



Message from the Managers

Site Studies Completed, Draft EIS Released

We are pleased to announce the completion of another major milestone: the *Draft Environmental Impact Statement for Remediation of Area IV and the Northern Buffer Zone of the Santa Susana Field Laboratory* (Draft EIS) is now available for your review and comment. The Draft EIS is the culmination of years of in-depth study by environmental and technical experts and will serve as the basis for analyzing a range of alternatives for the cleanup of Area IV and the Northern Buffer Zone (NBZ).

DOE reviewed and analyzed the data from soil sampling conducted by the U.S. Environmental Protection Agency (USEPA) and by the U.S. Department of Energy (DOE) with California Department of Toxic Substances Control (DTSC) oversight. This review and analysis led to the conclusion that, for the most part, the cleanup in Area IV will be for chemically impacted soil rather than for radionuclide impacted soil. In fact, less than 10 percent of the volume of soil that has been determined to exceed the Look-Up Table (LUT) values published by DTSC is radiologically impacted. In addition, USEPA identified specific areas of localized exceedances of LUT values for radionuclides. Exceedances of chemical LUT values are more spread out across all of Area IV and the NBZ.

In May 2012, near the completion of its field sampling in Area IV, USEPA stated that these activities were a part “of the most robust technical investigations ever undertaken for low-level radioactive contamination.” Ultimately, the combined radiological and chemical data collected and analyzed during all the investigations at Area IV provide an unambiguous understanding of the true nature and extent of contamination at the site. They also document that the contamination is onsite, and has not migrated to the surrounding communities. Further, workers and escorted guests can walk around Area IV and the NBZ without fear of harm from contaminants.



Soil sampling in Area IV

Completion of studies in Area IV provided DOE with the information needed to develop the clean-up alternatives evaluated in the Draft EIS. These studies also served as the foundation for the environmental analyses in the Draft EIS. Pages 2 and 3 of this newsletter discuss the comprehensive studies undertaken at Area IV and summarize their findings. Pages 4, 5, and 6 describe the Draft EIS, its contents, and how you can provide input.

Our agency and personal mission is to clean up the contamination and ensure the land is suitable for future public use. With that in mind, we look forward to your comments on the Draft EIS, which explores and evaluates options for cleaning up Area IV and the NBZ, a goal we all share.

Sincerely,



John Jones,
Federal Project Director,
DOE ETEC



Stephie Jennings,
Deputy Federal Project Director,
DOE ETEC

Completion of the Area IV Studies

Now that comprehensive studies spanning more than five years at Area IV has wrapped up and their findings analyzed, DOE can now say with confidence where contamination exists at Area IV, and to what extent. This effort included the collection of more than 10,000 soil samples for radiological and chemical analysis, the completion of background and characterization studies, and the active involvement of DOE, USEPA, and DTSC. The findings of the sampling and

the resulting studies are discussed in greater detail in the Draft EIS and are summarized below. Perhaps more importantly, these studies and their results served as the foundation for the environmental analysis of the Draft EIS and will provide the blueprint for Area IV cleanup.

What are the LUTs and why are they important?

L-U-T, you've heard these three letters before, but what do they actually mean? Simply stated, the Look-Up Table (LUT) values are action levels that DTSC determined consistent with the 2010 AOC. These action levels are extremely low and do not compare with other sites across California with similar environmental impacts.

LUT values are based on two considerations: 1) If a chemical (or radionuclide) is naturally present in soil at SSFL, then the LUT value is the background value set by DTSC for chemicals and USEPA for radionuclides; or, 2) If the chemical/radionuclide is not naturally present in soil and not detected, (or in the case of man-made radionuclides that have an off-site origin and are present due to fallout), then the LUT value is the analytical detection limit (the smallest amount instruments can detect above background levels).

Under these standards, soils that are found to have chemical or radionuclide concentrations over the LUT values would need some type of remediation. Some LUT facts:

- Required by the 2010 AOC and were developed by DTSC with input from USEPA;
- Established for 16 radionuclides and more than 116 chemicals; and
- If backfill soil is chosen as one of the remediation measures for Area IV, then chemicals and radionuclides in that soil must meet the LUT values.

If you'd like to see the LUT values for yourself, the chemical LUTs can be viewed here: www.dtsc-ssfl.com/files/lib_look-uptables/chemical/66073_06112013lutand_cover.pdf and the radiological LUTs can be found here: www.dtsc-ssfl.com/files/lib_look-uptables%5Cradiological/66513_65861_Draft_Provisional_Radiological_Look-Up_Table_Values_1-30-13.pdf. In addition, Appendix D of the Draft EIS lists the LUT values and discusses their development in greater detail.

