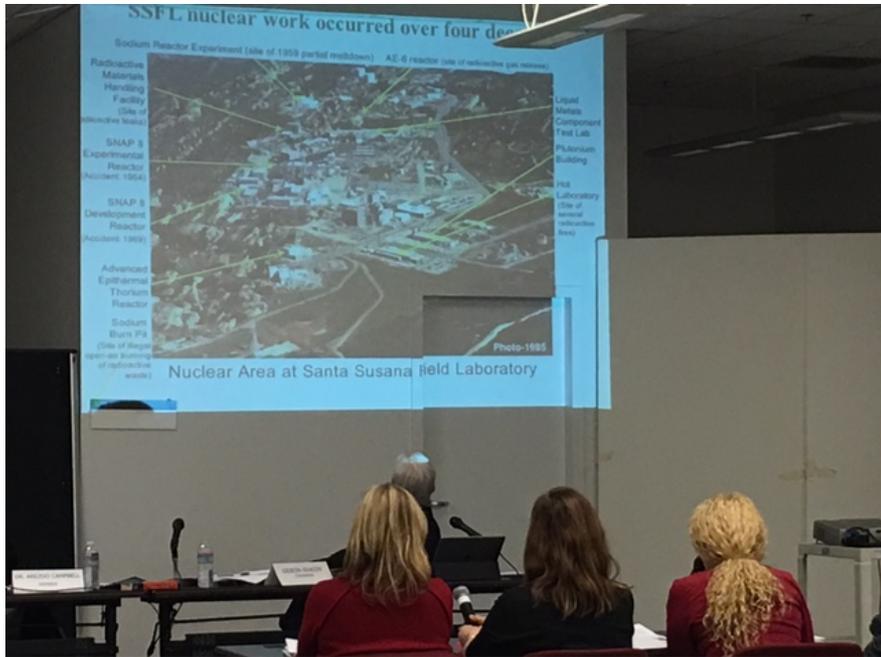


# The Santa Susana Field Laboratory: DTSC's Broken Promises



Community members protest Boeing PR tours of SSFL, September 10, 2016.

# DTSC Independent Review Panel: SSFL presentation December 18, 2015

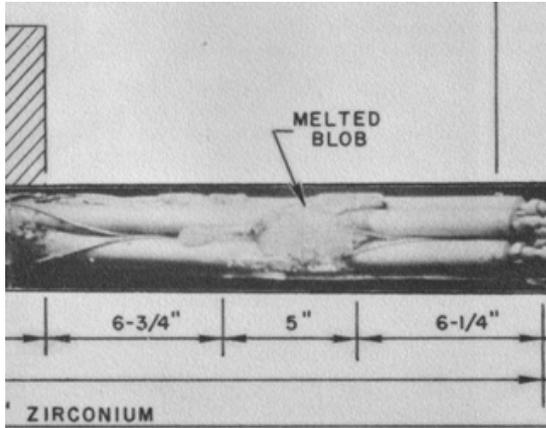


SSFL IRP Presentation December 2015.

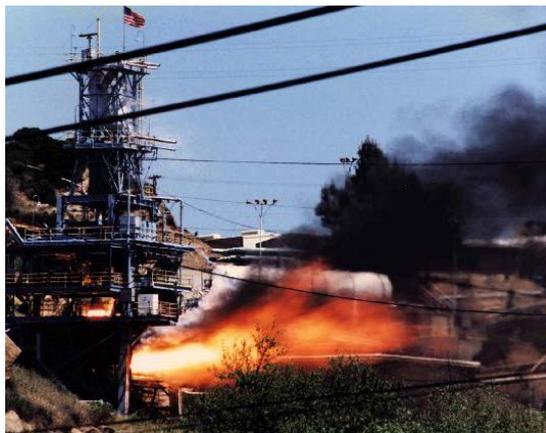
In December 2015, community members and a representative from Physicians for Social Responsibility-Los Angeles presented to the IPR about SSFL contamination and troubling developments regarding its cleanup and public participation process. Nothing has changed since then, in fact the situation has gotten worse.

