

PARENTS AGAINST SANTA SUSANA FIELD LAB

TOWN HALL

WEDNESDAY, JULY 19

6:30 PM

ONLINE

Guest speaker: Tevin Schmitt
Watershed Scientist,
Wishtoyo Chumash Foundation



Acknowledgements

Parents Against SSFL acknowledges the original inhabitants of the land that the Santa Susana Field Lab encompasses. The 2,850 acres of land that constitutes SSFL has been utilized by the Ventureño Chumash, the Tongva, and Fernandeno Tataviam Band of Mission Indians indigenous communities for time immemorial.

We acknowledge and honor the original inhabitants and seek meaningful partnership and inclusion in the stewardship and protection of their cultural resources and homelands.

Acknowledgements

Parents Against SSFL wishes to acknowledge the expertise and dedication of **Dan Hirsch**, President of Committee to Bridge the Gap, and **Denise Duffield**, Associate Director of Physicians for Social Responsibility of Los Angeles.

We wouldn't be here without their tireless advocacy and leadership.

HARM TO WILDLIFE

Site Contamination (overview)

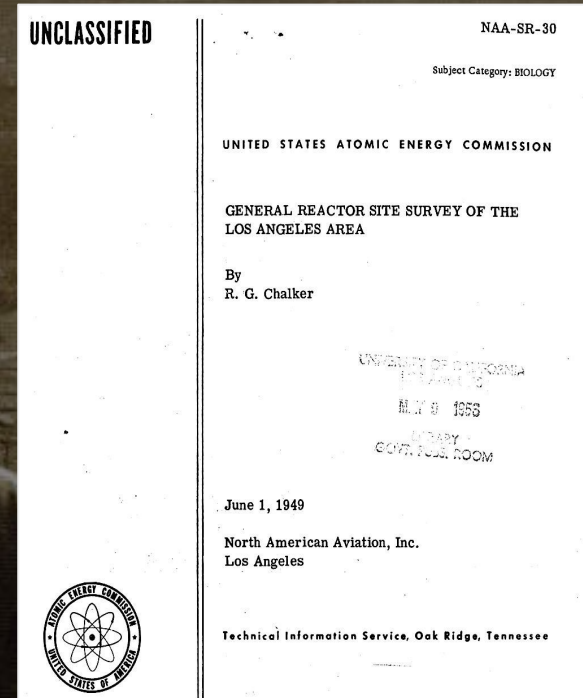
Jeni Knack
Parents Against SSFL



Santa Susana Field Laboratory

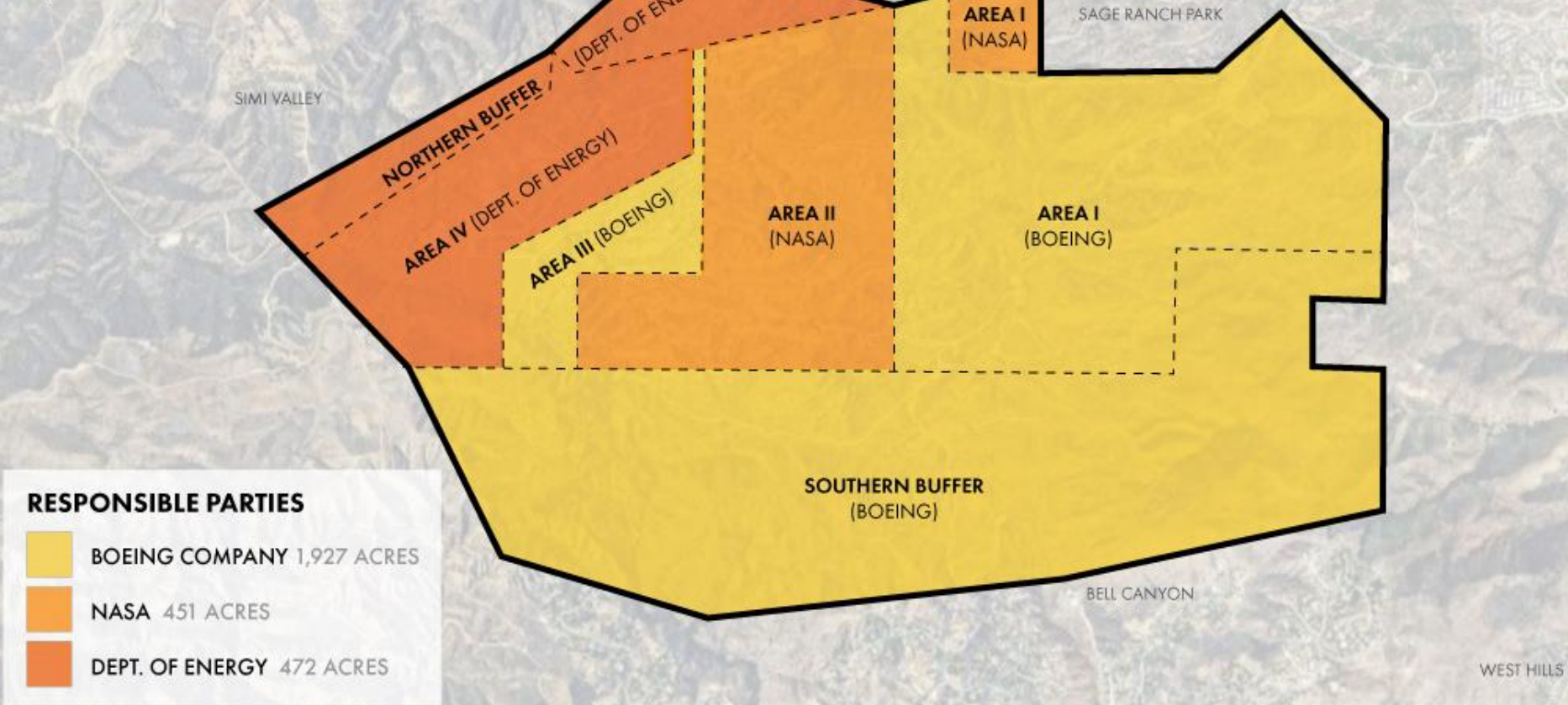
(Formerly known as Rocketdyne)

- Established late 1940s for rocket testing
- In 1949, Atomic Energy Commission looked for a remote nuclear testing lab for work too dangerous to do in populated areas
- SSFL area ranked 5th out of 6 for meteorological safety criteria
- Picked due to driving time to UCLA & USC






SANTA SUSANA FIELD LAB

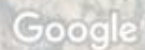
Responsible Parties



RESPONSIBLE PARTIES

-  BOEING COMPANY 1,927 ACRES
-  NASA 451 ACRES
-  DEPT. OF ENERGY 472 ACRES

Map by Parents Against SSFL | 2023



Rocket Engine Testing

Over 30,000 rocket engine tests conducted

800,000 gallons of toxic Trichloroethylene (TCE) was lost into soil

500,000 gallons of TCE remain in Chatsworth Aquifer



Open Air Burn Pits

Burned chemical and radioactive waste at two locations at SSFL

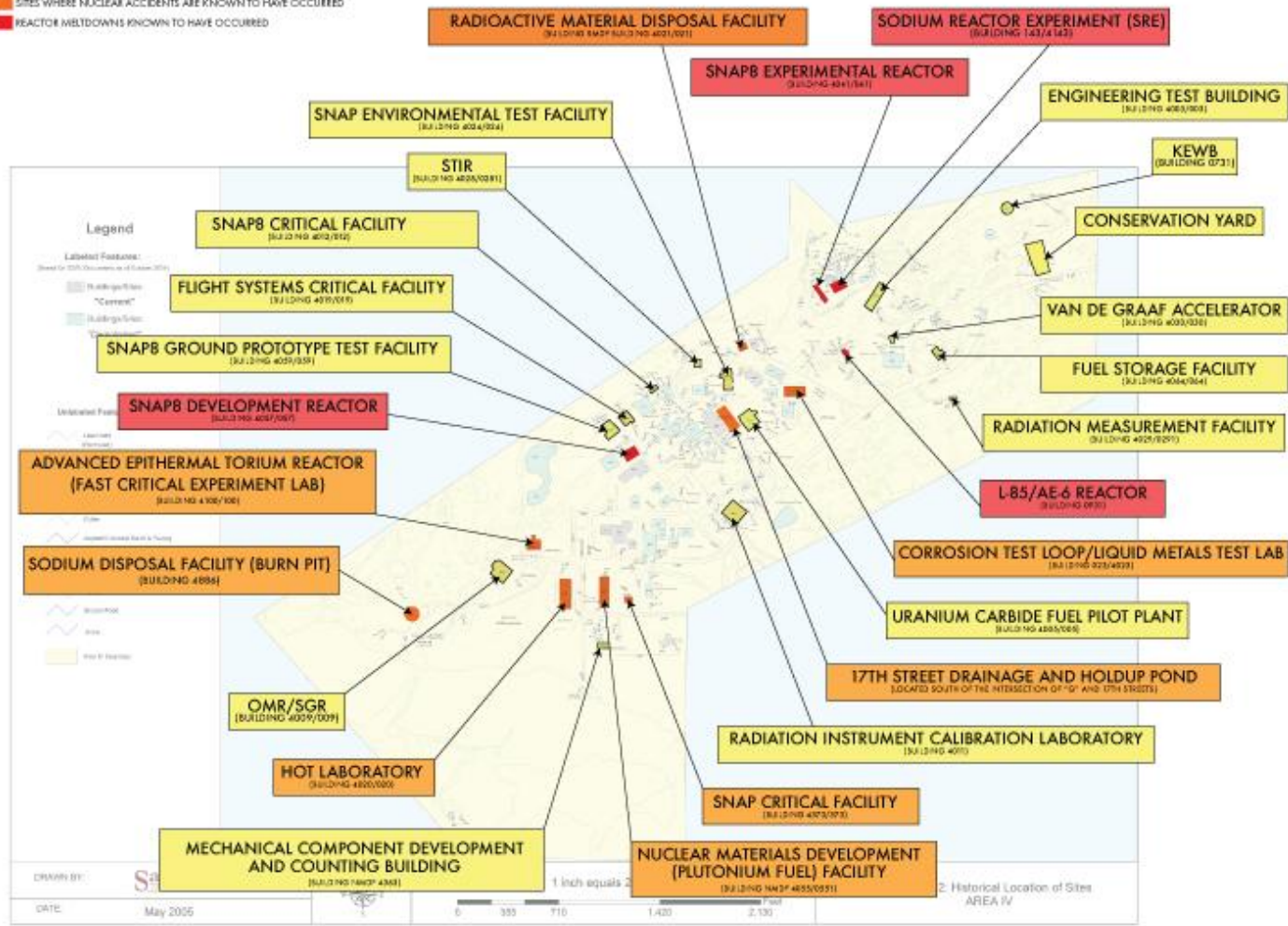
Huge plumes of contaminated smoke spread to local communities

