

The Santa Susana Field Laboratory

Presented by

Holly Huff

Dawn Koepke

The Santa Susana Field Laboratory: a Case Study in DTSC Failures



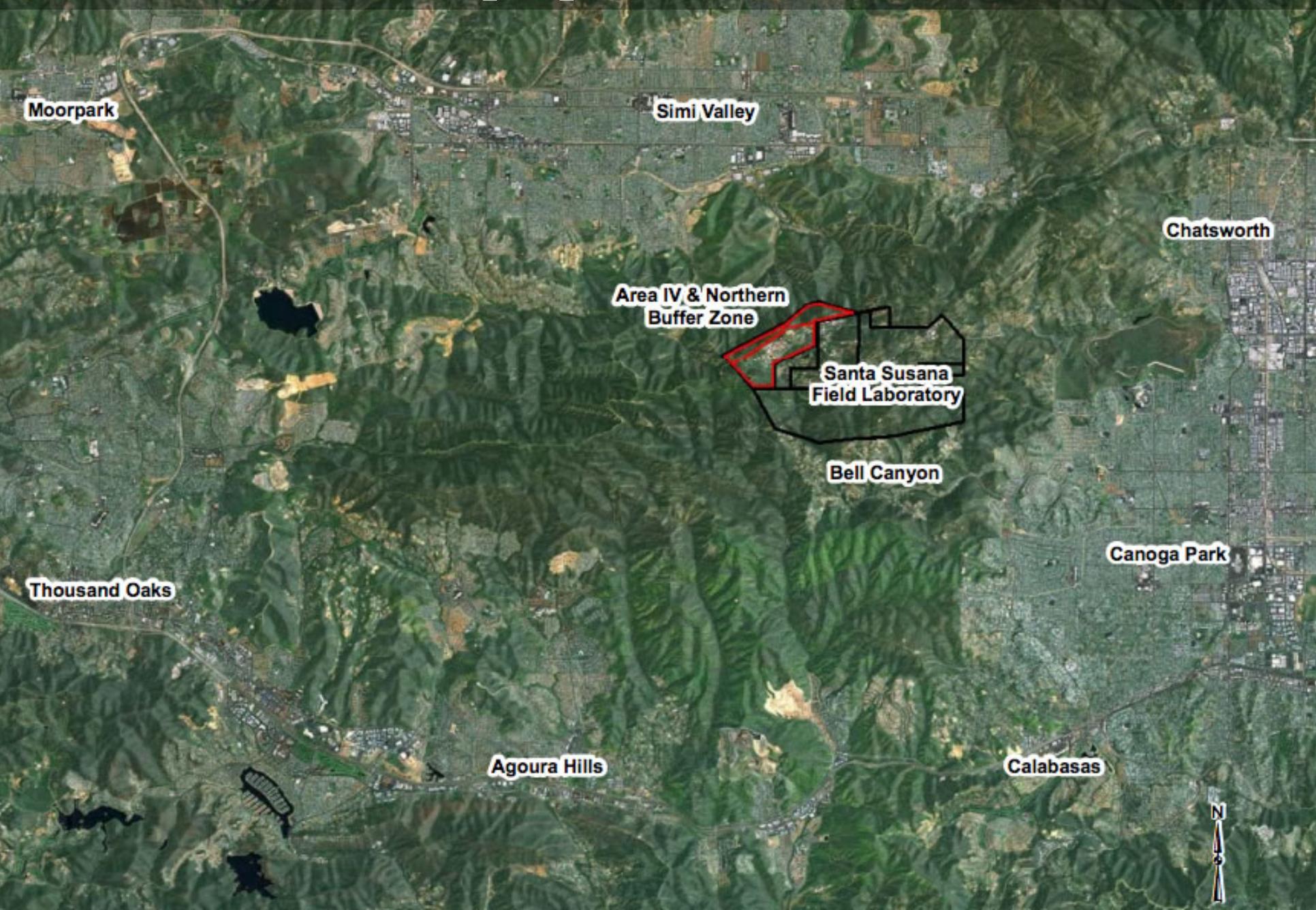
Photo by William Preston Bowling

SSFL History



SSFL was established in the late 40s for rocket testing. In 1949, it was chosen for nuclear testing that was too dangerous to do in a populated area. Population has since dramatically increased.

Now, half a million people live within 10 miles of SSFL.



SSFL nuclear work occurred over four decades.

Sodium Reactor Experiment (site of 1959 partial meltdown) AE-6 reactor (site of radioactive gas release)

Radioactive
Materials
Handling
Facility
(Site of
radioactive
leaks)

SNAP 8
Experimental
Reactor
(Accident: 1964)

SNAP 8
Development
Reactor
(Accident: 1969)

