will last nine to twelve months.★



Filtration

removes sediments, suspended and dissolved liquids.

Ion Exchange

removes dissolved perchlorate and/or metals by attaching to plastic beads called resin. (Any residuals from this or other treatment processes are characterized, documented and transported off site for proper disposal or regeneration at a licensed facility.)

Advanced Coagulation/Precipitation

removes the waste particles in water.

Air Stripping

removes volatile organic compounds (VOCs) by forcing air through water causing liquid to change to a gas (evaporate), carrying the chemical gases to the top of the tank. The vapor generated by this process is collected and cleaned before being discharged to the atmosphere.

Liquid Phase Granular Activated Carbon (GAC)

removes VOCs with charcoal-like carbon particles that attract and accumulate chemicals.

Ultraviolet (UV) Oxidation

UV light is used to disinfect water transported through the system.

FOR MORE INFORMATION

Contact

Merrilee Fellows
NASA Manager for
Community Involvement
Phone 818-393-0754
Email mfellows@nasa.gov

Fact Sheets

NASA has put together several fact sheets that are available on our website at <http://ssfl.msfc.nasa.gov> or by calling 818-393-0754.

An Overview of NASA'S History at SSFL

The Use of Trichloroethylene at NASA'S SSFL Sites

Historic Resources Survey

NASA'S Interim Source Removal Action

Archaeological Resources Survey

A Look Back at Space Engine Testing

SSFL 2010 Year in Review

ALL ABOARD for an SSFL Tour

Are you the type of person who likes field trips? Then hop aboard. Bus tours for the public were re-instituted at SSFL last year. Hosted by Boeing, NASA and DOE, tours were conducted on several Saturdays in 2010: three during the summer, one in October and one in December. "We have been really pleased with the turnout for our community bus tours," said NASA Manager for Community Involvement Merrilee Fellows. Some 300 visitors to date have toured the undeveloped open spaces and various locations undergoing site investigation and cleanup activity across SSFL. These bus tours have enabled people to see and learn about efforts by NASA, Boeing and DOE at their respective locations. Among the places of interest visited on these tours are the newly constructed groundwater extraction and treatment system (see GETS article), stormwater drainage and outfalls, and historic rocket test stands. For community member Danny Milligan, the tour was "a positive and exciting opportunity." He and three friends were among those on board last August. "I knew some of the issues before the tour," said Mr. Milligan. "Being there gave

We have been really pleased with the turnout for our community bus tours.

me a better feel for the physical facility and the geography of the area.

I was able to get a more in-depth view of specific issues facing the cleanup project. My greatest interest was in learning about the historic test operations. They really brought it to life and gave us a much greater appreciation of the crucial role this facility played in history." Would he recommend the bus tour to others? Mr. Milligan replied, "It was definitely well worth it." Additional tours are scheduled for 2011 (See sidebar.) Merrilee Fellows said, "I enjoyed speaking with Mr. Milligan while on the tour. I think having an up-close look at the project is really important to our collective understanding and it builds a bond between the community and the NASA folks working at SSFL." NASA also provides tours for small groups with interest in particular topical activities such as during public comment periods relating to site characterization of specific locations.★



Passengers on a bus tour at SSFL stretch their legs as they explore the R2 pond area.

2011 TOURS

April 16

May 14

July 16

October 29

November 12

If you would like to join us, please call 818-466-8163, or email santasusanacomunitytours@boeing.com to reserve your spot on the bus. Space is limited to 25 passengers per tour and RSVPs will be taken on a first come, first served basis.