Most of the other impacted communities in the Peoples Senate have had the identical experience – no improvement on the ground, or a worsening of conditions.

# SSFL History, Contamination, Health Impacts



Melted fuel rod from SSFL's SRE in 1959



Tens of thousands of rocket engine tests took place at SSFL.

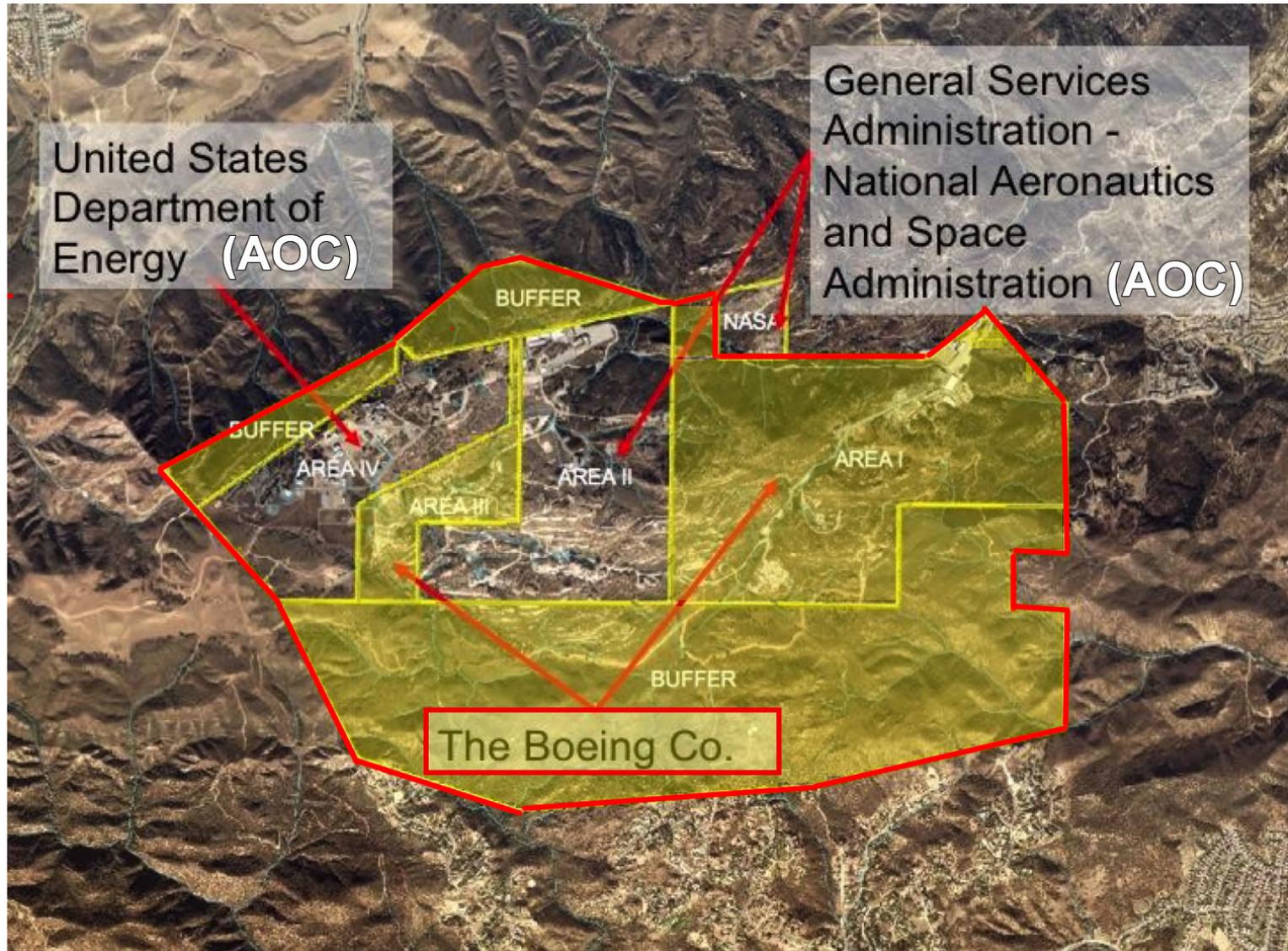
Decades of nuclear and rocket-engine tests left a legacy of contamination with dangerous radionuclides and toxic chemicals, which have impacted worker and community health.