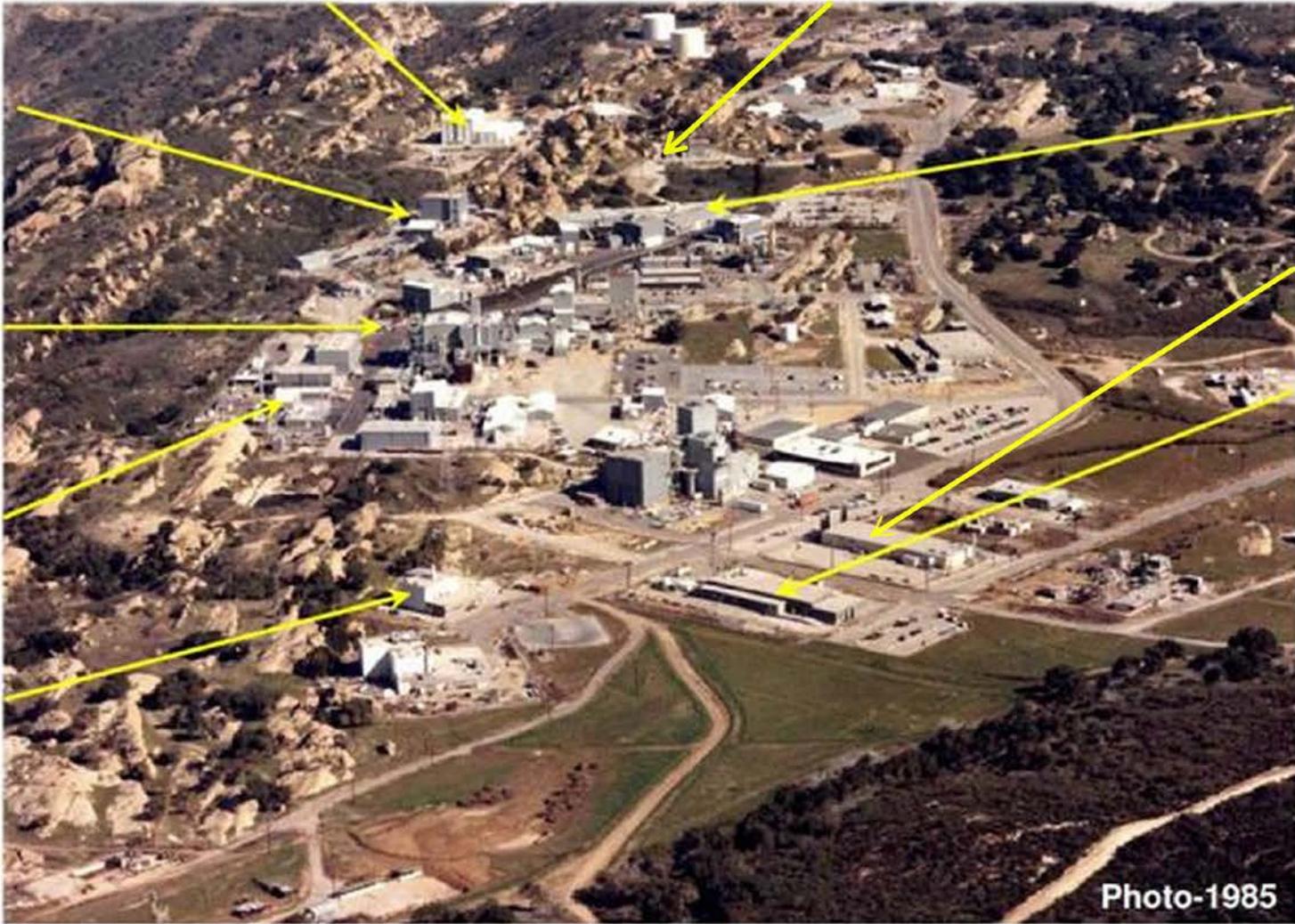
Advanced
Epithermal
Thorium
Reactor

Sodium
Burn Pit
(Site of illegal
open-air burning
of radioactive
waste)

Liquid
Metals
Component
Test Lab

Plutonium
Building

Hot
Laboratory
(Site of
several
radioactive
fires)



Nuclear Area at Santa Susana Field Laboratory

 Over 30,000 rocket engine tests took place over five decades.



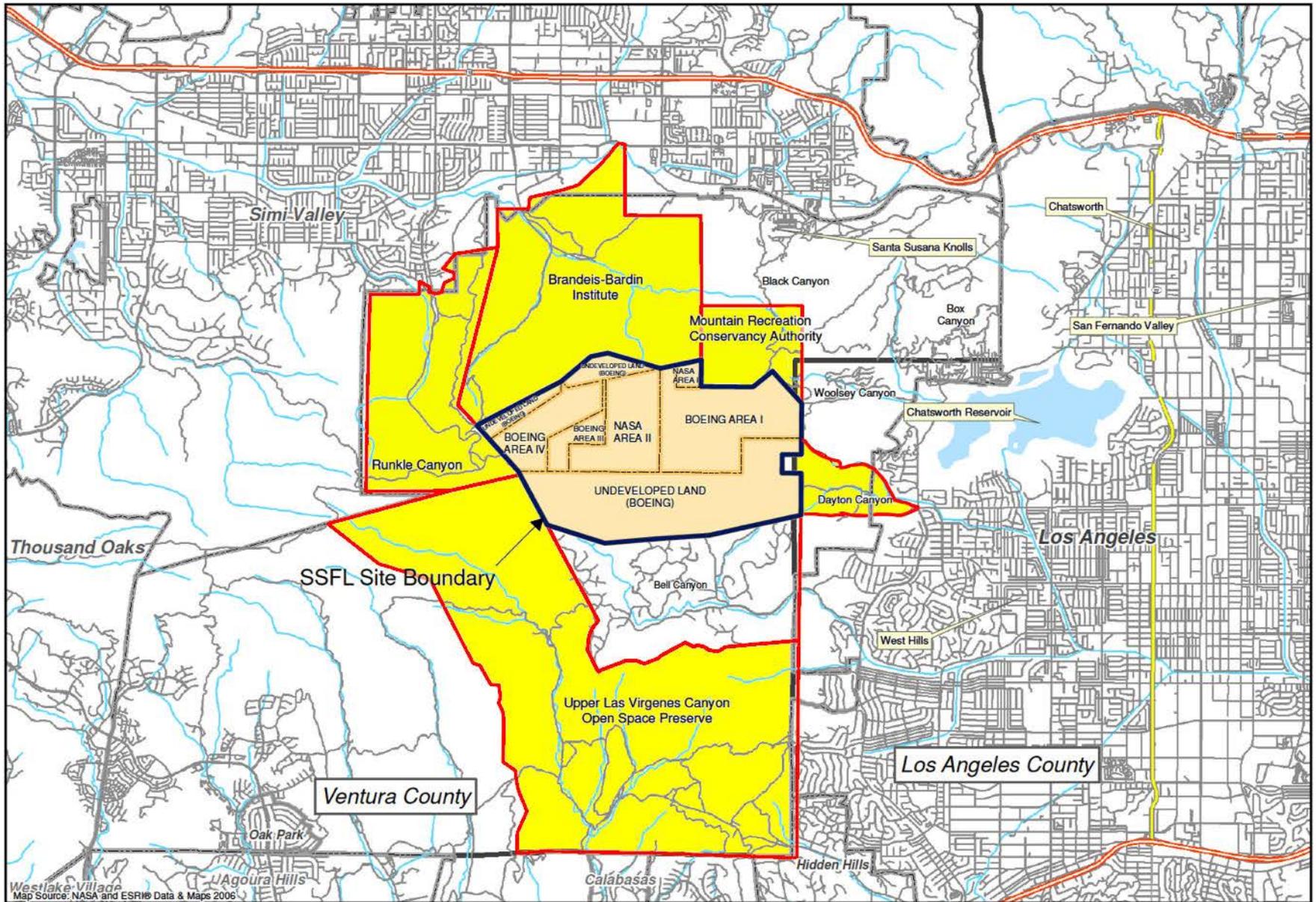
Contaminants of Concern

Radionuclides: cesium-137, strontium-90, plutonium-239 and tritium, among other radioactive materials. In 2012, the EPA found radiation in hundreds of samples at SSFL, in some places over 1,000 times background. Radionuclides are very dangerous because of their high toxicity and very long half-life.