Violated known environmental laws



RADIOACTIVE ACTIVITY SANTA SUSANA FIELD LABORATORY | AREA IV

- SITES WHERE NUCLEAR ACTIVITIES WERE CARRIED OUT
- SITES WHERE NUCLEAR ACCIDENTS ARE KNOWN TO HAVE OCCURRED
- REACTOR MELTDOWNS KNOWN TO HAVE OCCURRED



Nuclear Work in Area IV

10 Nuclear Reactors

1 Reactor meltdown

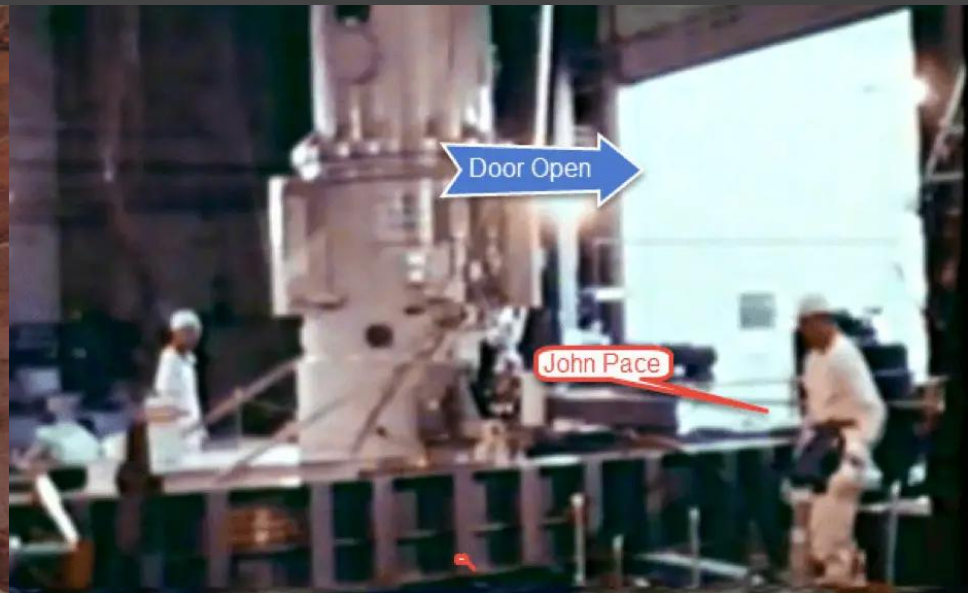
3 Reactor accidents

Plutonium and Uranium Fuel Facilities

Area IV had radioactive accidents, explosions, spills, leaks and fires

Open air burn pits

Sodium Reactor Experiment (SRE): 1959



“...13 of 43 fuel elements in the SRE reactor core failed due to overheating when the cooling flow provided by liquid sodium was blocked or partially blocked by tetralin that had leaked into the primary sodium loop during prior power runs...”

[*An Assessment of Potential Pathways for Release of Gaseous Radiation*](#)

Repeated violations of NPDES brings contamination offsite



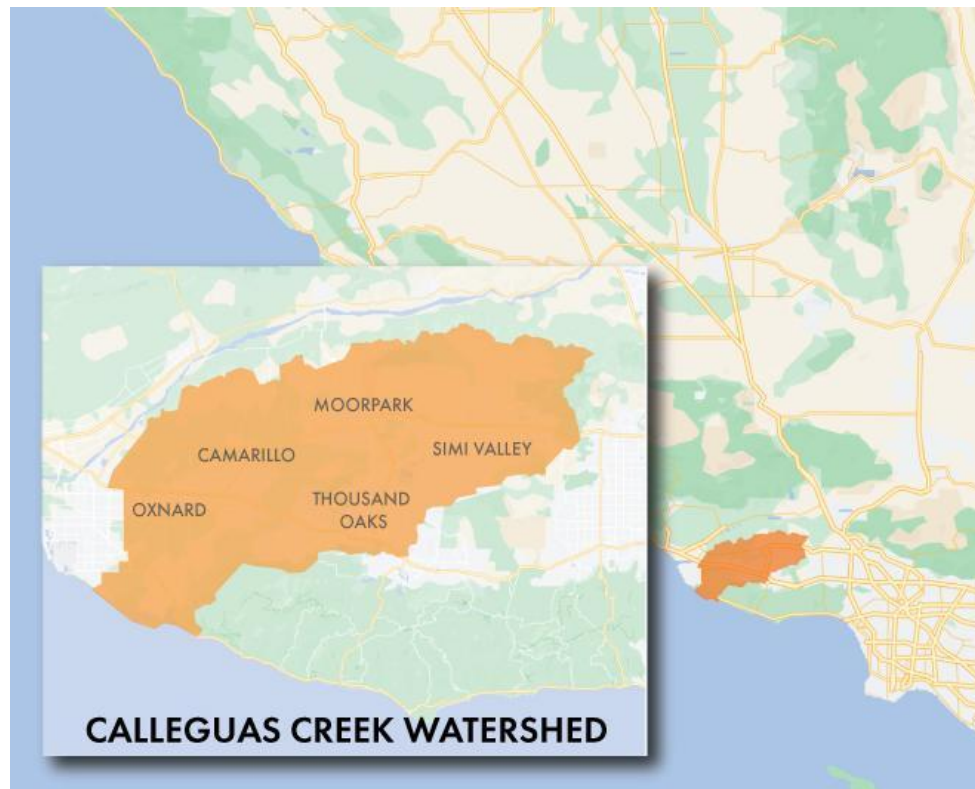
SSFL impacts Los Angeles River

“The SSFL has the potential... to discharge approximately 187,000,000 gallons per day of stormwater runoff that may contain pollutants from the facility. Approximately 60% of the discharge exits the property...to Bell Creek, a tributary to the Los Angeles River.”



SSFL impacts Calleguas Creek Watershed

“Surface water discharges from the northwest edge of SSFL are directed to Arroyo Simi, a tributary located in the Calleguas Creek Watershed. Supplies of groundwater are critical to agricultural operations ...much of the population in the watershed relies upon groundwater for drinking.”