Credit: NBC4 I-Team "LA's Nuclear Secret"

Federal studies indicate increased rates for certain cancers associated with proximity to SSFL and that contaminants have migrated in excess of EPA standards.

# SSFL Cleanup Agreements



In 2010, NASA and DOE signed an agreement with DTSC to cleanup their operational areas to background levels of contamination. Boeing refused to sign the agreement and is pushing for much, much weaker cleanup standards.

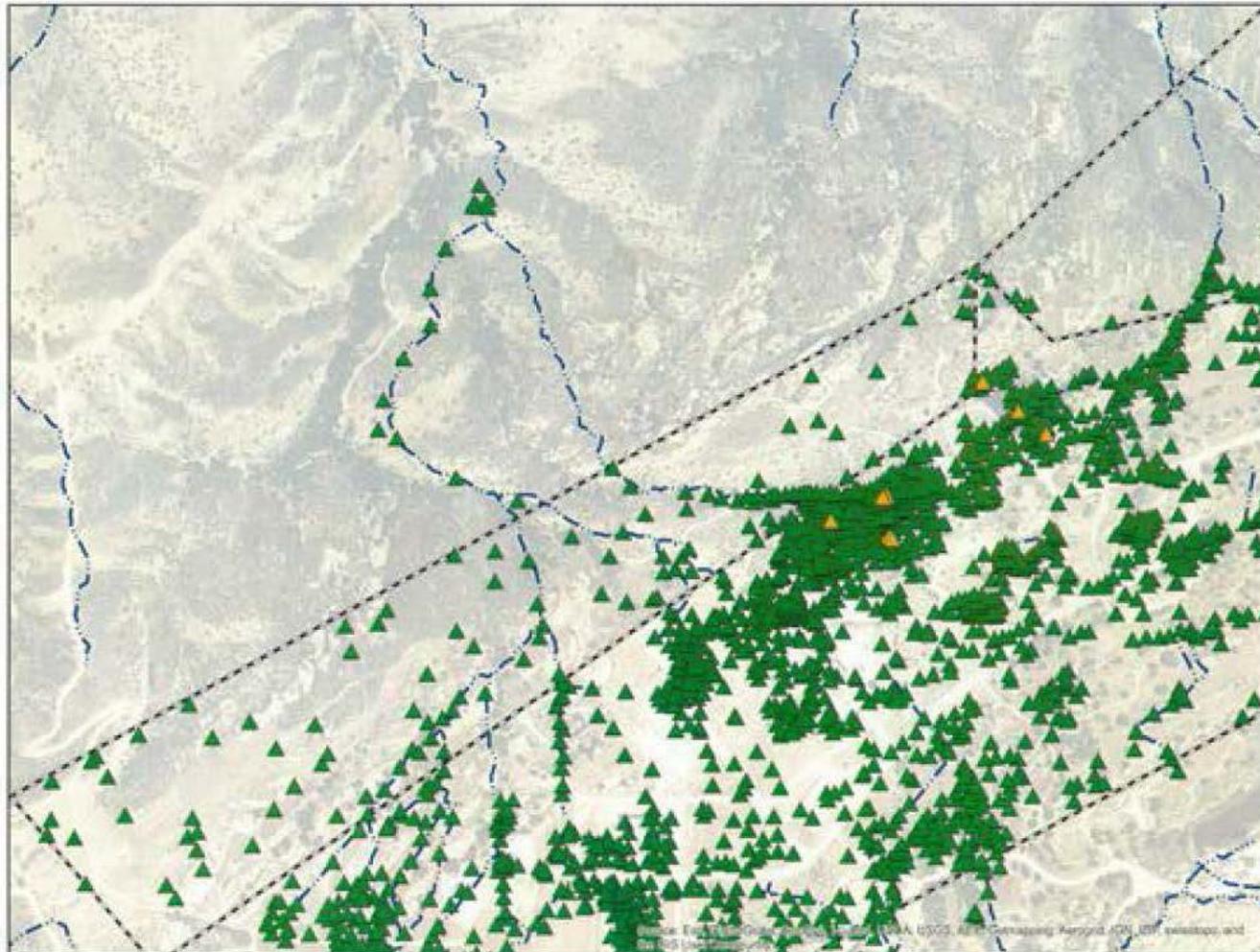
# The Undermining of the AOCs

- DOE's 2014 public scoping for its EIS contained options that violate AOCs, such as on-site disposal.
- Building demolition and disposal – Structures are explicitly covered by AOCs yet DTSC allowed them to be demolishing them at will, using less protective standards, and disposed of in sites not licensed for low level radioactive waste, such as Buttonwillow.
- DTSC has sanctioned, and DOE has been secretly funding, the SSFL CAG which is led primarily by people with ties to the responsible parties and which works to break the AOCs.
- DTSC already approved using a standard more lax than background as required by the AOCs by creating look up table values higher than background values required by the AOC.
- DTSC recently produced presentations that designed to undermine the AOCs.

# DTSC Undermining AOCs



Figure 3 - Strontium-90 (pCi/g) Soil Analytical Data Compared to the SSFL Soil Residential Risk-Based Screening Level (RBSL)