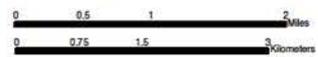
Chemicals: TCE, perchlorate, dioxins, heavy metals, and other volatile and semi-volatile organics. Many are regulated at a few parts per billion (ppb), yet there are very large quantities present in the soil at SSFL. Perchlorate, for example, is not permissible in drinking water at levels greater than 6 ppb. Yet SSFL disposed of tons of perchlorate in open-air burnpits which polluted soil, groundwater and surface water. TCE is regulated at 5 ppb levels. At SSFL, 500,000 gallons are estimated to be in the soil column and aquifer.

These are extremely toxic materials that cause cancers and leukemias; developmental disorders; genetic disorders; neurological disorders; immune system disorders; and much more.

SSFL Contamination has Migrated Offsite



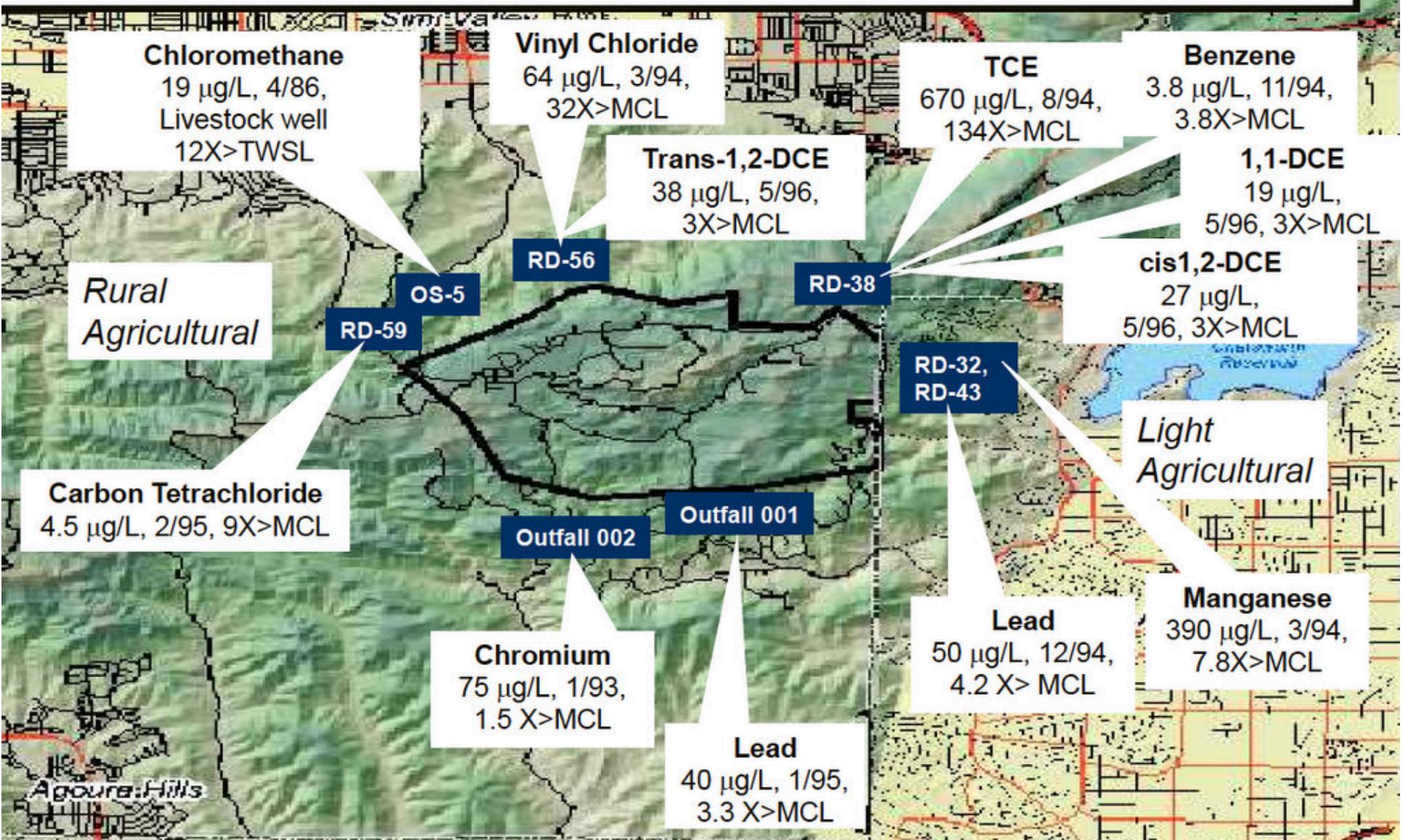
Westlake Village
Map Source: NASA and ESRI® Data & Maps 2006



10-Jul-2013
Drawn by:
A. Cooley

Figure 2.1-1
SSFL Location Map
NASA - Santa Susana Field Laboratory
EIS for Proposed Demolition and Environmental Cleanup

Offsite Wells or Spring Contamination



All concentrations above standards and backgrounds. Dates range from 1992-'94.

