

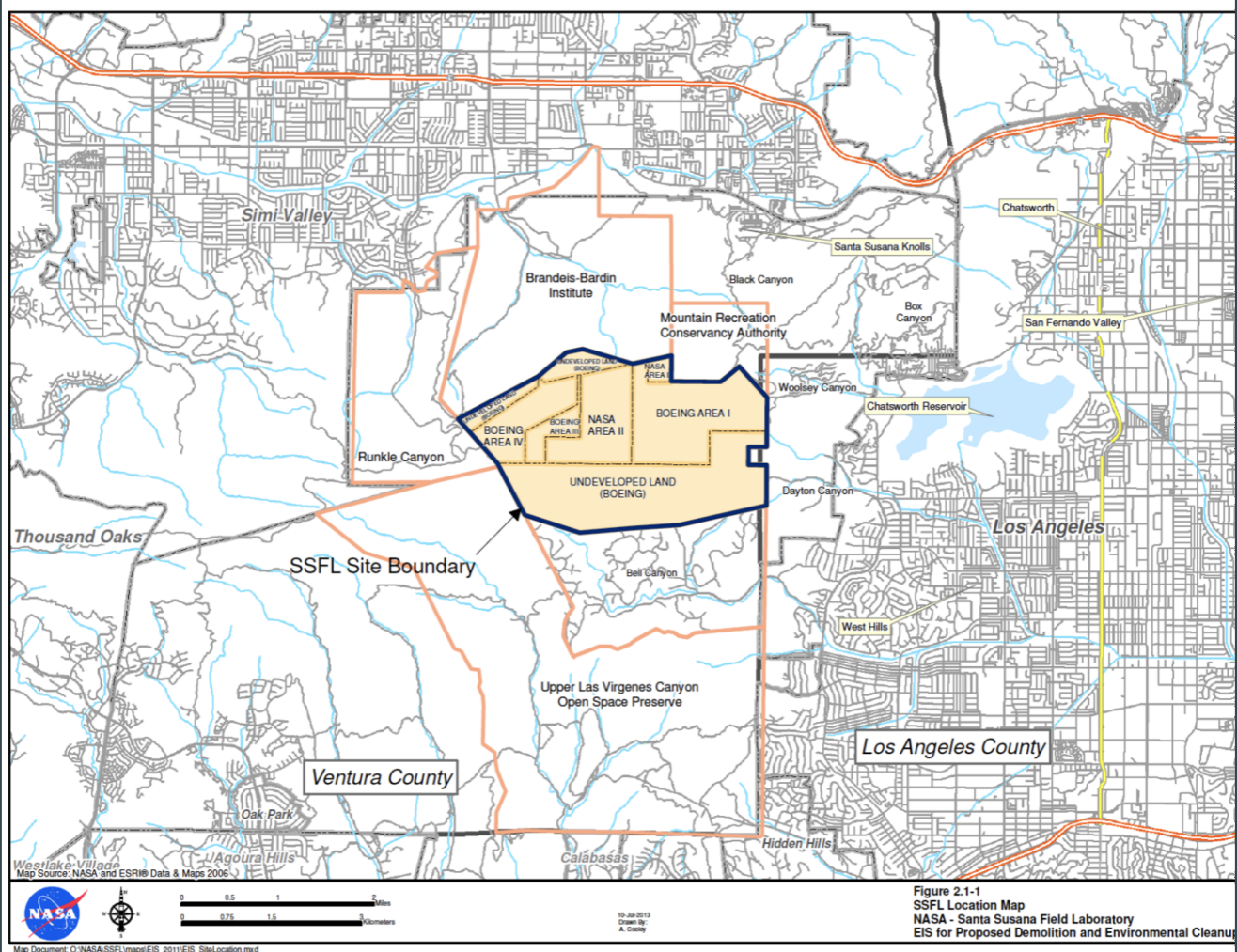
NASA's Nomination of All of the Contaminated Santa Susana Field Laboratory Does Not Meet the Requirements for Listing on the NRHP