Radiological soil studies and sampling overview

The December 2012 *Final Radiological Characterization of Soils, Area IV Radiological Study* (http://www.dtsc-ssfl.com/files/lib_doe_area_iv/epaareaivsurvey/techdocs/65789_Final_Radiological_Characterization_of_Soils_122112.pdf) reported the findings of surface and subsurface soil sampling and produced a definitive characterization of radionuclides present within Area IV and the NBZ. The effort included a Historical Site Assessment, published in October 2012, of past operations and radiological releases to identify locations for soil sampling, a gamma radiation scan (also to identify areas for soil sampling), collection and radiological analysis of 3,487 soil and 55 sediment samples, and radiological characterization of groundwater and surface water.

Of these samples, man-made radioactive materials equal to or exceeding background levels (levels found in soils near SSFL not affected by past activities there) were detected in 423 samples (12 percent). Said another way, man-made radionuclides were not detected above background levels in more than 88 percent of the total number of samples. Of note:

- Cesium-137 (exceeded in 291 samples) and strontium-90 (exceeded in 153 samples) were the two site-related radionuclides most frequently observed in USEPA's samples.

These findings allowed DOE to isolate and identify the areas of Area IV and the NBZ that have radionuclide levels exceeding the LUT values (see text box to the left, "What are the LUTs and why are they important?").

Chemical soil studies and sampling overview

In 2012, DTSC released a study outlining what chemicals existed in soils not impacted by past SSFL activities. In accordance with the 2010 AOC, the results of this background study were used to identify, in subsequent sampling, areas that had measurable chemical concentrations resulting from operations in Area IV. In parallel with USEPA's radiological characterization, DOE performed chemical characterization of Area IV and the NBZ in three phases, which resulted in the collection and chemical analysis of 5,854 samples (under the oversight of DTSC).

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Completion of the Area IV Studies (CONTINUED FROM PAGE 2)

What was found? Among the chemicals most frequently observed in soils at concentrations exceeding LUT values were polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs), dioxins, and metals (antimony, cadmium, chromium VI, mercury, selenium, and silver). Now that the contaminants and their locations have been identified, DOE will work to clean up these areas, once the Record of Decision is signed and the cleanup actions are decided.

Results of all these years of chemical sampling, study, and analysis are summarized in the *Chemical Data Summary Report*, which is available at: [\[insert URL\]](#).

As mentioned, cleaning up the chemical contaminants, which is the majority of the soil cleanup volumes, will also address the less than 10 percent of soils above the radiological LUT values.

What's happening with groundwater?

Following completion of the soil sampling work described above, DOE turned its focus toward groundwater contamination, reviewing more than 25 years of data to determine the path forward to complete groundwater remedial investigations at Area IV. Here's an update:

- Historic data illustrated localized areas of contamination by solvents, particularly trichloroethylene (TCE) and tritium (an isotope of hydrogen);
- Review of this data also identified several data gaps, described by DOE in the *Groundwater Remedial Investigation (RI) Work Plan*. Following acceptance of the plan by DTSC, DOE implemented field work, installing 11 new wells;
- The preliminary findings show TCE to be present in bedrock fractures at the Former Sodium Disposal Facility (FSDF), mainly near the upper portion of bedrock;
- DOE is currently reviewing the data and is developing the Area IV Groundwater RI Report, which will be released in early 2017 following DTSC review;
- One interesting finding from recent groundwater sampling is that the ongoing drought has greatly decreased groundwater recharge in Area IV – groundwater levels have dropped significantly, in some areas by as much as 100 feet;
- Groundwater is no longer in contact with TCE in upper bedrock, and TCE is no longer being washed out of bedrock fractures. This doesn't mean that the contaminants are gone; the chemicals could potentially still be in the upper bedrock; and
- DOE expects that the contaminant concentrations could potentially rise whenever the drought ends and rainfall returns to normal amounts.

DOE maintains a network of about 90 groundwater monitoring wells placed across Area IV. The wells are routinely monitored for solvents, metals, perchlorate, and radionuclides. Sampling data indicates that the contaminants have only moved in groundwater a few hundred to a thousand feet from where the contaminants were released into soil and bedrock.

DOE remains committed to meeting its groundwater cleanup obligations as defined in the 2007 Consent Order for DOE specific areas within Area IV. Following completion of the Groundwater RI Report, DOE will release a Corrective Measures Study in summer 2017 that will evaluate a range of cleanup options for groundwater issues in Area IV.

What about the

FALS

FALs. You might have heard this acronym associated with Area IV. Early in the process of Area IV sampling, USEPA provided DTSC with recommendations to develop radionuclide LUT values in accordance with the 2010 AOC. DTSC defined the cleanup levels to be the LUT values, and these are the levels that DOE would be directed to remediate towards under the 2010 AOC. The Field Action Levels (FALs) were an initial step used during site characterization studies to identify areas of potential radiological contamination that would eventually be investigated, sampled, and compared with the LUTs. After adding in uncertainly factors, the FALs were renamed the radiological trigger levels (RTLs), but the two are often used interchangeably.