Not To Scale

Offsite Soil Contamination

Plutonium-238
0.19-0.22 pCi/g 1992
24mg/kg 1992; BBI;
9.5-11X>Background

Cesium-137
0.22- 0.39 pCi/g 1994
BBI, 2-3.5X>Background

Arsenic
8.2mg/kg 1992; SMMC;
21X>RSSL

Arsenic
24mg/kg 1992; BBI;
61.5X>RSSL

Arsenic
1-3mg/kg 10/98; Las
Virgenes Creek;
2-7X>RSSL

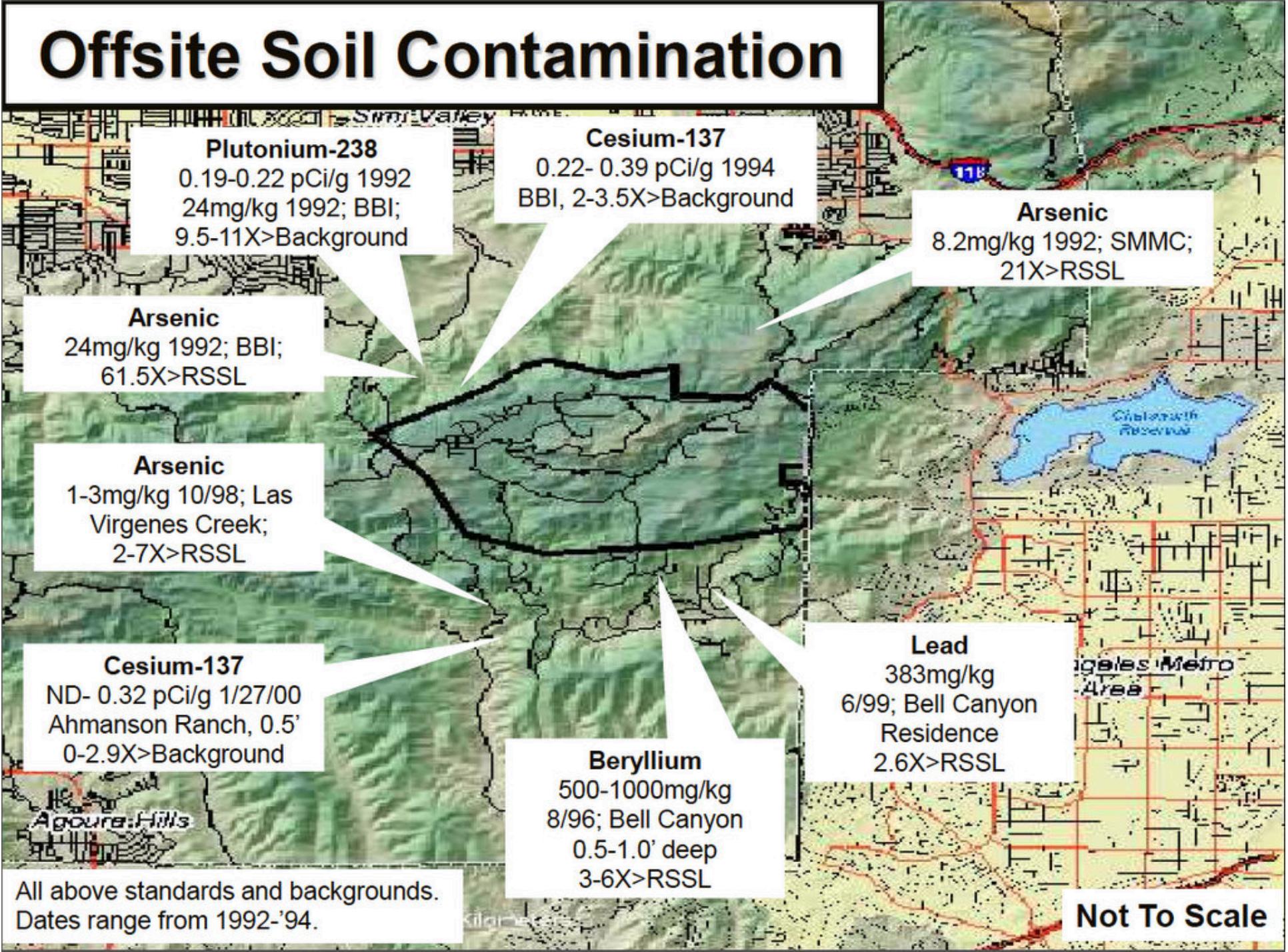
Cesium-137
ND- 0.32 pCi/g 1/27/00
Ahmanson Ranch, 0.5'
0-2.9X>Background

Lead
383mg/kg
6/99; Bell Canyon
Residence
2.6X>RSSL

Beryllium
500-1000mg/kg
8/96; Bell Canyon
0.5-1.0' deep
3-6X>RSSL

All above standards and backgrounds.
Dates range from 1992-'94.

Not To Scale



The headwaters of the Los Angeles River are located at SSFL, near the highly contaminated Alpha rocket test stands.