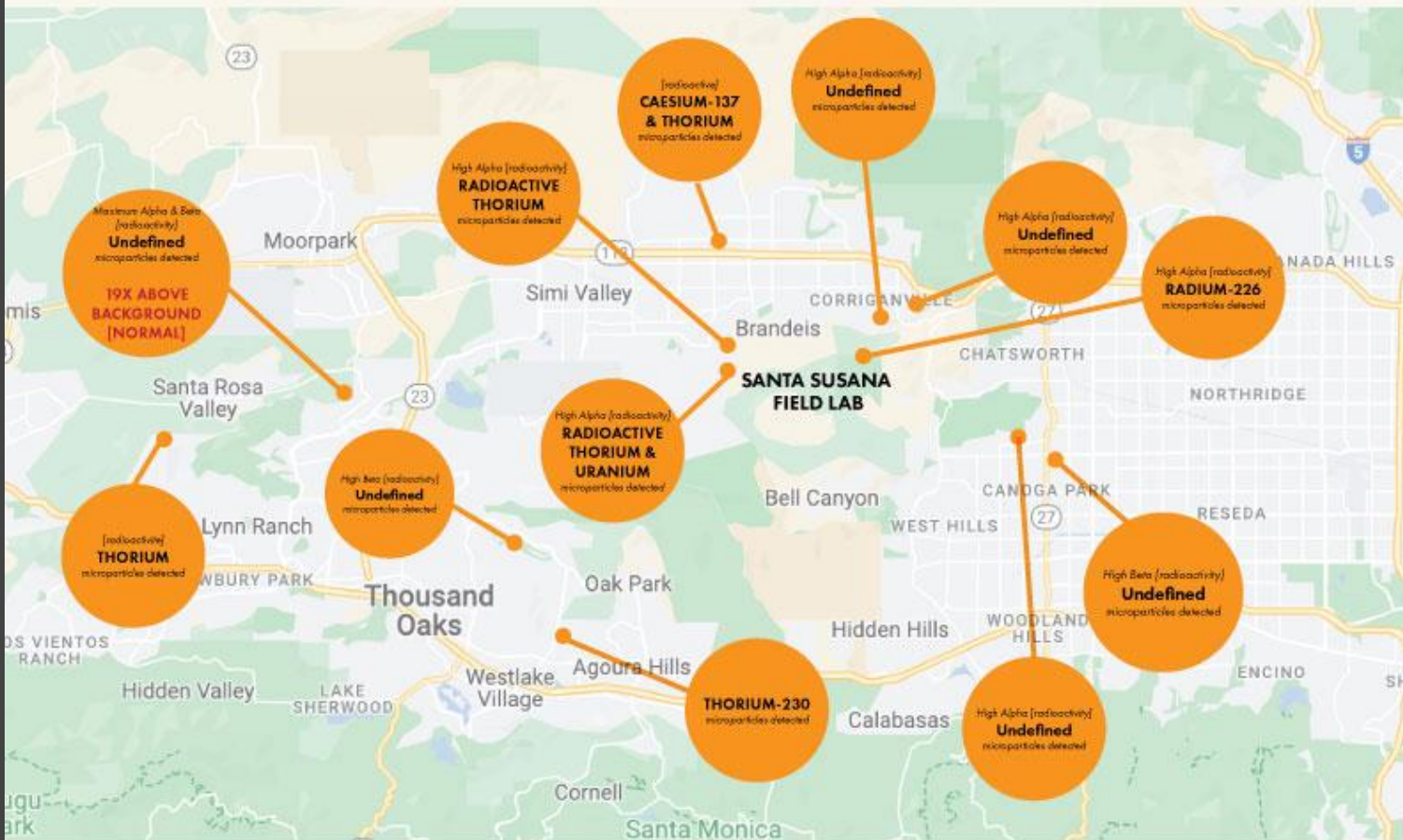


APPROXIMATE LOCATIONS OF RADIOACTIVE SAMPLES

WOOLSEY FIRE SOIL STUDY 2018-2019

Contaminants Migrate Offsite: Soil

Independent study found radioactive contamination after the the Woolsey Fire



2022 Settlement Agreement: Health Impacts

Want to learn more about the PEIR's impacts on human health...

especially women and children?

Save the Date!

Wednesday, Aug 2nd at 6:30pm

PARENTS AGAINST SANTA SUSANA FIELD LAB

TOWN HALL

WEDNESDAY, AUG 2 | 6:30 PM | ONLINE

TOPIC: HEALTH IMPACTS

Dr. Robert Dodge
Physicians for Social
Responsibility- Los Angeles



HARM TO WILDLIFE

Cleanup Agreements (Overview)

Melissa Bumstead
Parents Against SSFL



2007 Cleanup Agreements: Boeing & DTSC



2007 MAIN POINTS:

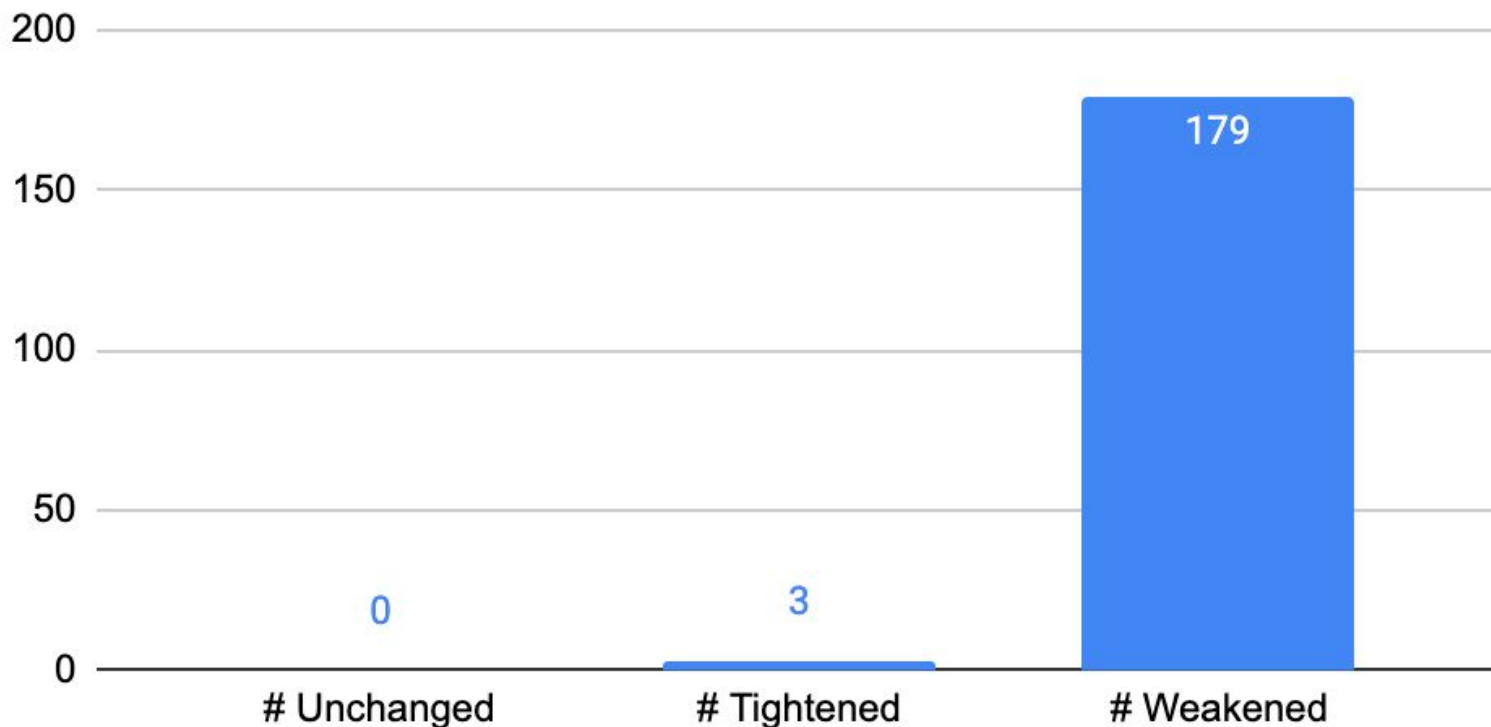
- Signed by Boeing, NASA, Department of Energy, and California's Department of Toxic Substances Control (DTSC).
- Would remediate the site to match Ventura County's "open space" zoning, which includes agricultural and rural residential land uses.
- Cleanup would be completed by 2017.
- A permanent groundwater remedy was to be in place at that time.
- 2015 Boeing promises a "Suburban Residential" cleanup to residents.
- 2017 Boeing breaks cleanup promise and says it will cleanup to the significantly less protective "Recreational Cleanup."
- 2022 Boeing Settlement Agreement redefines **Residential with Garden**

*2007 & 2010 cleanup agreements
supported by local, state and
federal elected officials*

Learn more about the cleanup agreements: www.parentsagainstSSFL.com/cleanupagreements

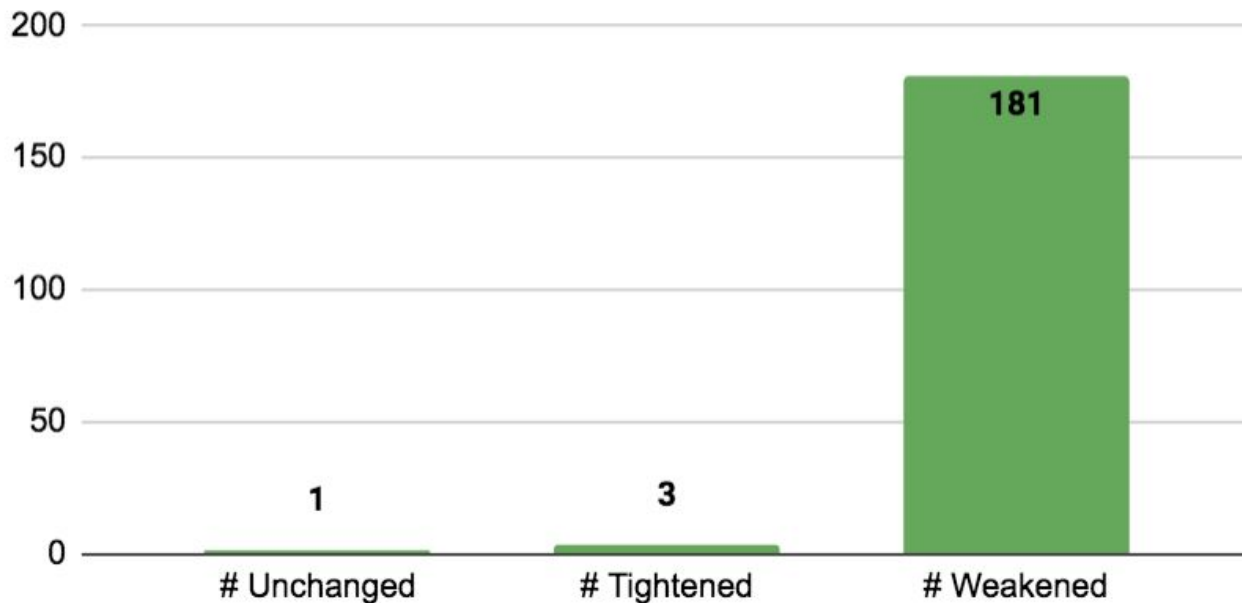
2022 Settlement Agreement: Risk Based Screening Levels