Legend  
Soil  
▲ ≤ SSFL Soil Residential RBSL (3.85 pCi/g)  
▲ > SSFL Residential RBSL



Source Data: Provided by Boiling from EDM3 database, EPA database, Rutherford database, and VDMS database.

Official Data References:  
1992 Strontium-90 data: McLeary/Hart Environmental Engineering Corporation, 1992. Multi-Media Sampling Report for the Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy. March 10. Online at: [http://www.dtsc.ca.gov/files/soil\\_nra\\_soilgroup\\_vir/historical\\_docs/PDF\\_Files/HQMS20062594.pdf](http://www.dtsc.ca.gov/files/soil_nra_soilgroup_vir/historical_docs/PDF_Files/HQMS20062594.pdf).

1994 Strontium-90 data: McLeary/Hart Environmental Engineering Corporation, 1994. Additional Soil and Water Sampling, Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy. January 13. Online at: [http://www.dtsc.ca.gov/files/soil\\_nra\\_soilgroup\\_vir/historical\\_docs/PDF\\_Files/HQMS20097938.pdf](http://www.dtsc.ca.gov/files/soil_nra_soilgroup_vir/historical_docs/PDF_Files/HQMS20097938.pdf).



The RBSL of 3.85 pCi/g is orders of magnitude higher (less protective) than US EPA PRGs – for residential it is .0639 and agricultural is .00233 pCi/g. There is NO reason to portray any risk-based standard to Area IV because it is covered by the AOCs.

# DTSC Undermining AOCs



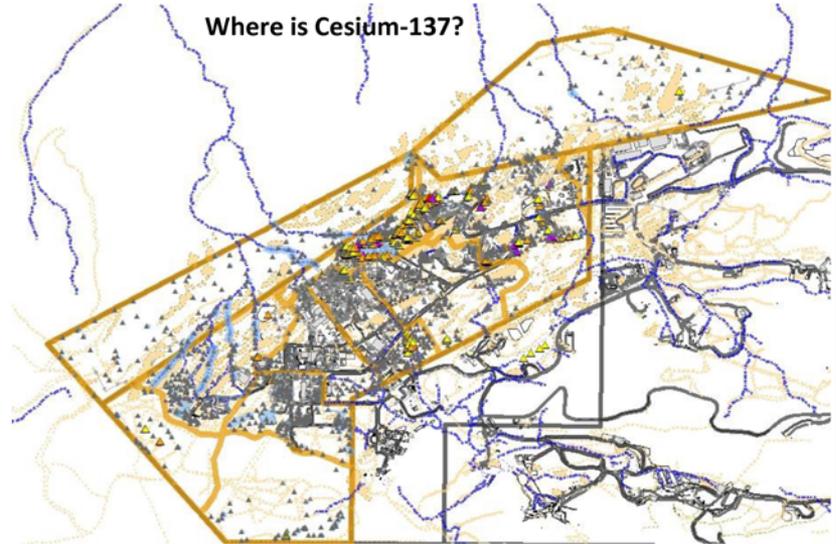
## Area IV – Where are the radionuclide contaminants?