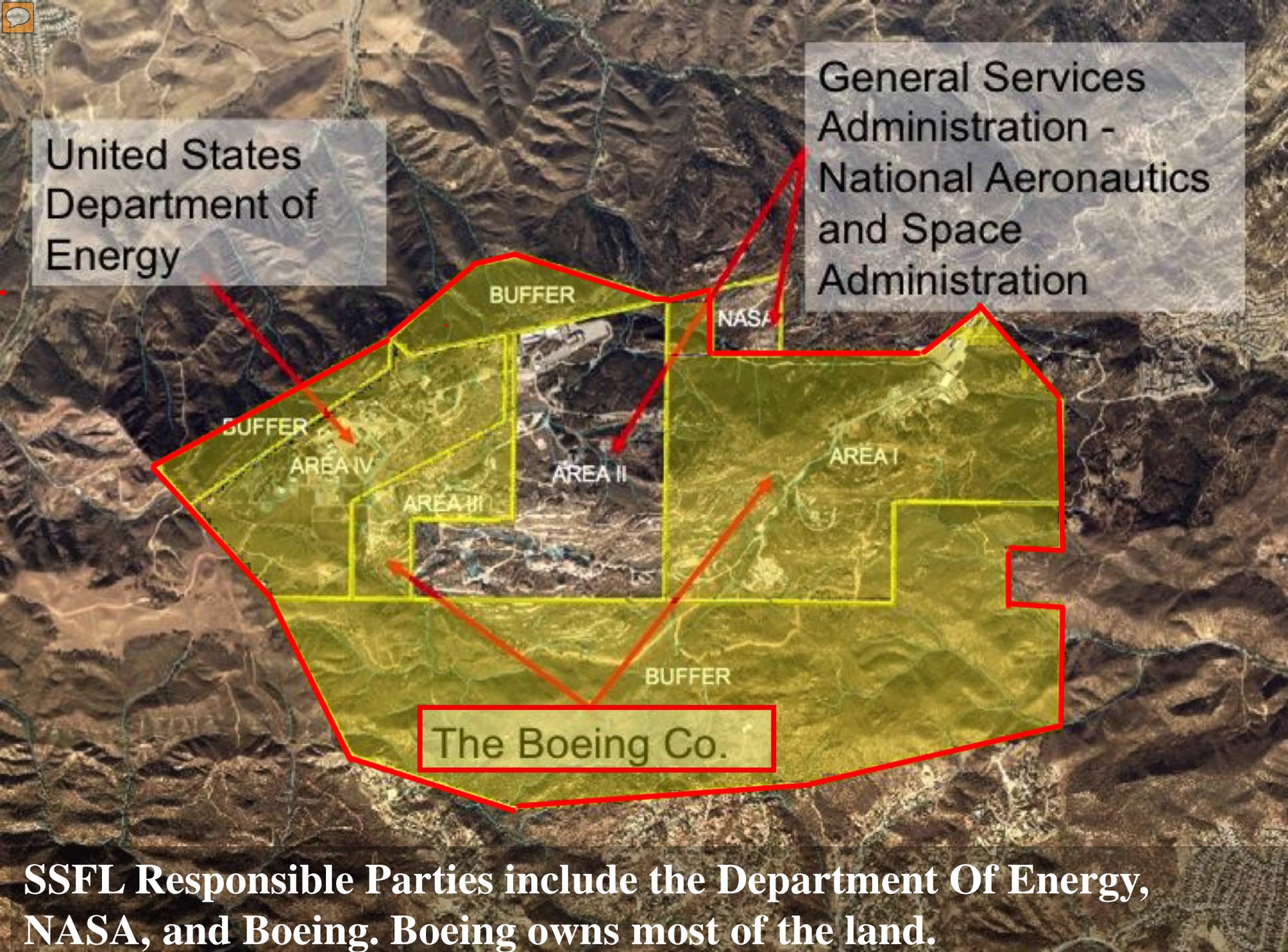
Photo by William Preston
Bowling

SSFL Health Studies

- An extensive, multi-year epidemiological study by the UCLA School of Public Health found significant increases in death rates among the most exposed workers from cancers of the lung, lymph, and blood systems.
- A study for the U.S. Agency for Toxic Substances and Disease Registry (ASTDR), Professor Hal Morgenstern found rates for key cancers in members of the nearby public increased the closer the person lived to SSFL.



“For the period 1988 through 1995, we found that the incidence of cancer was more 60% greater among residents living with 2 miles of SSFL than among residents living more than 5 miles for the following types of cancer: thyroid, upper aerodigestive tract, bladder, and blood and lymph tissue.”



United States
Department of
Energy

The map shows a satellite view of a rugged, mountainous terrain. A large, irregularly shaped area is highlighted in yellow and outlined in red. This area is divided into four sub-sections labeled AREA I, AREA II, AREA III, and AREA IV. A 'BUFFER' zone is indicated by a red outline surrounding the yellow area. A 'NASA' label is placed near the top right of the yellow area. A 'The Boeing Co.' label is placed at the bottom center of the yellow area. Three text boxes are overlaid on the map: 'United States Department of Energy' (top left), 'General Services Administration - National Aeronautics and Space Administration' (top right), and 'The Boeing Co.' (bottom center). Red arrows point from the 'United States Department of Energy' box to the 'AREA IV' and 'AREA III' regions. Red arrows point from the 'General Services Administration...' box to the 'NASA' label and the 'AREA I' region. A red arrow points from the 'The Boeing Co.' box to the 'AREA III' region.

General Services
Administration -
National Aeronautics
and Space
Administration

BUFFER

NASA

BUFFER

AREA IV

AREA II

AREA I

AREA III

BUFFER

The Boeing Co.

SSFL Responsible Parties include the Department Of Energy, NASA, and Boeing. Boeing owns most of the land.

SSFL Cleanup Agreements



In 2010, at long last, Administrative Orders on Consent (AOCs) were signed between the state Department of Toxic Substances Control (DTSC) and the Department of Energy and NASA to cleanup all detectable contamination at their respective portions of the property.

- Also in 2010, DTSC promised that it would require the Boeing Company to clean up its part of the property to the same standards.
- Boeing refused to sign the agreements. It recently submitted to DTSC a proposal that would leave 98% of the contamination not cleaned up.

Then, everything changed.

Boeing and its lobbyists
launched a systemic
campaign to replace:

- DTSC SSFL project manager
- The cleanup agreements
- The community Work Group

Graphic: "Inside Job" Consumer Watchdog

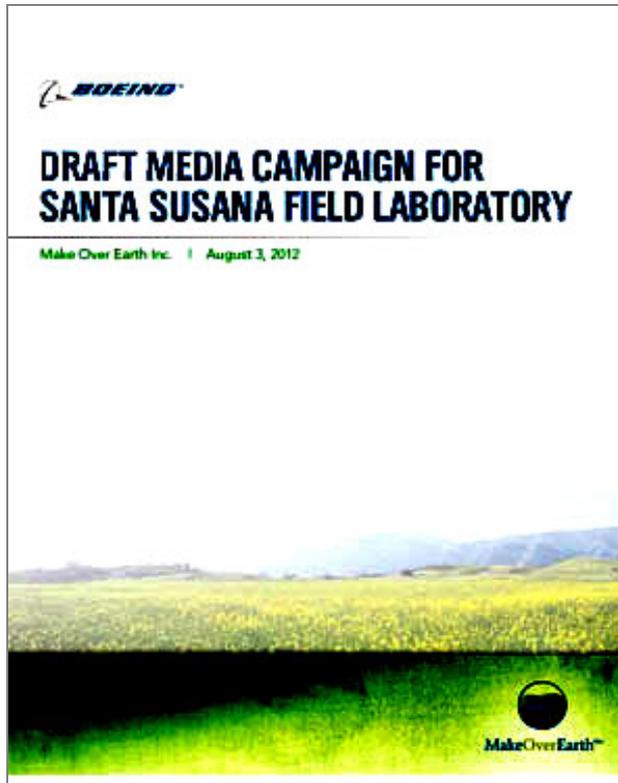
All The Governors' Men



DTSC Failures at SSFL

- **IRP Focus Area – Public Outreach**
 - DTSC replaced the longstanding Work Group with Boeing front CAG that lobbies against the cleanup agreements
 - DTSC’s public meetings designed to prevent public participation
 - DTSC denies health risks and offsite contamination
 - DTSC allows and propagates misinformation about the cleanup
- **IRP Focus Area – Programs, Cleanup**
 - After intervention by Boeing lobbyist, DTSC allowed radioactive waste from SSFL to be sent to sites not licensed for it
 - DTSC has allowed options that violate the AOCs
 - DTSC is poised to approve a Boeing proposal that would leave 98% of the contamination on its part of the property not cleaned up

SSFL - Public Outreach



A media campaign for Boeing states that it will work to identify and “build the stature” of “third parties” who can help blunt “allegations of greenwashing.”

- Boeing hired a firm to canvas the community and urge the creation of a CAG, which Boeing offered to fund. This resulted in the submission of a CAG petition
- In 2010, after receiving a counter petition, DTSC denied the request
- In 2012, under a new director and over the objections of elected officials and community, DTSC accepted another petition for a CAG without verifying signatures
- Also in 2012, DTSC shut down the SSFL Work Group, denying it its own mailing list
- Mere months later, even the original CAG petitioner quit the CAG claiming that it was taken over by Boeing interests

SSFL - Public Outreach

The Santa Susana Field Laboratory

***The AOC Cleanup:
More Harm
Than Good?***

Provided by:

**The SSFL
Community Advisory Group**

About the SSFL Community Advisory Group

The SSFL CAG was formed in 2013 by the California Department of Toxic Substances Control in accordance with State law.

Our volunteer members represent a cross-section of interested and affected neighbors from the surrounding communities.