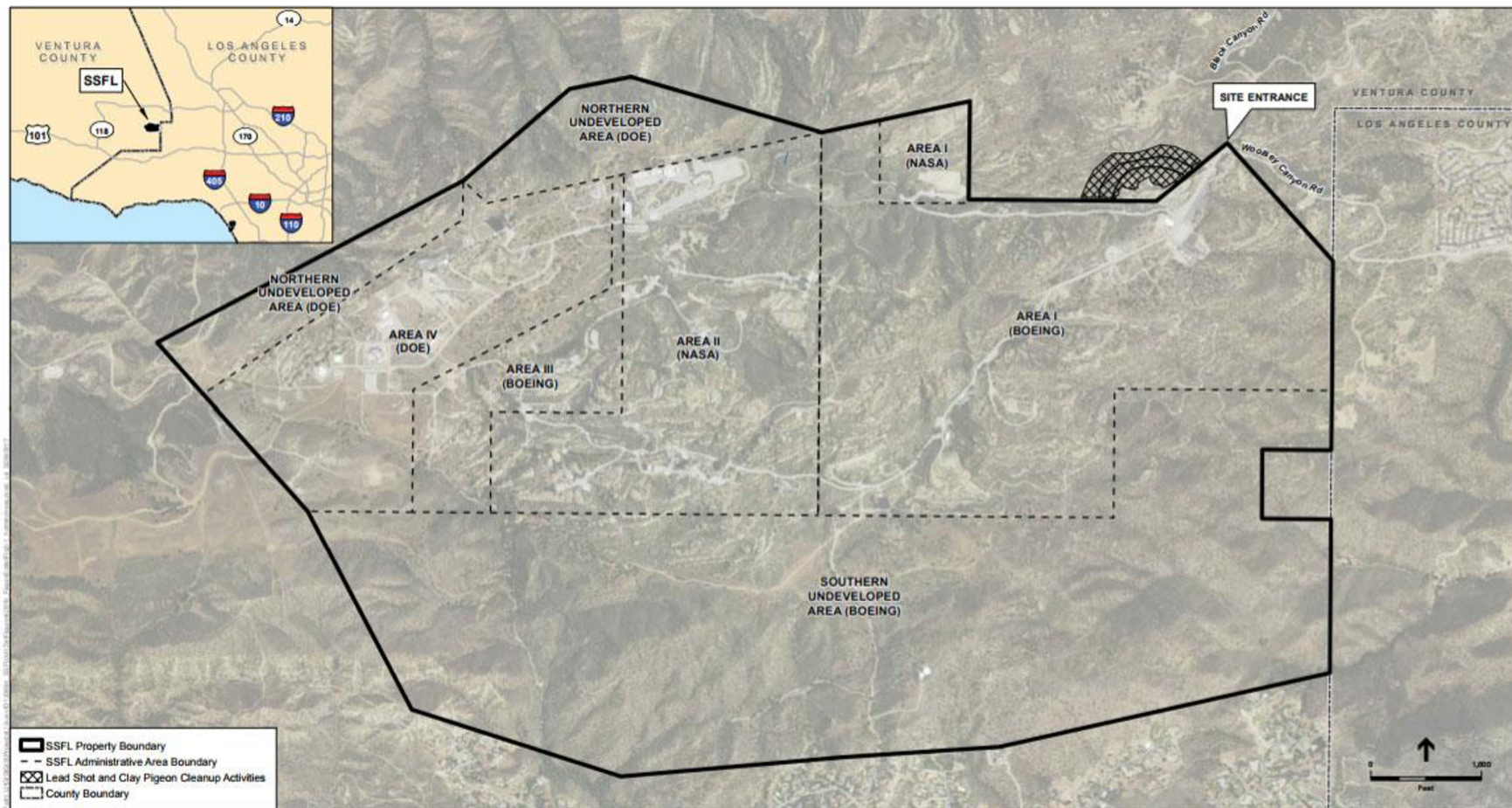
BY DANIEL HIRSCH



RETIRED DIRECTOR, PROGRAM ON ENVIRONMENTAL AND
NUCLEAR POLICY, UC SANTA CRUZ
PRESIDENT, COMMITTEE TO BRIDGE THE GAP

29 June 2020





Decades of nuclear reactor accidents, including a partial meltdown, and tens of thousands of rocket tests have made the Santa Susana Field Laboratory **one of the most contaminated places in the nation.**