Number of Chemicals Whose Cleanup Levels (RBSL w/ 100x multiplier) in 2022 CalEPA-Boeing Agreement Have Been Weakened vs. Tightened Compared to 2007 Consent Order



2022 Settlement Agreement: Risk Based Screening Levels

Number of Chemicals Whose Ecological Risk-Based Screening Levels in 2022 CalEPA-Boeing Agreement Have Been Weakened vs. Strengthened Compared to 2007 Consent Order



Note: The 2014 SRAM and 2007 Order contemplate the use of the SRAM's Low TRV EcoRBSL. The 2022 CalEPA-Boeing Agreement, however, appears to expressly rule out the use of the more protective SRAM Low TRV EcoRBSL, and instead would require the use of the less protective SRAM High TRV EcoRBSL. (See Agreement pdf p. 199. The Agreement requires the use of the "Lowest Observable Adverse Effect Level," which is a term interchangeable with the High TRV EcoRBSL/High EcoRBSL, and which means concentrations that would cause observable adverse effects on the ecological receptors.)

Cleanup Agreements: Summary

DTSC will posit that the Residential with Garden cleanup standard alternative is still on the table and that it may be the chosen alternative in the final clean up decision documents. What they will not tell you, is that they have redefined the Residential with Garden standard by incorrectly changing the numbers in the Standardized Risk Assessment Methodology (SRAM) documents as well as by improperly applying the aforementioned biological and cultural exemption multipliers. Combined, these tactics will result in over 90-95% of the soil contamination being left on site.

2010 Cleanup Agreements: NASA, DOE & DTSC

Congress of the United States
Washington, D.C. 20515

October 14, 2021

The Honorable Jared Blumenfeld
Secretary
California Environmental Protection Agency
1001 I Street
Sacramento, CA 95812-2815

Dear Secretary Blumenfeld:

As we work to secure additional federal resources, we write to request an update regarding the status of the clean-up of the Santa Susana Field Laboratory (SSFL) site and to express our concerns about delays in the required clean-up.

As you know, clean-up of the SSFL site is of critical importance to the residents of Los Angeles and Ventura Counties who live near the site. It is imperative that the clean-up eliminate the potential significant health and safety risks for people who will continue to live nearby and those who will be using the site in future years.

At the federal level, we are absolutely committed to ensuring that the two federal responsible parties, the National Aeronautics and Space Administration (NASA) and the U.S. Department of Energy (DOE), uphold their commitments to the State of California and to our constituents to clean-up toxic chemical and radiological contamination at the SSFL site.

The 2007 Consent Order and 2020 Administrative Orders on Consent govern clean-up of the site and tasked the Department of Toxic Substances Control (DTSC) with responsibility for overseeing the clean-up. These Orders required that soil cleanup be completed by 2017, however the agreed upon soil remediation at the site has yet to begin. We are deeply concerned about the lengthy delays in the clean-up of SSFL, and we understand there have been reports that DTSC may be considering additional changes to the Standardized Risk Assessment Methodology, which may result in additional delays to the clean-up of soil contamination at SSFL.

We strongly support the existing cleanup agreements between the state and the three responsible parties. These agreements should be vigorously enforced and proceed with all appropriate urgency. We stand ready to take action at the federal level to ensure NASA and DOE are ready to proceed with the necessary clean-up pursuant to the 2007 Consent Order and 2010 Administrative Order on Consent, and we would appreciate an update on the status of the SSFL clean-up and the actions CalEPA and DTSC are taking to move forward with full site clean-up in an expeditious manner and to enforce those critical agreements.

Sincerely,



JULIA BROWNLEY
Member of Congress



BRAD SHERMAN
Member of Congress



ALEX PADILLA
U.S. Senator



JULIUS CORREA
Member of Congress



GRACE F. NAPOLITANO
Member of Congress

cc: The Honorable Gavin Newsom, Governor, State of California

2010 MAIN POINTS:

- Signed by NASA, Department of Energy, and Department of Toxic Substances Control (DTSC)
- Soil cleanup to be completed by Fall 2017 and a permanent groundwater remedy to be in place.
- Cleanup to **“background,”** that is, to remove all man-made contamination.
- All low-level radioactive debris and soil must be sent to low-radioactive licensed facilities and not local dumps.
- Exemptions to protect endangered wildlife and cultural artifacts

*2007 & 2010 cleanup agreements
supported by local, state and
federal elected officials*

Learn more about the cleanup agreements: www.parentsagainstssfl.com/cleanupagreements

Exemptions: Cultural and Biological

The 2010 “AOC” cleanup agreements included two clauses; biological and cultural exemptions. These were narrowly defined to prevent harm to endangered plants and animals and to protect cultural artifacts during the cleanup if there were no safe mitigation measures available.



PEIR: Biological Exemptions

AOC narrowly limits biological exemptions to where there has been a U.S. Fish and Wildlife Service Biological Opinion issued

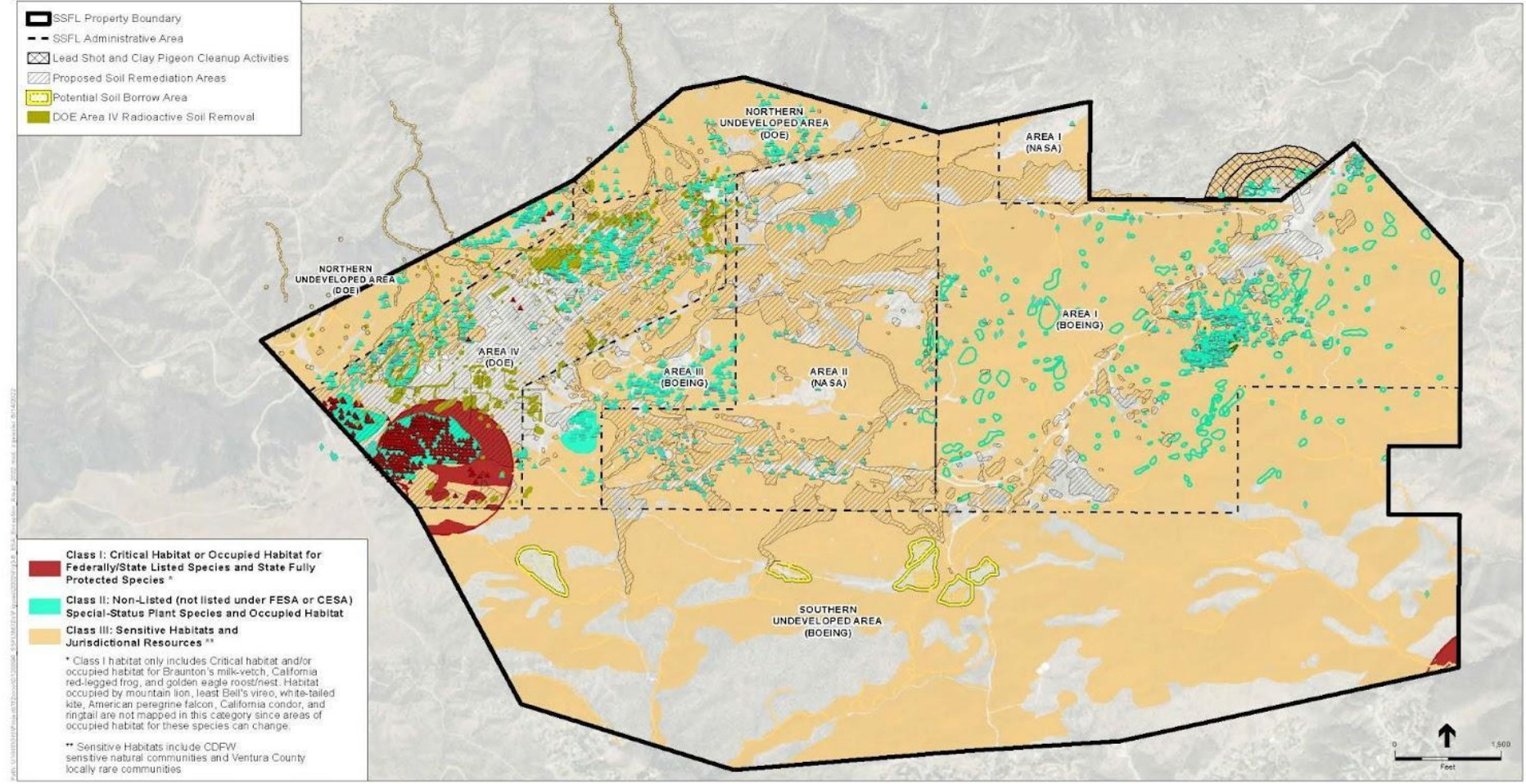
FWS must determine if a background cleanup would violate two specific provisions of the Endangered Species Act (ESA)

“Clean up contaminants to local background concentrations. Possible exceptions (where unavoidable by other means): ...Impacts to species or habitat protected under the Endangered Species Act may be considered as possible exceptions from the cleanup standard specified herein only to extent that the federal Fish and Wildlife Service, in response to a request by DOE for consultation, issues a Biological Opinion with a determination that implementation of the cleanup action would violate Section 7(a)(2) or Section 9 of the ESA, and no reasonable and prudent measures or reasonable and prudent alternatives exist that would allow for the use of the specified cleanup standard in that portion of the site.”