- The SSFL CAG is composed of many members who are former employees of responsible parties or their contractor. One remains a consultant to the DOE.
- The CAG works to deny SSFL health impacts and offsite migration and lobbies against the cleanup agreements that DTSC signed, propagating demonstrably false information in the process. The CAG uses its DTSC sanction to give it credibility.
- The CAG does not represent diverse viewpoints, as required.
- The CAG has received a \$32,000 gift from an anonymous source.
- Despite all of the above, DTSC continues to sanction and promote the SSFL CAG

SSFL- Public Outreach

The DTSC Sanctioned SSFL CAG propagates misinformation about the cleanup designed to cause the community to oppose the cleanup.

HEALTH OF BIRDS AT SANTA SUSANA

Mark Osokow, San Fernando Valley Audubon Society

The San Fernando Valley Bird Observatory (SFVBO), a scientific program of San Fernando Valley Audubon, has been operating for more than two and a half years at the Santa Susana Field Laboratory (SSFL).

SFVBO counts, captures, marks and releases birds in the Field Lab to evaluate and track bird populations.

SFVBO is also evaluating the effects on birds of activities at SSFL that led to the deposition of chemical and radiological contaminants in the areas that are currently targeted for



Do You Know If an AOC (Background) Cleanup

Is Good for Your Community?



SSFL Cleanup Threatens Pumas

Group Rejects Santa Susana Field Laboratory Cancer Link

By Matt Thacker on July 11, 2014.
news@postperiodical.com

The Santa Susana Field Laboratory Community Advisory Group released a 28-page [document](#) this week rejecting claims that the former rocket engine and nuclear testing facility has caused negative health effects for workers and nearby residents.

Pop Quiz

- What do you do if you see a dust storm like this coming at you?



SSFL - Public Outreach



DTSC presentation at SSFL meeting – November 5, 2015



Small group at SSFL meeting – April 28, 2015.

DTSC meetings are designed to limit public participation.

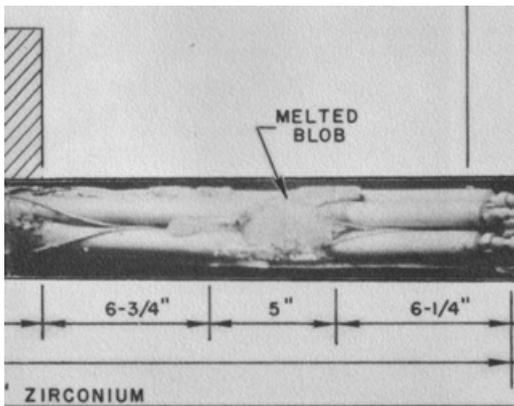
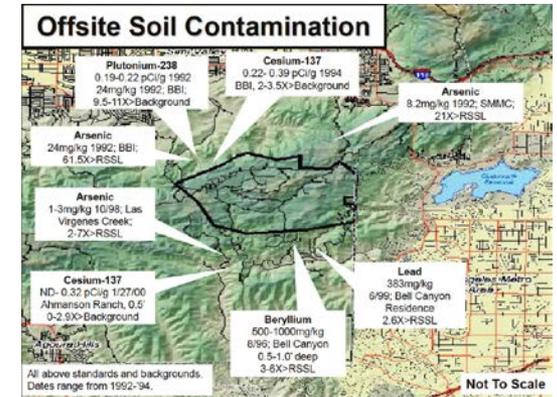
- DTSC presents for 20 minutes, then breaks audience into rotating small groups that are facilitated by the responsible parties. It allows no Q & A after its presentation. Most people leave before the small groups.
- This format greatly limits public questioning of DTSC and information it puts forth.
- Some public participation staff have indicated they agree this is not a good format. They do not appear empowered to effect change.

SSFL- Public Outreach



Minimize Health Risks – Like Boeing, DTSC denies and minimizes health risks from SSFL. In April 2014, it invited a known skeptic of environmental causes of cancer to speak at a public meeting. When asked why it didn't invite any of the authors of the independent multi-year epidemiological studies, Project Manger Ray Leclerc said, "If there are others, we'll consider inviting them."

Denial of Offsite Migration- Like Boeing, DTSC consistently denies the potential for harm from offsite migration, including for radionuclides that have been found in numerous locations offsite. The National Academy of Sciences and all federal agencies agree there is no safe level of radiation exposure.



Denial of Meltdown – DTSC has attempted to deny a meltdown took place at SSFL. When asked at a public meeting, Ray Leclerc said he was unprepared to discuss the "1959 incident." A few months later, DTSC released a statement denying that there had been a meltdown. It quickly retracted the statement after it was pointed out that this contradicted its own statement to the U.S. Court of Appeals.

DTSC – Cleanup Program

- In 2001, low level radioactive waste from SSFL was sent to Clean Harbors in Buttonwillow, an EJ site not licensed for such waste. Local residents had not been informed. This ultimately resulted in a settlement barring such shipments in the future
- In 2009, attempts were made to send LLRW from SSFL to Kettleman City, another EJ site. The community was able to stop this.



DTSC – Cleanup Program



In 2012, it was discovered that radiological buildings in Area IV were being demolished and the waste sent to a variety of unlicensed facilities, including Buttonwillow - with no environmental impact review as mandated by CEQA, and with no opportunity for public comment.

The disposal of this waste - which was according to Boeing's own data, radioactively contaminated - happened with approval from DTSC. In all, according to a DTSC document, Boeing dumped a total of 1,963 tons of waste into sites not designed for radioactive waste – including Buttonwillow - and it recycled 2,925 tons of contaminated debris.

How did this happen?

DTSC – Cleanup Program

From: Weiner, Peter H. [mailto:peterweiner@paulhastings.com]
Sent: Monday, August 06, 2012 2:43 PM
To: Black, Stewart@DTSC
Subject: Update on Demo

Stewart, this does not seem consistent with your and my discussion. And I see that various folks we've mentioned are cc'd, but not you. Nor do I see ANY basis for the decision referenced below.

PAUL
HASTINGS

Peter Weiner | Partner, Environment and Energy | Paul Hastings LLP | 55 Second Street, Twenty-Fourth Floor, San Francisco, CA 94105 | Direct: +1.415.856.7010 | Main: +1.415.856.7000 | Fax: +1.415.856.7110 | Cell: 415.518.5000
peterweiner@paulhastings.com | www.paulhastings.com

From: Paulson, Roger@DTSC [mailto:Roger.Paulson@dtsc.ca.gov]
Sent: Monday, August 06, 2012 12:16 PM
To: Fischer, Steven D
Cc: Carpenter, Paul@DTSC; Lenox, Arthur J; Malinowski, Mark@DTSC; Bothwell, Nancy@DTSC
Subject: RE: Boeing Area IV Radiological Screening for Demolition Waste Characterization

Good afternoon Steve.