In 2012, U.S. EPA completed a radiological study. Over 3,500 soil and sediment samples were collected in Area IV and the Northern Buffer Zone. The key radionuclides of concern were Cesium-137 (Cs-137) and Strontium-90 (Sr-90).

The radionuclide data were compared to local background values or method detection limits. Results that were higher than these values (e.g., exceedances) were used to identify preliminary radionuclide areas for cleanup (shown in blue). **The extent of each area is based on exceedances of all detected radionuclides, but is mostly due to exceedances of Cs-137 and Sr-90.** Cs-137 exceedance is where it is greater than its background. Sr-90's background is less than its routinely achievable detection limit, so the Sr-90 exceedance is where Sr-90 is greater than the method detection limit. Sr-90 was also compared to its Human Health Residential Risk-Based Screening Level to show where the highest concentrations are located on site.

Radionuclides were found mostly in and near former operational areas within Area IV. **The worst radionuclides are confined to the site, mostly within Area IV, and do not extend off site. Off-site soil/sediment radionuclide data from nearby properties are consistent with this finding. Sr-90 exceedances within Area IV are mostly at levels not considered to be harmful to human health. Regardless, all identified cleanup areas will be addressed as required under the 2010 Administrative Order on Consent.**

### Where is Cesium-137?



### Where is Strontium-90?

▲ Sr-90 Not a threat -Nondetects and detects less than provisional Look-up Table (pLUT) value

**Strontium-90 Detects: Not a threat - Values greater than pLUT but less than Risk-Based Screening Level (RBSL)**

▲ >1 – 2 x pLUT value (Minimum Detectable Concentration; MDC: 0.117pCi/g)

▲ >2 -10 x pLUT value (MDC: 0.117pCi/g)

— Range between EPA labs' method MDCs (0.117 – 1.02 pCi/g)

▲ > EPA Lab A MDC and <Residential RBSL (between 1.02 to 3.85 pCi/g)

**Strontium-90 Detects: Greater than Risk-Based Screening Level**

◆ > Residential risk-based screening level (>3.85 pCi/g)