Biological Exemptions

US Fish and Wildlife Service has issued no such biological opinion.

Therefore, there can be no biological exemptions according to the 2010 AOC Cleanup agreements, although mitigation measures can be required.



SOURCE: Gold Copy 2012, DOE 2012, Boeing/MWH 2016, NASA/Leidos 2016, USFWS 2016, ESA 2022

Santa Susana Field Laboratory.120804

Mitigation Measures are Sufficient for Protecting Wildlife

Mitigation Measure BIO-22: Wildlife Movement. To minimize potential impacts to terrestrial wildlife species and wildlife movement that would result from roadkill, the following measures shall be implemented:

The cleanup activities shall be staggered across the site, limiting disturbances to specific locations that do not span the entire site, to provide refuge for wildlife that may use the site as a corridor.

If any terrestrial wildlife species that have entered the work area and could be harmed by work activities are encountered during biological monitoring or by construction workers, work shall halt in that work area until a qualified biologist, retained by the RPs, under the direction of DTSC, determines appropriate actions to avoid harm to the species. Wildlife shall be allowed to leave the work area before work may resume, or a qualified biologist may relocate non-listed species to areas of suitable habitat that would not be disturbed.

Nighttime work shall be avoided as much as possible. If nighttime remediation is necessary, all lighting shall be broadcast away from any wildlife movement areas, including areas that support wildlife movement such as ephemeral drainages and closed tree canopies, to the greatest extent practical. Any nighttime lighting shall be shielded downward as to avoid light spillage into the adjacent wildlife corridor to the south.

To the extent practicable, truck travel on access roads and within cleanup areas should avoid dawn and dusk when wildlife activity is high.

During rain events, work shall not occur within 50 feet of aquatic habitats or within a suitable buffer as determined by a qualified biologist.

Speeds shall be limited to 25 mph or less within the proposed remediation areas and along access roads.

2022 Settlement Agreement: Weakens Ecological Standards

DTSC has thrown out cleanup levels meant to protect biological receptors. They now uses standards by their own admission will cause observable adverse effects.

NOAEL: Highest dose at which there was not an observed toxic or adverse effect.

LOAEL: Lowest dose at which there was an observed toxic or adverse effect.

High TRVs in SRAM

The situation is even worse for the values given for terrestrial plants and soil invertebrates (the Low and High TRV EcoRBSL's discussed above are limited to mammals and birds).

As DTSC noted in comments on the SRAM:

“Most plant TRVs are not adjusted to a “no effect” level; this is also true for the soil invertebrate Toxicity Reference Values (TRVs) used to calculate the EcoRBSL's. Most of these are acutely lethal doses, concentrations such as LC50s [lethal concentration to 50% of the organisms exposed], divided by an uncertainty factor of as little as 5, to estimate a LOAEL. As such, if these EcoRBSL's are exceeded, it is generally more likely that impacts will occur to these communities than if the low EcoRBSL's are exceeded for mammals and birds, although there is also a large degree of uncertainty regarding these TRVs, as they are often based on acute studies which may not be accurate predictors of chronic effects.”

DTSC, comment about SRAM Rev2 Addendum

HARM TO WILDLIFE

Greenwashing

Jeni Knack
Parents Against SSFL



Greenwashing

The act or practice of making a product, policy, activity, etc. appear to be more environmentally friendly or less environmentally damaging than it really is.

Merriam-Webster



Definition

Using colours and images to suggest that the product is eco-friendly, when in fact there are very little differences

If it looks green, it's not necessarily green!



Greenwashing: Boeing “The Environmentalist”

2021 WHC Awards – Presented by Boeing



Congratulations to the 2021 WHC Award winners and finalists. The WHC Awards honor excellence in corporate conservation; recipients include both national and international companies across a variety of industry sectors. This year's top awards, signifying leadership in conservation, were won by Waste Management, Bayer and Ontario Power Generation.



2021 Winners and Finalists ✓

Corporate Conservation Leadership Award

- **Winner!** Waste Management

Other Habitats Project Award:

- AriansCo, AriansCo Conservation
- **Winner!** California Resources, Elk Hills Conservation Area
- CEMEX, Lake Wales Sand Mine
- Vulcan Materials, Azusa Rock

Pollinator Project Award:

- ITC Holdings, Transmission Line Right-of-Way at Chippewa Nature Center
- **Winner!** Waste Management, Bucks County Landfills

Remediation Project Award:

- **Winner!** Boeing, Santa Susana Field Laboratory

Reptiles and Amphibians Project Award:

- **Winner!** CRH Americas, Dufferin Aggregates Acton Quarry
- Georgia-Pacific, Chiefland Landfill

Rocky Areas Project Award:

- **Winner!** Exelon, Goat Hill Serpentine Barrens Restoration

2018 Winners and Nominees ✓

Gold Program Award

- **Winner!** General Motors, GM Canada CAMI Assembly Plant
- ITC Holdings, ITC Corporate Headquarters
- Boeing, Santa Susana Field Laboratory

Training Project Award

- Boeing, Santa Susana Field Laboratory
- CRH Americas, Cordell Road Facility
- **Winner!** ITC Holdings, ITC Transmission Right-of-Way at Tomlinson Arboretum

Remediation Project Award

- **Winner!** Boeing, Santa Susana Field Laboratory
- Waste Management, Twin Creeks Landfill

Other Species Project Award

- **Winner!** Boeing, Santa Susana Field Laboratory
- Exelon, Clinton Power Station
- Exelon, Quad Cities Generation Station

Awareness and Community Engagement Project Award

- ArcelorMittal, Burns Harbor
- **Winner!** Bayer, Camaçari Plant
- Boeing, Pollinator Prairie
- Waste Management, El Sobrante Landfill and Wildlife Preserve

Species of Concern Project Award

- Boeing, Santa Susana Field Laboratory
- **Winner!** Covia, Hager City/Bay City
- Exelon, Criterion Wind



Greenwashing: Boeing "Earth Day" Hikes



Greenwashing: Conservation Easement

A REUTERS SPECIAL REPORT

How Boeing created a nature preserve that may also preserve pollution

Boeing and dozens of other companies have granted “conservation easements” on some of the most contaminated land in the U.S. Companies can save millions on cleanups with these deals, arguing that no one will ever live there. Neighbors of one site are up in arms.

By [JAIMI DOWDELL](#) and [ANDREA JANUTA](#)

Filed July 20, 2022, 11 a.m. GMT

SECURING SANTA SUSANA'S OPEN SPACE

Stephen Thor Johnson

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“We are experiencing the most rapid changes in our global environment since humans evolved as a species,” said Stephen Thor Johnson, president of North American Land Trust.

“My colleagues and I are inspired and motivated to take meaningful steps to keep our environment healthy and resilient, with projects that can be models and inspiration for others to follow.”

Through an agreement between Boeing and the [North American Land Trust](#), a national nonprofit land conservation organization, about 2,400 acres (971 hectares) within the [Southern California Santa Susana Field Laboratory](#) will be forever protected from residential and agricultural development, regardless of future ownership. The property is home to a number of sensitive species and serves as a wildlife corridor ensuring the

viability of animal species that depend on the ability to move throughout large territories. The property also includes important cultural resources, including Native American archaeological sites, which are protected by the conservation easement.

In addition to Boeing's ongoing progress with cleanup and site restoration, the transformation of Santa Susana is well underway, with native plants and animals reclaiming most of the previously developed areas of the field laboratory. Santa Susana is home to more than 16 plants and animals that are either endangered, rare or a special species of concern. The site includes unique plants such as the Braunton's milkvetch and the Santa Susana Tarplant, which serve as critical habitat for pollinators and other animal species.