I was out of the office last week. I'm sorry it took a few days to reply.

The department is in the process of determining the regulatory status and authorities for the disposition of Boeing's demo materials from Area IV.

Mark Malinowski has notified Randy Ueshiro of the decision of Cal EPA Secretary Rodriguez and DTSC Director Raphael that materials from Area IV with radiation levels above background cannot be routed for recycle or for non-rad disposal in California. We will keep Boeing informed of the regulatory status and B4015 review as progress occurs. We are working to schedule a meeting with DTSC, California Dept of Public Health and Boeing to discuss the disposition of Boeing's Area IV building materials.

Roger

DTSC – Cleanup Program

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

SUPERIOR COURT OF CALIFORNIA
COUNTY OF SACRAMENTO

PHYSICIANS FOR SOCIAL
RESPONSIBILITY-LOS ANGELES, et al.
v.
DEPARTMENT OF TOXIC
SUBSTANCES CONTROL, et al.,
Respondents.

THE BOEING COMPANY, et al.
Real Party in Interest

Case No.: 34-2013-80001589
**ORDER AFTER HEARING GRANTING,
IN PART, MOTION FOR PRELIMINARY
INJUNCTION**

Petitioner's motion for preliminary injunction against the Department of Toxic Substance Control ("DTSC") is GRANTED.

FILED / ENDORSED
DEC 11 2013
By *[Signature]* Deputy Clerk

- In July 2013, just as Boeing was about to begin demolition and disposal of more nuclear structures including a plutonium fuel fabrication facility, PSR-LA and other groups to file suit against DTSC and DPH for not complying with CEQA prior to demolition and disposal activities. A preliminary injunction was granted.
- The SSFL community urges DTSC to return to the 2012 policy that it will not dispose of radioactive waste in sites that are not licensed to receive such waste.



DTSC – Cleanup Program

- NASA and DOE’s Environmental Impact States should address how they will cleanup to background per the AOC, not whether to do so. NASA’s EIS considers other options and its record of decision defers deciding. DTSC has not objected.
- DTSC has allowed DOE to include options in its EIS that violate the AOCs, such as on-site disposal.



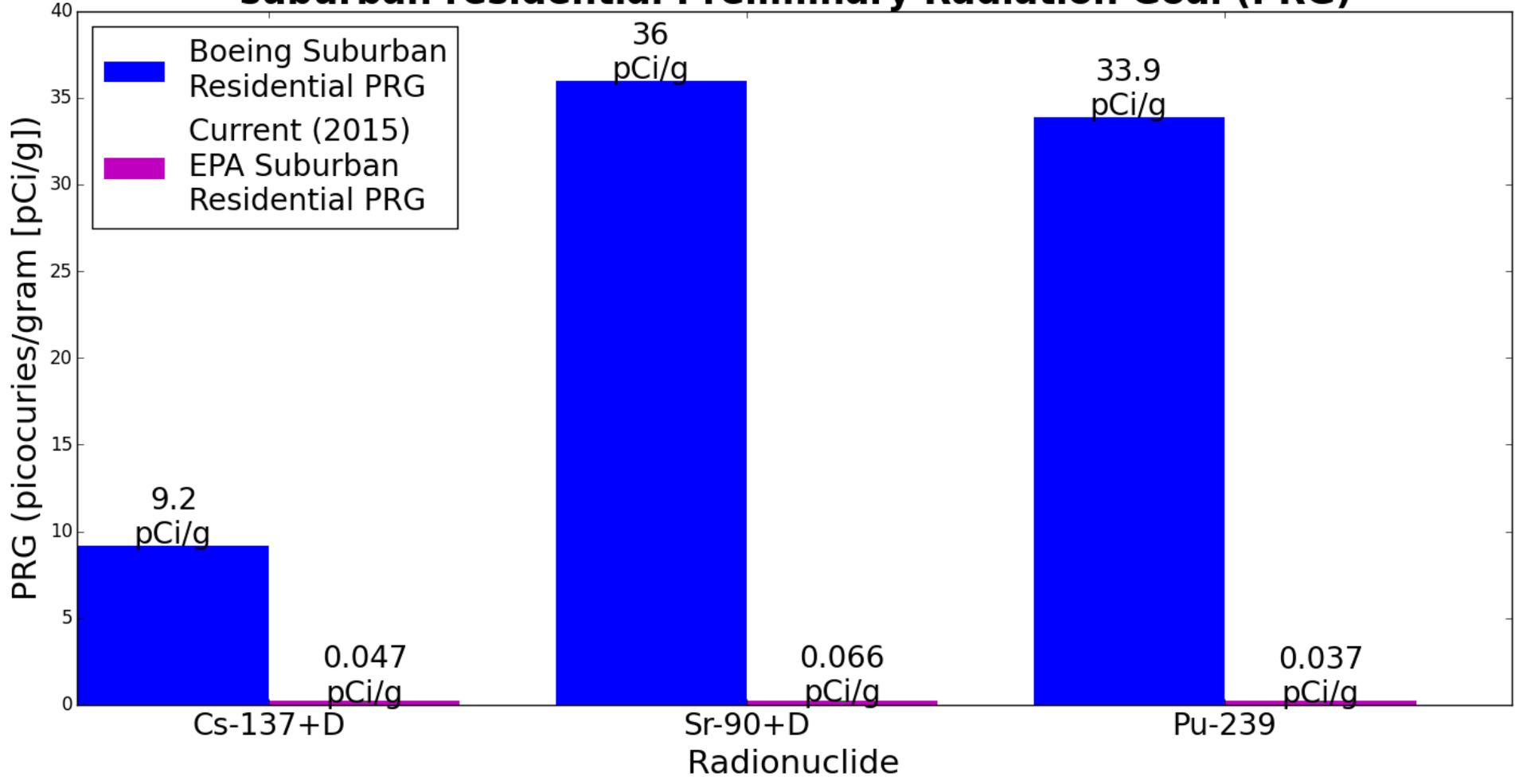
DTSC – Cleanup Program

- DTSC said in 2010 that Boeing must cleanup according to local land use and zoning plans, which Ventura County says are agricultural. This is comparable to background and would be sufficiently protective.
- DTSC is now permitting Boeing to pursue a weak version of suburban residential that would leave 98% of the contamination on its property not cleaned up.