**Cesium-137 detects > provisional LUT background value (pLUT; 0.225 pCi/g)**

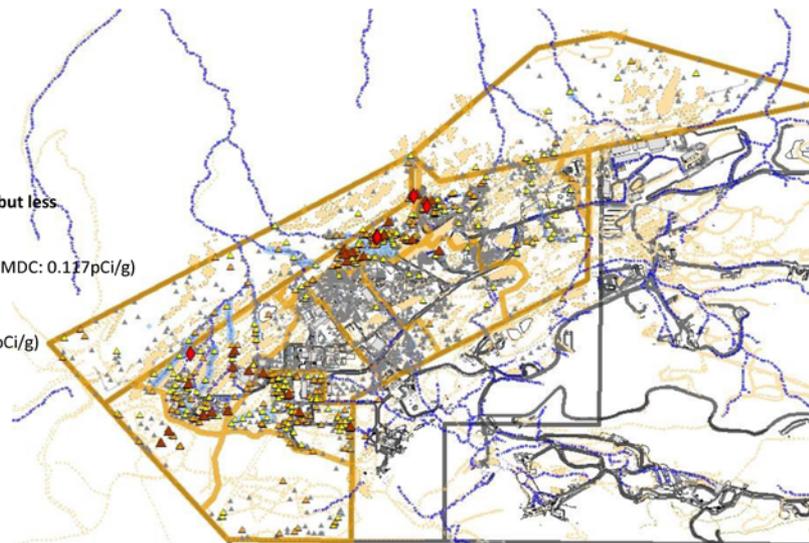
▲ 1 – 2 x pLUT value

▲ 2 – 10 x pLUT value

▲ 10 x 100 pLUT value

▲ >100 x pLUT value

▲ Cs-137 nondetects and detects < pLUT



# DTSC Promised Boeing Cleanup to Ventura County General Plan

DTSC said that Boeing must clean up according to local land use and zoning plans, which Ventura County says are agricultural. In its 2010 response to public comments on the AOCs (which were overwhelmingly supportive), DTSC said, "...DTSC, in implementing its cleanup authorities, would defer to local governments' land use plans and zoning decisions. In this instance, the Ventura County zoning maps specify that the site and much of the surrounding area are currently zoned as rural agricultural." This standard is comparable to background and would be sufficiently protective. Last year, Ventura County wrote to DTSC and confirmed allowable uses for SSFL.

DTSC Director Barbara Lee discussed the matter with Congresswoman Julia Brownley, who wrote in a December 11, 2015 letter, "I am also pleased to know that DTSC intends to hold Boeing responsible for a full cleanup 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 land uses."

# Boeing RFI reports

Last summer Boeing released reports showing very high risk in some areas of the site and declaring that much of the property needed no further action. In one area, the report indicates 96 out of 100 people would get cancer (if they lived on the site), and after Boeing's proposed cleanup that number falls to only 5 in 10. Regardless of what becomes of SSFL, leaving that high of contamination on site presents a threat to nearby communities.