USEPA noted in a November 2013 technical memo that it “does not recommend the use of those [RTLs] for future phases of the project.” USEPA also indicated in its December 2012 *Final Radiological Characterization of Soils for Area IV and NBZ* that the FALs would not be appropriate for determining cleanup decisions: “Results that exceed USEPA’s FAL are potential locations that may require further investigation and/or remediation dependent upon the LUT values. However, these results do not represent areas of contamination or areas of remediation.” While the FALs were a very useful tool in identifying areas of potential concern early in the process, they are not the criteria that will be used to guide the remediation of Area IV and the NBZ.

A Primer for the Draft EIS, Alternatives, and How to Comment

The Draft EIS is now available for review and comment. The full document can be found here: www.SSFLAreaIVEIS.com. What follows is a bit of information about the document, a brief summary of the alternatives it analyzed, and some vital details about commenting on the Draft EIS. Some key facts:

- DOE prepared the Draft EIS in accordance with the National Environmental Policy Act of 1969, as amended, and its implementing regulations;
- The National Aeronautics and Space Administration (NASA), the U.S. Army Corps of Engineers (USACE), and the Santa Ynez Band of Chumash Indians participated as cooperating agencies as the Draft EIS was developed;
- The Draft EIS analyzes the potential environmental impacts of alternatives for conducting cleanup activities in Area IV of the SSFL and the NBZ;
- The cleanup addressed in the Draft EIS applies to the 290 acres of Area IV, one of the four areas used for research at SSFL that began in the 1950s and ended in 1988, and to 182 acres in the adjacent NBZ; and
- Cleanup on other portions of SSFL will be led by Boeing and NASA, who used SSFL Areas I, II, and III for rocket engine testing and those areas are not addressed in DOE's Draft EIS.

Remediation, the removal of pollution or contaminants from parts of the environment such as soil, groundwater, or surface water, is needed to clean up residual chemicals and radionuclides from historical DOE operations at the Energy Technology Engineering Center (ETEC) in Area IV. The alternatives analyzed in the Draft EIS involve the remediation of soil and groundwater, disposition of the remaining 18 structures owned by DOE in Area IV, and the disposal of all resulting waste at existing licensed or permitted facilities in a way that's protective of the environment and the health and safety of the workers on the site and the general public off site.

Soil

For soil remediation, DOE's proposed action is to implement the technical requirements of the 2010 Administrative Order on Consent for Remedial Action (2010 AOC) between DOE and DTSC – that is, clean up to meet the Look-Up Table (LUT) values (see text box on page 3, “What are the LUTs and why are they important?”) for residual concentrations of chemicals and radionuclides in soils that were established in accordance with the 2010 AOC. The proposed action is analyzed in the Draft EIS as the “Cleanup to Administrative Order on Consent LUT Values Alternative.” Consistent with the requirements of the National Environmental Policy Act (NEPA), the Draft EIS also analyzes other reasonable alternatives for DOE's soil remediation action.

The Draft EIS evaluates the following four alternatives for soil remediation:

- **No Action Alternative** – DOE would continue monitoring and maintenance activities and ensure that site security is maintained. There would be no treatment of soil to reduce constituent concentrations and no soil would be removed for disposal off site; soil would be left in place. NEPA requires the evaluation of a No Action Alternative.
- **Cleanup to AOC Look-Up Table Values Alternative** – DOE would start at one side of the site and proceed across Area IV and the NBZ, removing soil exceeding the LUT values established in accordance with the 2010 AOC, and would employ point-by-point determination. A point-by-point determination is based on protocols described in the 2010 AOC and compares every soil sample with the AOC LUT values for 116 chemicals and 16 radionuclides. Should any chemical or radionuclide exceed its respective AOC LUT value, then the soil would be removed.
- **Cleanup to Revised Look-Up Table Values Alternative** – DOE would remove all soil exceeding the revised LUT values in Area IV and the NBZ. Chemical cleanup levels would be based on a “suburban residential scenario,” as outlined in the *Final Standardized Risk Assessment Methodology Revision 2 Addendum, Santa Susana Field Laboratory, Ventura County, California* (SRAM) (www.dtsc-ssfl.com/files/lib_risk_assess%5Csram%5Csram/66535_Final_SRAM_Rev2_Addendum.pdf). These levels would be based on an increased cancer incidence risk of no more than 1 chance in 1 million and a hazard index of 1 for non-carcinogenic materials (the level below which no toxic effects would be expected). The radionuclide LUT values would be the same as for the Cleanup to AOC LUT Values Alternative. Decisions would also be made on a point-by-point basis for this alternative.