What Boeing and its surrogates have been calling “suburban residential” cleanup levels are actually hundreds of times more lax than EPA’s suburban residential cleanup goals:

- **194 times higher for Cesium-137**
- **545 times higher for Strontium-90**
- **916 times higher for Plutonium-239**

Boeing suburban residential standard vs. current (2015) EPA suburban residential Preliminary Radiation Goal (PRG)



DTSC – Cleanup Program

- Boeing's weak cleanup proposal became even more troubling after it released reports showing that in some areas of the site, 96 out of 100 people would get cancer (if they lived on the site), after their proposed cleanup that number falls to only 5 in 10. These and other shocking figures are at the back of documents that are thousands of pages long. Regardless of what becomes of SSFL, leaving that high of contamination on site presents a threat to nearby communities.

8.1.1.2 Garden Use

Another pathway evaluated for the hypothetical future suburban resident is the consumption of homegrown produce that has accumulated COPCs from soil. In accordance with the SRAM Rev. 2 Addendum, only the 0-to-2-foot-bgs soil interval is considered for this scenario. The site risk calculation results for the homegrown produce exposure pathway are provided in Table E1-5. The risk calculation table for background soil is provided in Table E1-6.

For the homegrown produce consumption pathway, the total site ELCR is $>9 \times 10^{-1}$ and the incremental risk is 9×10^{-1} , which is above the USEPA target risk range of 1×10^{-6} to 1×10^{-4} and exceeds the DTSC point of departure of 1×10^{-6} . The main contributors to the site soil ELCR are MMH (92 percent contribution; 9×10^{-1} risk); arsenic (7 percent contribution; 7×10^{-2} risk); and carcinogenic polycyclic aromatic hydrocarbons (1 percent contribution; 7×10^{-3} risk). Risks also exceeded 1×10^{-6} for n-Nitrosodimethylamine (2×10^{-3} risk); 2,3,7,8-TCDD TEQ (6×10^{-4} risk); hexavalent chromium (5×10^{-4} risk); Aroclor-1254 (3×10^{-4} risk); Aroclor-

DTSC – Cleanup Program

This week, LA County Supervisor Sheila Kuehl, LA City Councilmember Mitch Englander, State Senator Fran Pavley, and Congresswoman Julia Brownley sent letters to DTSC Director Barbara Lee expressing alarm about Boeing's urging her to reject Boeing's proposal and return to DTSC's 2010 position that the site must be cleaned in according to current zoning.

JULIA BROWNLEY
28th DISTRICT, CALIFORNIA
Member of Congress
<http://juliabrownley.house.gov>

COMMITTEE ON VETERANS' AFFAIRS
RANKING MEMBER, SUBCOMMITTEE ON HEALTH
SUBCOMMITTEE ON DISABILITY ASSISTANCE
AND MEMORIAL AFFAIRS

COMMITTEE ON
TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON AVIATION
SUBCOMMITTEE ON COAST GUARD AND
MARITIME TRANSPORTATION
SUBCOMMITTEE ON
HIGHWAYS AND TRAVEL

WASHINGTON, DC OFFICE:
1019 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: 202-225-5811
FAX: 202-225-1100

THOUSAND OAKS, CA OFFICE:
222 EAST THOUSAND OAKS BOULEVARD, SUITE 411
THOUSAND OAKS, CA 91320
PHONE: 805-373-1779
FAX: 805-373-1799

ORLANDO, CA OFFICE:
300 EAST EPLANNAGE DRIVE, SUITE 470
ORLANDO, CA 92038
PHONE: 805-373-1779
FAX: 805-373-1799



Congress of the United States
House of Representatives
Washington, DC 20515-0526

December 11, 2015

The Honorable Barbara Lee
Director
California Department of Toxic Substances Control (DTSC)
P.O. Box 806
Sacramento, CA 95812-0806

Dear Director Lee:

I write to follow-up on our recent discussion regarding the on-going clean-up of the Santa Susana Field Laboratory (SSFL) site.

I appreciate knowing of our shared commitment to protecting the public health, and am glad to know that you share my commitment to upholding the Administrative Orders on Consent (AOCs) signed by the Department of Energy and National Aeronautics and Space Administration (NASA). The federal agencies have also reiterated their AOC commitments to me in our recent meetings. I am also pleased to know that DTSC intends to hold Boeing responsible for a full clean-up that meets all potential future land-uses, as outlined by Ventura County's zoning regulations, which indicate a wide array of both residential and agricultural uses. It is vitally important that we hold all three responsible parties to the highest standards that will fully protect the public health from harmful chemical and radionuclide contamination.

As we discussed, clean-up of this site is a high public health and safety priority, and my involvement with the clean-up goes back to my time in the California Assembly as a principal co-author of SB 990. Since coming to Congress, I have been laser focused on oversight of the two responsible federal agencies, both of which have committed to me that the agencies are commitment to cleaning up the site in accordance with the Administrative Orders on Consent (AOCs). I have also been working to ensure that Congress appropriates the necessary funding for the clean-up.

As the state and federal environmental documents are prepared pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), it is critical that DOE, NASA, and DTSC continue to engage with the local community to ensure that local resident and stakeholder views are heard.

I look forward to continuing to work with you to ensure a full clean-up of the SSFL site.

Sincerely,



JULIA BROWNLEY
Member of Congress

PRINTED ON RECYCLED PAPER



DTSC – Cleanup Program Questions

Will DTSC return to 2010 statement and require Boeing to clean land to all uses specified by Ventura County, which includes agricultural and suburban residential with a garden?

Will DTSC return to the policy of the past Director and current CalEPA Secretary who ordered that no radioactive waste can be disposed of in sites not licensed for it? This should not be left for the lawyers, DTSC is the client and should not allow radioactive waste to be disposed of improperly – most especially not in EJ communities.

DTSC – Cleanup Program

Community Impacts



- Dangerous nuclear and chemical contamination remains onsite, where it continues to migrate especially when it is windy or rains
- Nearby communities will continue to be exposed
- El Niño will likely bring down considerable contamination. Boeing's water treatment systems are designed for 1 year storms, not 100 as are anticipated

DTSC – Cleanup Program Community Impacts



"There is no getting over the death of your child."



"They don't care if we live or die. And more people are going to die."



"Almost every house on my street had cancer."



"I want the government to take responsibility for their actions."



"I suspect it caused the death of my son."



"I don't know if the property I was living on is contaminated."



"The government needs to take responsibility when it makes mistakes."



"I just want the truth out there."

Conclusions

- DTSC is a deeply troubled agency, with a fundamental issue of industry capture.
- SSFL is but one example, many impacted communities are similarly affected
- Strong IRP recommendations must be made in January