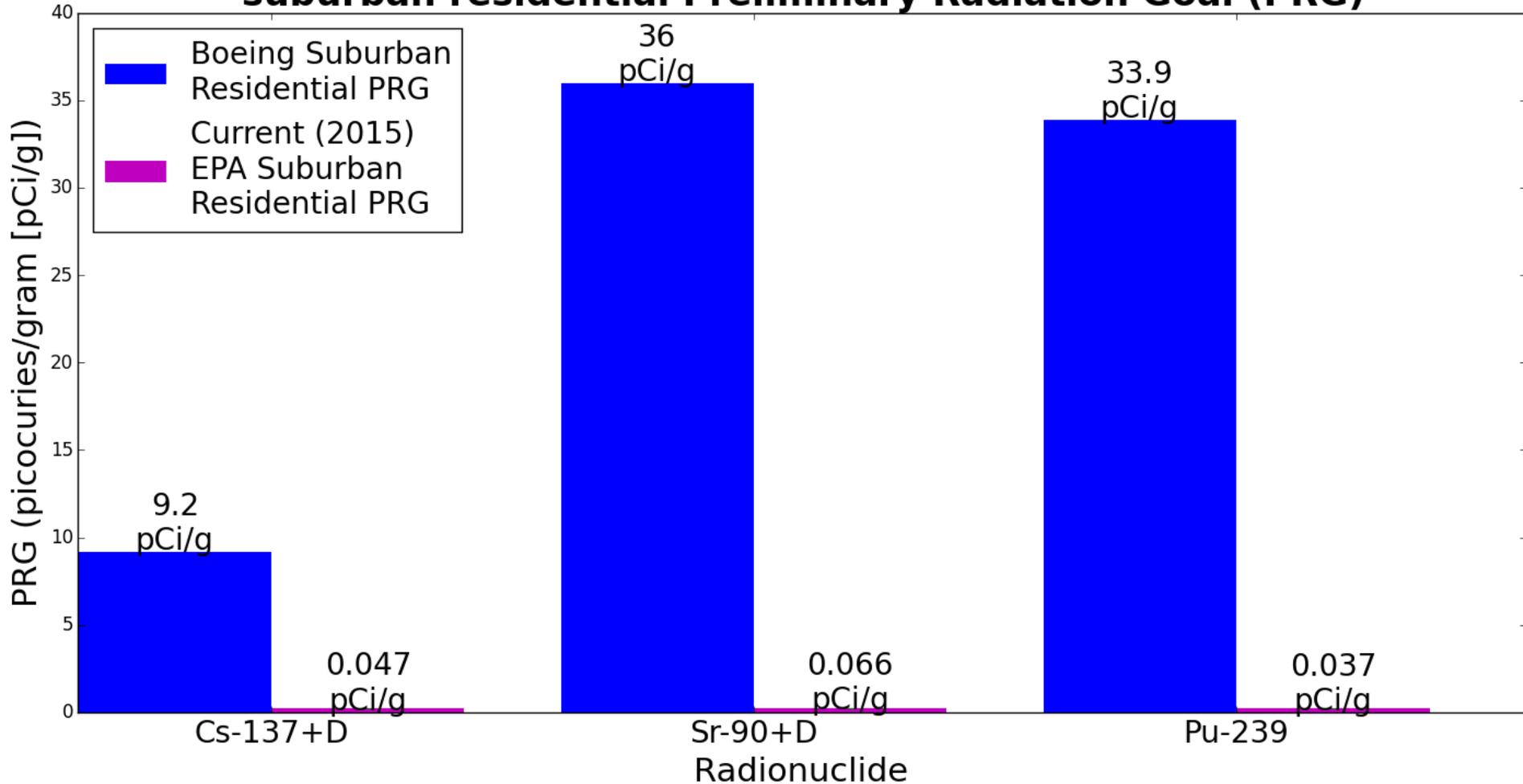
## 8.1.1.2 Garden Use

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

# Comparison of Cleanup Standards

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



# Comparison of Cleanup Standards

For example, compare suburban residential with a garden based on the Standardized Risk Assessment Methodology (SRAM) and 40-year rural residential to cleanup values for a supposed recreational standard.

- Arsenic - The suburban value is  $6.29 \times 10^{-4}$  (meaning  $6.29 \times 10^{-4}$ , or 0.000629); the rural residential value is  $1.07 \times 10^{-3}$  (0.00107). The recreational level is 1.18, more than a thousand times higher level of contamination allowed to remain not cleaned up.
- Perchlorate - The suburban cleanup standard is  $1.58 \times 10^{-2}$  (0.0158); Boeing's proposed recreational standard is  $2.49 \times 10^2$  (249) — that's 10,000-times higher level allowed to not get cleaned up.

Because people live nearby, and the pollution migrates offsite, allowing thousands of times higher levels of contamination to remain on site, not cleaned up, keeps nearby communities at risk.

# In August 2016, a year later, DTSC responded to one RFI report

- DTSC does not require Boeing to include the agricultural standard.
- Counter to earlier statements, DTSC endorses Boeing use of incremental risk, and to compare incremental rather than total concentrations of pollutants against acceptable cleanup levels. EPA says to count the entire amount of the contaminant and aim to cleanup to  $10^{-6}$  risk or background, whichever is greater. Boeing counts only the amount above background, which would result in vastly less cleanup.
- DTSC does not address the astronomical risk estimates Boeing put forward. Nor does DTSC reject Boeing's no further action areas and corrective measures areas, it simply says this is the wrong document to have them.
- DTSC says it is wrong to suggest that suburban residential will be the cleanup standard. But since it leaves the agricultural scenario out, and the only other one analyzed is recreator – the weakest possible.

# Yet DTSC September 15, 2016 Letter Contradicts Report

But in a September 15 2016 letter to Assemblymember Matt Dababneh, Director Lee contradicts what is in its response to Boeing.

In 2015, Boeing provided the Department with Draft RFI Reports for several areas of concern at Santa Susanna. After an extensive review, the Department concluded that these draft reports failed to adequately describe the nature and extent of potential impacts at these sites. They also inappropriately attempted to intrude into the Department's role of making cleanup decisions. For instance, the Department rejected the suggestion that it should base its cleanup decisions on Boeing's risk estimates in these reports. Instead, the Department will determine the appropriate risk levels at a later phase of the cleanup. We also rejected Boeing's methodology for estimating cancer risks at the site because it underestimated such risks by eliminating the consideration of existing background cancer risks. The Department directed Boeing to update the drafts using U.S. EPA estimates on the amount of potential contamination on fruits and vegetables grown at the site that people may consume. Boeing must also include the cumulative chemical and radiological risks to a person who may live on the site in the future and eat food grown in their garden. A copy of the Department's direction to Boeing on the Draft RFI Reports is attached.