“The opportunity to collaborate with Boeing to conserve such a significant tract of wildlife habitat and cultural and historic resources is a once-in-a-lifetime opportunity. To do so within an hour's drive of 20 million people is simply extraordinary. The value of this open space will be magnified over the coming decades and be remembered as a truly visionary act like the creation of Central Park or the conservation of the Presidio.”

*See Endnotes



Read Full Article: [How Boeing created a nature preserve that may also preserve pollution](#)

Greenwashing: Environmental Donations

Boeing Donates \$1 Million to Wallis Annenberg Wildlife Crossing

Nadia Gonzalez // Feb 03, 2022 //

Donation Supports Local Mountain Lion Population, Adds to Company's Ongoing Environmental Stewardship Efforts to Protect Wildlife Corridors



LOS ANGELES — The Boeing Company has made a \$1 million donation to the Wallis Annenberg Wildlife Crossing. The

“We are pleased to make this contribution to this historic crossing and are committed to environmental protection and stewardship at all levels...this investment demonstrates our ongoing commitment to preserving the unique heritage of the area,” said Ziad Ojakli, executive vice president for government operations at the Boeing Company. **“Today’s investment demonstrates our ongoing commitment to preserving the unique wild heritage and biodiversity of the area, including the Santa Susana site.”**

donations to our important community-based work like wildlife 2 watts and building schoolyard habitats, said Dirk Sellers,

HARM TO WILDLIFE

SSFL Wildlife and Wildlife found Downstream

Tevin Schmitt
Watershed Scientist
Wishtoyo Chumash Foundation



Pollutants Found at SSFL and Their Ecological Impacts

- Lead
- Polychlorinated Biphenyls (PCBs)
- TCE and Chlorinated Solvents
- 1,4 Dioxane
- Perchlorates

The pollutants found at the field lab are known carcinogens, teratogens (cause malformation of an embryo), cause reproductive harm, are endocrine disruptors, and can cause reproductive failure for sensitive and listed species on site as well as species in the watersheds downstream of the field lab

Lead

Lead poisoning in birds can lead to anorexia, drooped wings, weakness, incoordination, and make them more vulnerable to predation. Lead poisoning from hunting ammunition was one of the leading causes of the decline of California Condors over the past century.

Aquatic wildlife exposed to chronic lead contamination can result in the inhibition of metamorphosis, neurologic development, and other developmental processes.

Attachment 1
List of Chemicals Historically Detected at the SSFL - by Media

Chemical	CAS#	Chemical Synonym	Chemicals Detected in Soil ^a	Chemicals Detected in Soil Vapor ^b	Chemicals Detected in Ephemeral Surface Water ^c	Chemicals Detected in Permanent Surface Water ^c	Chemicals Detected in Ephemeral Sediment ^d	Chemicals Detected in Permanent Sediment ^d	Chemicals Detected in Near-Surface Groundwater ^e	Chemicals Detected in Seeps/ Springs ^f
Inorganic Compounds			X		X	X	X	X		X
Aluminum	7429905	Aluminum, Total	X			X		X	X	
Aluminum, dissolved	7429905-D	-				X			X	
Antimony	7440360	Antimony, Total	X			X		X	X	
Antimony, dissolved	7440360-D	-				X			X	
Arsenic	7440382	Arsenic, Total	X			X	X	X	X	
Arsenic, dissolved	7440382-D	-				X			X	
Barium	7440393	Barium, Total	X		X	X		X	X	X
Barium, dissolved	7440393-D	-			X	X			X	
Beryllium	7440417	Beryllium, Total	X			X	X	X	X	
Beryllium, dissolved	7440417-D	-				X			X	
Boron	7440428	Boron, Total	X			X		X	X	
Boron, dissolved	7440428-D	-				X			X	X
Cadmium	7440439	Cadmium, Total	X			X		X	X	
Cadmium, dissolved	7440439-D	-				X			X	
Chromium	7440473	Chromium, Total	X			X	X	X	X	X
Chromium, dissolved	7440473-D	-			X	X			X	
Cobalt	7440484	Cobalt, Total	X			X		X	X	
Cobalt, dissolved	7440484-D	-				X			X	
Copper	7440508	Copper, Total	X			X	X	X	X	
Copper, dissolved	7440508-D	-			X	X			X	
Cyanides	57125	Cyanide, Total	X			X				
Fluoride	7782414	-	X			X		X	X	X
Hexavalent Chromium	18540299	Chromium, Hexavalent	X			X				
Hexavalent Chromium, dissolved	18540299-D	-								
Hydrogen Cyanide	74908	-								
Lead	7439921	Lead, Total	X		X	X	X	X	X	
Lead, dissolved	7439921-D	-				X			X	
Lithium	7439932	Lithium, Total	X							
Lithium, dissolved	7439932-D	-								
Manganese	7439965	Manganese, Total	X			X		X	X	
Manganese, dissolved	7439965-D	-			X	X			X	
Mercury	7439976	Mercury, Total	X			X	X	X		
Mercury, dissolved	7439976-D	-				X				
Methyl Mercury	22967926	-	X							
Molybdenum	7439987	Molybdenum, Total	X			X		X	X	
Molybdenum, dissolved	7439987-D	-				X			X	
Nickel	7440020	Nickel, Total	X			X	X	X	X	X
Nickel, dissolved	7440020-D	-			X	X			X	
Phosphorus	7723140	-	X			X		X		
Phosphorus, dissolved	7723140-D	-				X				

Polychlorinated Biphenyls (PCBs)

Carcinogenic

Causes low birth weight, decline in sperm count, suppress immune system function,

Neurological impacts include visual recognition, short-term memory and learning deficits

Decreased thyroid hormone levels and other endocrine impacts like developmental deficits

Attachment 1
List of Chemicals Historically Detected at the SSFL - by Media

Chemical	CAS#	Chemical Synonym	Chemicals Detected in Soil ^a	Chemicals Detected in Soil Vapor ^b	Chemicals Detected in Ephemeral Surface Water ^c	Chemicals Detected in Permanent Surface Water ^c	Chemicals Detected in Ephemeral Sediment ^d	Chemicals Detected in Permanent Sediment ^d	Chemicals Detected in Near-Surface Groundwater ^e	Chemicals Detected in Seeps/ Springs ^e
2,3,7,8-TCDD_TEQ_Bird	1746016-TEQ_Bird	-	X			X		X		
2,3,7,8-TCDD_TEQ_Fish	1746016-TEQ_Fish	-				X		X		
2,3,7,8-TCDD_TEQ_Mammal	1746016-TEQ_Mammal	-	X			X		X		
Octachlorodibenzofuran	39001020	OCDF	X			X		X	X	
Octachlorodibenzo-p-dioxin	3268879	-	X					X	X	
Polychlorinated Biphenyls (PCBs)			X			X		X		
Aroclor 1016	12674112	-	X			X		X		
Aroclor 1221	11104282	-				X				
Aroclor 1232	11141165	-				X				
Aroclor 1242	53469219	Aroclor-1242	X			X				
Aroclor 1248	12672296	-	X			X				
Aroclor 1254	11097691	-	X			X		X		
Aroclor 1260	11096825	-	X			X				
Aroclor 5460	11126424	-	X							
PCB_TEQ_Bird (Coplanar PCBs)	1746016-PCB-TEQ_Bird	-	X			X		X		
PCB_TEQ_Fish (Coplanar PCBs)	1746016-PCB-TEQ_Fish	-				X		X		
PCB_TEQ_Mammal (Coplanar PCBs)	1746016-PCB-TEQ_Mammal	-	X			X		X		
PCB-194	35694087	-	X							
Chemical Parameters			X		X	X		X		X
Ammonia-N	7664417	Nitrogen, as Ammonia	X						X	
Chloride	16887006	-	X		X	X		X	X	X
Nitrite-NO2	E-10128	-	X			X		X		
Oil content	E-10140	-				X				
Orthophosphate – PO4	14265442	-	X							
Sulfate	14808798	-	X		X	X		X	X	X

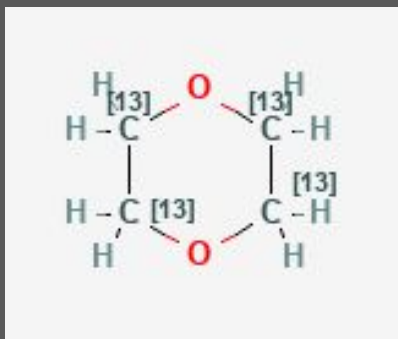
Notes:

- ^a Chemicals detected in Groups 1A, 4, 6, 7, 8, 1B, 5, 10, 3 (WCT only), and 9 (Silverdale only) surface soil.
- ^b Chemicals detected in Groups 1A, 4, 6, 7, 8, 1B, 5, 10, 3 (WCT only), and 9 (Silverdale only) soil vapor.
- ^c Chemicals detected in Groups 4 (Coca only), 6 (SRE only), 1B, 5, 10, 3 (WCT only), and 9 (Silverdale only) surface water.
- ^d Chemicals detected in Groups 4 (Coca only), 6 (SRE only), 1B, 5, 10, 3 (WCT only), and 9 (Silverdale only) sediment.
- ^e Chemicals detected in site wide near-surface groundwater, seeps, and springs.