The parties responsible for the contamination--Boeing, the Department of Energy, and NASA--signed legally binding agreements to fully clean up the radioactive and toxic chemical contamination by 2017, but the soil **cleanup has not even begun.**

STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

In the Matter of:)	Docket No. HSA-CO 10/11 - 038
Santa Susana Field Laboratory)	
Simi Hills)	ADMINISTRATIVE ORDER ON
Ventura County, California)	CONSENT FOR REMEDIAL ACTION
CA1800090010 (NASA))	
)	
)	Health and Safety Code Sections
The United States National Aeronautics)	25355.5(a)(1)(B), 58009 and 58010
and Space Administration)	
)	
(Respondent))	

Ventura County has long supported the full cleanup required by the AOC cleanup agreements.



**BOARD OF SUPERVISORS
COUNTY OF VENTURA**
625 WEST HILLCREST DRIVE, THOUSAND OAKS, CA 91320

MEMBERS OF THE BOARD
JOHN C. ZARAGOZA
Chair
STEVE BENNETT
LINDA PARKS
KELLY LONG
PETER C. FOY

March 7, 2017

Ms. Stephanie Jennings
NEPA Document Manager, SSFL Area IV EIS
U.S. Department of Energy
4100 Guardian Street, Suite 160
Simi Valley, CA 92663

Dear Ms. Jennings:

Thank you for the opportunity to comment.

Unfortunately the EIS does not analyze cleaning the DOE site to the agreed upon stipulations in the 2010 Agreement On Consent. Instead, hundreds of thousands of cubic yards of soil, some with known significant chemical and radiological contamination that would be covered by the AOC, are exempted from remediation. The public's health must be your first priority. A clear analysis of a project that will remediate contamination as agreed upon in the AOC needs to be thoroughly evaluated in the EIS.

The DOE must not leave unknown quantities and concentrations of contamination on site, nor avoid due diligence in analyzing full remediation of known contaminants in excess of background levels. The EIS's exemption of hundreds of thousands of cubic yards of soil, on the basis that it may impact biological or cultural resources, is premature, lacks transparency, renege on DOE's agreement from the 2010 AOC, and if implemented, would threaten the public's health.

The Ventura County Board of Supervisors strongly recommends that the EIS be consistent with remediation of DOE's SSFL site to the levels stipulated in the AOC.

Sincerely,

John Zaragoza
Chair, Board of Supervisors

cc: Matt Rodriguez, Secretary, Cal EPA
Barbara Lee, Director, DTSC



**BOARD OF SUPERVISORS
COUNTY OF VENTURA**
625 WEST HILLCREST DRIVE, THOUSAND OAKS, CA 91320

December 12, 2017

SSFL CEQA Comments
California Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Re: Draft Program Environmental Impact Report for the Santa Susana Field Laboratory Project (SCH# 2013111068)

To the California Department of Toxic Substances Control:

On behalf of the Ventura County Board of Supervisors, I want to thank you for the opportunity to comment on the Draft Program Environmental Impact Report for the Santa Susana Field Laboratory Project.

In 2010, legally binding cleanup agreements called Administrative Orders on Consent (AOC), were entered into by NASA and DOE with DTSC. The AOC requires all of the detectable radioactive and chemical contamination at their SSFL operations to be cleaned up to levels similar to those before the site was contaminated.