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A Primer for the Draft EIS, Alternatives, and How to Comment (CONTINUED FROM PAGE 4)

- **Conservation of Natural Resources Alternative** – DOE would clean up soil to a level that would protect human health by removing soil with concentrations of chemical or radioactive constituents that exceed criteria established using a risk assessment process. This alternative would reduce risk to the public and the environment, yet conserve natural resources, including biological, cultural, and water resources. Cleanup levels would be based on a “suburban residential scenario” as outlined in the SRAM, averaging the concentrations over a risk assessment area. Radiologically impacted soil would be removed to levels based on DOE’s national standards for radionuclide cleanup.

Buildings

The Draft EIS evaluates the following two alternatives for building demolition:

- **No Action Alternative** – The 18 DOE-owned structures in Area IV would remain in place, but DOE would conduct surveillance, monitoring, and maintenance as needed for safety. Because radiological materials would remain in some buildings, DOE would continue its responsibilities in accordance with the Atomic Energy Act and ensure continuation of security that restricts access to Area IV and the structures.
- **Building Removal Alternative** – DOE would demolish the 18 structures it owns in Area IV and dispose of or recycle the materials off site, per state and Federal regulations.

Groundwater

The Draft EIS evaluates the following three alternatives for groundwater remediation:

- **No Action Alternative** – Current groundwater monitoring and treatment would continue. DOE would not implement additional monitoring or treatment actions. Over time, concentrations of radiological and chemical constituents would be reduced through natural attenuation (decay, degradation, dispersion, and dilution).
- **Groundwater Monitored Natural Attenuation Alternative** – No active remediation of groundwater plumes would occur. The plumes would be sampled (i.e., monitored) on an established schedule to confirm that reduction of the contaminant concentrations continues as anticipated. Monitoring periods would be based on the expected natural chemical decomposition or radionuclide decay over time.
- **Groundwater Treatment Alternative** – Groundwater plumes would be treated using active treatments selected from among pump and treat, enhanced in-place treatment, soil vapor extraction, and dewatering. In the case of a source of contamination present in bedrock, removal of the bedrock is evaluated.

Public hearings and how to comment

DOE invites you to comment on the Draft EIS during the public comment period that began when the USEPA published a Notice of Availability for the Draft EIS in the *Federal Register* on January 13, 2017. The public comment period will remain open for 60 days, until March 14, 2017. DOE will consider late comments relevant to the Draft EIS to the extent possible. When it prepares the Final EIS, DOE will consider and respond to all comments received during the Draft EIS comment period, giving equal consideration to all comments they receive.

During the public comment period, DOE will hold two public hearings on the Draft EIS. The hearings will provide an opportunity for members of the public to learn more about the project, provide comments on the Draft EIS, and speak with project and subject matter experts. Persons wishing to speak at the public hearings should come prepared to speak for a maximum of three minutes and will be accommodated on a first-come, first-serve basis, according to the order in which they register to speak prior to the meeting. A court reporter will be present to record oral comments during the public hearings. DOE will make every effort to accommodate persons with physical disabilities or special needs. If you require special accommodations due to a disability (including sign language interpretative services), please contact Stephanie Jennings as soon as possible in advance of the meeting at (805) 842-3864.

We invite you to attend one or both of the hearings: the Grand Vista Hotel, Valley Ballroom, 999 Enchanted Way, Simi Valley, CA, on Saturday, February 18, 2017, from 9:30 a.m. to noon, with an open house from 9 to 9:30 a.m., and at the Airtel Plaza Hotel, Gulfstream Ballroom, 7277 Valjean Avenue, Van Nuys, CA, on Tuesday, February 21, 2017,

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A Primer for the Draft EIS, Alternatives, and How to Comment (CONTINUED FROM PAGE 5)

from 6:30 to 9 p.m., with an open house from 6 to 6:30 p.m. Free parking will be available at the Grand Vista Hotel hearing; parking validation will be provided at the Airtel Plaza Hotel hearing.

If you are unable to attend one of the public hearings, there are two other ways to submit comments about the Draft EIS:

- **Mail comments via U.S. Postal Service to:**

Ms. Stephanie Jennings
NEPA Document Manager, SSFL Area IV EIS
U.S. Department of Energy
4100 Guardian Street, Suite 160
Simi Valley, CA 93063

- **Comment via the project website** at www.SSFLAreaIVEIS.com

We look forward to receiving your comments.

For more information: <http://www.etec.energy.gov>; Ms. Debbie Kramer, 805-842-3864, debbie.kramer@emcbc.doe.gov



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