DDD - Dichlorodiphenyldichloroethane
DDE - Dichlorodiphenyldichloroethylene
DDT - Dichlorodiphenyltrichloroethane
PCB - Polychlorinated biphenyl

1,4 Dioxane

Causes nasal cavity, liver, and kidney damage



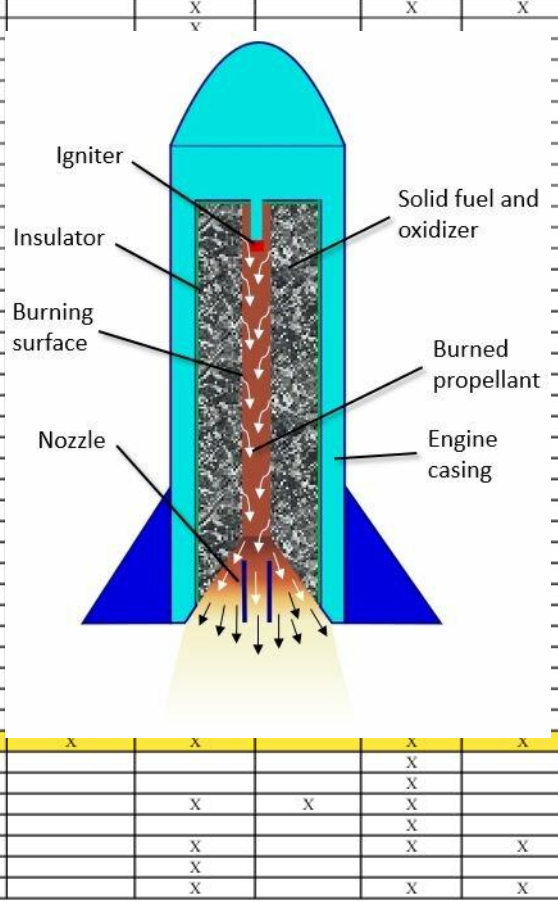
Chemical	CAS#	Chemical Synonym	Chemicals Detected in Soil ^a	Chemicals Detected in Soil Vapor ^b	Chemicals Detected in Ephemeral Surface Water ^c	Chemicals Detected in Permanent Surface Water ^c	Chemicals Detected in Ephemeral Sediment ^d	Chemicals Detected in Permanent Sediment ^d	Chemicals Detected in Near-Surface Groundwater ^e	Chemicals Detected in Seeps/ Springs ^e
Naphthalene, 1-(2-Propyl)-	2489863	1-(2-Propyl)-Naphthalene								
n-Butylbenzene	104518	-	X	X				X		
n-Hexane	110543	-							X	
Nitrobenzene	98953	-				X		X	X	
n-Propylbenzene	103651	-	X	X				X		
o + p Xylene	E-14095	-								
o-Chlorotoluene	95498	2-Chlorotoluene	X							
Octanal	124130	-								
o-Xylene	95476	-	X	X				X		
p-Chlorotoluene	106434	4-Chlorotoluene	X							
p-Cymene	99876	p-Isopropyltoluene	X	X				X		
Propanoic Acid, 2-Methyl-, ethyl ester	97621	Ethyl Ester 2-Methyl-								
sec-B										
Styrene										
tert-B										
Tetra										
Tetra										
Tetra										
Toluene										
trans-										
Trich										
Trich										
Trime										
Trime										
Undecane	1120214	-								
Vinyl acetate	108054	-								
Vinyl chloride	75014	-	X	X		X		X	X	X
Xylenes, Total	1330207	Xylene (Total) Isomers	X	X		X		X	X	
Semi-Volatile Organic Compounds										
1,1-Dimethylhydrazine	57147	-		X						X
1,1'-Phenylene-Bis-Ethanone	704007	-								
1,2-Dibromo-3-chloropropane	96128	1,2-Dibromo-3-CPA	X					X		
1,4-Dioxane	123911	-	X						X	
2,4,5-Trichlorophenol	95954	-	X							
2,4,6-Trichlorophenol	88062	-	X			X			X	
2,4-Dichlorophenol	120832	-				X				
2,4-Dimethylphenol	105679	-	X			X				
2,4-Dinitrophenol	51285	-				X				
2,6-Dinitrotoluene	606202	-				X				
2-Butoxyethoxyethanol	112345	Ethanol, 2-(2-butoxyethoxy)- 1						X		
2-Naphthalenecethanol	1485070	2-Naphthalene ethanol								
2-n-Butoxyethanol	111762	Butoxycellosolve							X	
3,3'-Dichlorobenzidine	91941	-				X				
3,5-Dimethylphenol	108689	-	X							
4,6-Dinitro-o-cresol	534521	4,6-Dinitro-2-				X				

Perchlorate

Perchlorate can competitively inhibit iodide uptake, reducing thyroid hormone production; further affecting normal metabolism, growth, and development of organisms

Known carcinogen

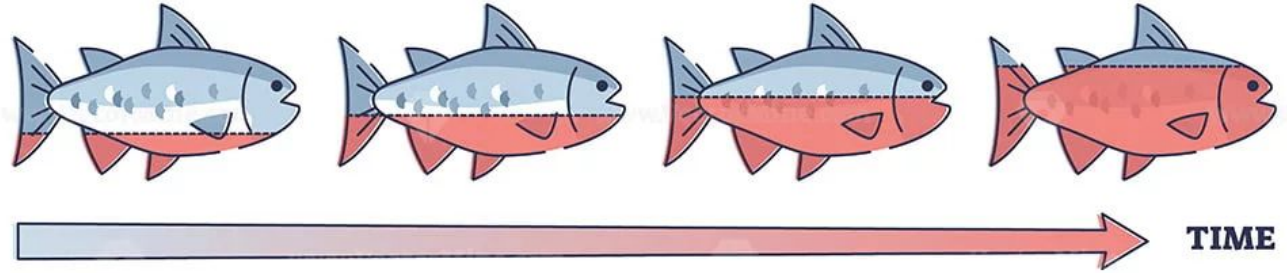
Silver, dissolved	7440224	Silver, Total	X	
Strontium	7440246	Strontium, Total	X	
Strontium, dissolved	7440246-D	-		
Thallium	7440280	Thallium, Total	X	
Thallium, dissolved	7440280-D	-		
Tin	7440315	Tin, Total	X	
Tin, dissolved	7440315-D	-		
Titanium	7440326	Titanium, Total	X	
Titanium, dissolved	7440326-D	-		
Tritium	10028178	Tritium, Total		
Uranium	7440611	Uranium-238		
Vanadium	7440622	Vanadium, Total	X	
Vanadium, dissolved	7440622-D	-		
Zinc	7440666	Zinc, Total	X	
Zinc, dissolved	7440666-D	-		
Zirconium	7440677	Zirconium, Total	X	
Zirconium, dissolved	7440677-D	-		
Energetic Constituents			X	
1,2-Dinitrobenzene	528290	o-Dinitrobenzene	X	
1,2-Diphenylhydrazine	122667	-		
1,3-Dinitrobenzene	99650	m-Dinitrobenzene	X	
1,4-Dinitrobenzene	100254	p-Dinitrobenzene		
2,4,6-Trinitrotoluene	118967	-	X	
2,4-diamino-6-nitrotoluene	6629294	-		
Hydrazine				3
Monomethylhydrazine				6
Nitroglycerin				5
Perchlorate				14
PETN				2
Nitroglycerin	55630	-		
Perchlorate	14797730	-	X	
PETN	78115	-		X
RDX	121824	-	X	X
Volatile Organic Compounds			X	
1,1,1,2-Tetrachloroethane	630206	-	X	X
1,1,1-Trichloroethane	71556	-	X	X
1,1,2,2-Tetrachloroethane	79345	-	X	X
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	Freon 113	X	X



Bioaccumulation and Biomagnification

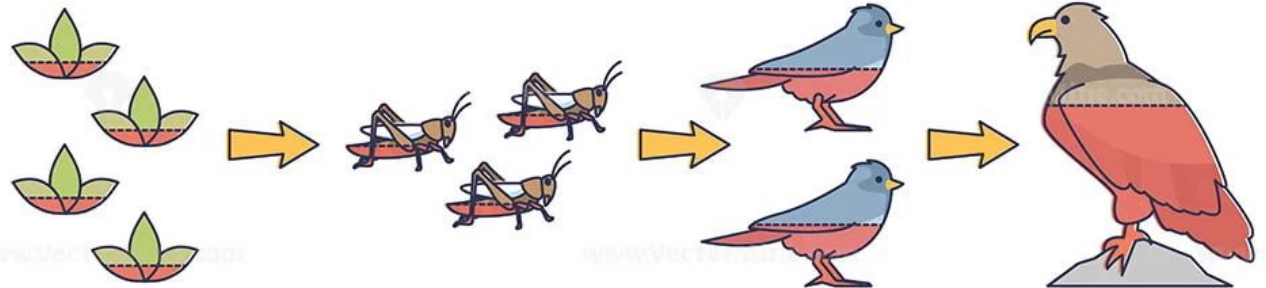
Impacts to these lower trophic groups have dramatic impacts to meso and apex predators, through biomagnification and bioaccumulation of contamination, and decreased food supply

BIOACCUMULATION



● CONTAMINANT

BIOMAGNIFICATION



Trophic Cascade

A trophic cascade is an ecological event that involves changes to the structure of an ecosystem resulting from changes to animals or plants at one or more levels of the food chain.