# Other DTSC Sept. 15 Letter Inaccuracies

The letter makes other inaccurate statements about on and offsite contamination.

In 2011, U.S. EPA conducted an additional comprehensive radiological study of the Santa Susanna site and a former portion of the Brandeis-Bardin property, now known as the Northern Buffer Zone, which was purchased by a division of Boeing in 1997. This study was completed in 2012 and EPA concluded that the results in the Northern Buffer Zone indicated there was no migration of contamination north from the Santa Susanna site. Based on a review of the U.S. EPA's data and findings, the Department concludes that there is no off-site migration of contamination that would pose a threat to students, faculty, staff or visitors to the Brandeis Bardin property.

# SSFL - Public Participation

Over the objections of the community and elected officials, DTSC in 2012 replaced the longstanding SSFL Work Group with a CAG that propagates misinformation designed to create opposition to the cleanup agreements.

## The Santa Susana Field Laboratory

*The AOC Cleanup:  
More Harm  
Than Good?*

Provided by:  
The SSFL  
Community Advisory Group



Do You Know If an AOC (Background) Cleanup

Is Good for Your Community?



**SSFL Cleanup Threatens Pumas**

## Pop Quiz

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



## Group Rejects Santa Susana Field Laboratory Cancer Link

By Matt Thacker on July 11, 2014.  
[news@postperiodical.com](mailto: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.

# Health Study Authors Dispute CAG

## Dr. Yoram Cohen and Dr. Hal Morgenstern: Face the truth on Santa Susana Field Lab impacts

Re: Abraham Weitzberg's Sept. 27 guest column, "Santa Susana health risk calls for a fresh look":

We were shocked to see the misrepresentations in Dr. Weitzberg's column about our studies of potential off-site impacts from radioactive and chemical materials at the Santa Susana Field Laboratory (SSFL) and his controversial petition to the Agency for Toxic Substances and Disease Registry (ATSDR).

We are the principal investigators for two research projects, one based at UCLA and one at the University of Michigan, which were funded by but conducted independently of ATSDR.

The UCLA study found evidence of potentially significant off-site exposures to hazardous chemicals and radioactivity from SSFL. The second study found rates of key cancers in the community were more than 60 percent higher within two miles of the site than farther away.

Weitzberg misrepresents both. For example, he takes out of context from the cancer study a sentence that discussed, as all scientific studies do, the limitations in the analysis, and falsely presents it as the study's conclusion, implying that the study concluded there wasn't harm from the site. That was not the case.

# SSFL CAG – Polluter Front Group

- In August 2015, per CAG meeting minutes, the CAG announced it would be receiving a \$32,000 gift from a donor who wished to remain anonymous. CAG leadership was so secret about the donor's identity that it refused to tell its full membership, causing one person to resign. Last month, the CAG revealed that it was being funded by the Department of Energy, one of the polluters at SSFL. It received \$34,100, the first payment of a three year grant.
- DOE is well aware of the CAG's misinformation and that the CAG is actively lobbying elected officials to break the AOCs. DOE is now in effect paying them to do so.
- DTSC has stayed silent on the matter. If DTSC intends to uphold and enforce the AOCs, as it says, it cannot ignore the fact that the supposed "community group" does NOT represent the community and is working against its own cleanup agreements. DTSC needs to 1) revoke the CAG's sanction and 2) enforce the DOE (and NASA) AOCs, no matter who DOE pays to help it break them.

# Conclusions

- DTSC staff are undermining the SSFL cleanup agreements, and appear poised to let Boeing get away with a weak cleanup that will not protect nearby communities.
- It is unclear how much Director Lee knows about what her staff are doing.
- DTSC needs to uphold the cleanup agreements and ensure its project staff are following the Director's orders, or replace them.
- DTSC should revoke its sanction of the SSFL CAG and inform DOE that it will enforce the AOCs regardless of its funding of the CAG to help break them.