Pervasive Contaminants

Contaminants found at SSFL are known to depress invertebrate populations and inhibit essential functions of photosynthesis in plant life



Pervasive Contaminants

Rodents, reptiles, amphibians, and small birds all rely on seeds, leaves, fruit, and abundant invertebrate populations for the majority of their sustenance.



Pervasive Contaminants

Impacts to these lower trophic levels have dramatic impacts to meso and apex predators, through biomagnification and bioaccumulation of contamination, and decreased food supply.



Impacts to Mountain Lions

Mountain lions have already experienced significant population decline and bottlenecking in the Santa Susana and Santa Monica Mountains

As apex predators, Mountain lions are the most vulnerable to biomagnification of the contaminants found at SSFL



Impacts to Mountain Lions

Contaminants that act as endocrine disruptors can further compound issues with decreasing genetic diversity and inbreeding



Impacts to Mountain Lions

Contaminants from SSFL that impact the effectiveness of the immune system (PCBs and perchlorate) will undoubtedly further impact this population that is already declining due to anticoagulant rodenticides and mange



Impacts to Endangered Species

Surrounding area and watersheds are home to at least 17 federally listed species



TWO-STRIPED GARTER SNAKE



LYON'S PENTACHAETA



VERNAL POOL FAIRY SHRIMP

CALIFORNIA ORCUTT GRASS



BRAUNTON'S MILK-VETCH



RED-LEGGED FROG



CONEJO DUDLEYA



RING-TAILED CAT



LOGGERHEAD SHRIKE



QUINO CHECKERSPOT



RIVERSIDE FAIRY SHRIMP



SPREADING NAVARRETTIA



COAST HORNED LIZARD



PLUMMER'S MARIPOSA LILY



LEAST BELL'S VIREO



SANTA SUSANA TARPLANT



SANTA MONICA MOUNTAINS DUDLEYA



COASTAL CA GNATCATCHER

Impacts to Endangered Species

Insectivorous birds like the federally listed Least Bell's Vireo, Coastal California Gnatcatcher, and Southwestern Willow Flycatcher are dependent on healthy invertebrate populations, which can be significantly impacted by the contaminants found at SSFL



Impacts to Endangered Species

Braunton's milk-vetch has critical habitat adjacent to SSFL. Heavy metals, radionuclides, and other harmful contaminants can cause low biomass accumulation, chlorosis, inhibition of growth and photosynthesis, altered water balance and nutrient assimilation, and senescence



Impacts to Endangered Species

The surrounding watersheds are also home to sensitive and endangered amphibian species like the Arroyo Toad and California Red-legged Frog, which are particularly sensitive to endocrine disruptors, metals, and other waterborne contaminants



Relaxed Clean-up Standards are Harmful to Humans and Wildlife

Boeing, NASA and Dept. of Energy's unwillingness to remediate SSFL to the most protective standards will have severe consequences for local plants, wildlife, and endangered species




“If the property is not safe for people, then it certainly is not safe for much of the wildlife.”

Dr. Frank von Hippel



Ecological Impacts Outside of the SSFL Site

- 
- A close-up photograph of a frog with a mottled pattern of brown, black, and white spots on its back and legs. The frog is sitting on a dark, textured rock surface. The background is slightly out of focus, showing more of the rock and some green foliage in the lower right corner.
- Continuous stormwater and surface water pollution runoff from SSFL
 - Polluted runoff flows into the Arroyo Simi, a tributary of Calleguas Creek, and the LA River
 - This surface water pollution is harmful to sensitive wildlife and people that depend on these bodies of water

CEQA Protections for Biological Resources

- The Environmental review process through CEQA requires the analysis of impacts to biological resources, as well as many other environmental factors.
- CEQA also requires mitigation measures for these impacts.
- Mitigation measures for biological resources in the PEIR include requiring USFWS/CDFW approved biologists on site to monitor work to ensure there is no harm done to sensitive or listed species like the Braunton's milk vetch
- Biological mitigation measures also include a weed management plan and a revegetation plan that requires a restoration ecologist to draft a revegetation and restoration plan for impacted vegetation communities.

Short vs. Long Term Impacts

- At the end of the day, there will likely be short-term impacts to biological resources, including some sensitive species and vegetation communities as a result of the remediation effort.
- However, there are countless long-term impacts that are currently impacting local wildlife communities at the site and the watersheds into which the SSFL drains.
- These pollutants must be cleaned up for the protection and benefit of the sensitive ecosystems, wildlife, and communities found in the Santa Susana mountains.
- The EIR drafted for the remediation effort includes mitigation measures that mitigate the short term impacts of remediation efforts on sensitive biological communities and resources

A complete cleanup protects wildlife



After decades of polluting and harming the land, water, and wildlife at the SSFL, DTSC claims leaving most of the contamination is environmentally responsible.

Only a complete, “background” cleanup removes all man-made contamination and returns the Santa Susana Field Lab to its native state where wildlife can thrive.

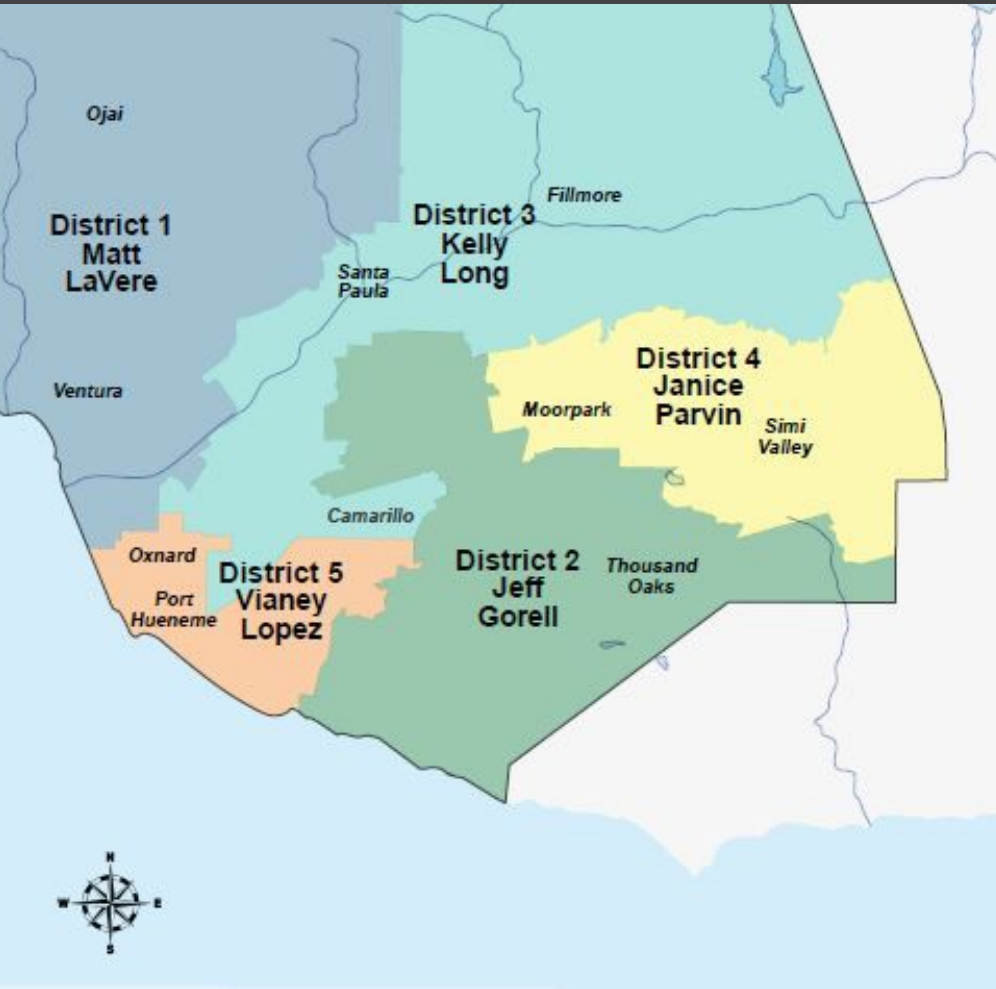
HARM TO WILDLIFE

Next Steps

Melissa Bumstead
Parents Against SSFL



Next Steps: Board of Supervisors



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LOS ANGELES COUNTY

Supervisor Lindsey Horvath
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Potential Message for elected officials:

“I am concerned about the Department of Toxic Substances Control’s recent SSFL Environmental Impact Report and how it will result in the leaving of over 90% of the soil contamination on site. I support the full clean up of the Santa Susana Field Lab as outlined in the 2010 and 2007 cleanup agreements.”

Next Steps: Stay in touch



Email us:

santasusanacampaign@gmail.com



Join our mailing list:

www.parentsagainstssfl.com/newsletter