DTSC has indicated that in implementing its cleanup authorities, its normal procedure is to clean up to uses consistent with local government land use plans and zoning, which in this case would be Ventura County's General Plan and zoning. Currently the General Plan designates the SSFL land Open Space and the zoning is a mix of Open Space and Rural Agricultural. Both the Open Space and Rural Agricultural zones allow for a multitude of land uses, including residential and agricultural. However, the DPEIR uses a cleanup standard that neglects to address all of the land uses allowed by the land's zoning and instead restricts cleanup to a lesser "suburban residential" standard that precludes agriculture, despite the fact that every non-coastal zone in Ventura County allows for agricultural crop production.

The Ventura County Board of Supervisors has long supported full cleanup of the Santa Susana Field Laboratory instead of leaving toxic pollutants on site. It is concerning that contrary to the AOC and DTSC's longstanding cleanup commitments, the DPEIR contemplates leaving contaminants in place with a broader use of exceptions than are allowed in the AOC.

MEMBERS OF THE BOARD
JOHN C. ZARAGOZA
Chair
STEVE BENNETT
LINDA PARKS
KELLY LONG
PETER C. FOY

JOHN C. ZARAGOZA
SUPERVISOR, 10TH DISTRICT
(805) 654-2613
FAX: (805) 658-0115
E-mail: john.zaragoza@ventura.org



**BOARD OF SUPERVISORS
COUNTY OF VENTURA**
GOVERNMENT CENTER, HALL OF ADMINISTRATION
800 SOUTH VICTORIA AVENUE, VENTURA, CALIFORNIA 93009

December 17, 2019

Mr. Peter Zorba, SSFL Project Director
5800 Woolsey Canyon Road
Canoga Park, CA 91304

Subject: County of Ventura Board of Supervisors Comments on National Aeronautics and Space Administration's (NASA) Draft Supplemental Environmental Impact Statement (SEIS) for Soil Cleanup Activities at Santa Susana Field Laboratory (SSFL) in Ventura County

Dear Mr. Peter Zorba:

Thank you for the opportunity to review and comment on the subject document. It has been a longstanding position of the County of Ventura to seek that NASA, as an owner of land at SSFL, clean up contamination to the most protective standards, equivalent to background and consistent with NASA's agreed upon 2010 Administrative Order on Consent (AOC). Alternative A in the Draft SEIS is the only alternative that cleans the site to AOC requirements and as such is aligned with Ventura County's position to be protective of the public's health, our first priority.

NASA's November 20, 2019 hearing portrayed the draft SEIS alternatives as having "no discernable differences to health and safety" even though risks would persist if alternatives other than Alternative A were selected. This is because the contamination that would be left on site by the other alternatives would continue to threaten the health and safety of people onsite and offsite during wind, rain, fire and other events. Recently SSFL had 57 violations of pollution standards from stormwater released offsite after the 2018 Woolsey Fire.

The types of contaminants found at SSFL have been linked to an increased risk of disease including cancer, thyroid disorders, lymphoma, and leukemia. Draft SEIS maps show that alternatives other than Alternative A would leave large areas of NASA's SSFL property contaminated. Entertaining any alternative other than Alternative A would break the legally binding terms of the AOC.

MEMBERS OF THE BOARD
STEVE BENNETT, Chair
LINDA PARKS
KELLY LONG
ROBERT O. HUBER
JOHN C. ZARAGOZA

Board of Supervisors
December 17, 2019
Page 2

Furthermore, the current land use of the NASA property is open space. Section 8104-1.1 Open Space of the Ventura County Non-Coastal Zone Ordinance outlines the purpose and land uses of the Open Space Zone. NASA and Boeing incorrectly conclude that the future land use would be limited to recreational (DEIS, 2019; Executive Summary page 5, and Boeing, 2017a). The Open Space Zone in Ventura County allows for more than recreation. It also allows among other uses, agriculture and housing. Clearly, leaving contaminated soils with the potential for agriculture and housing would pose future health risks.

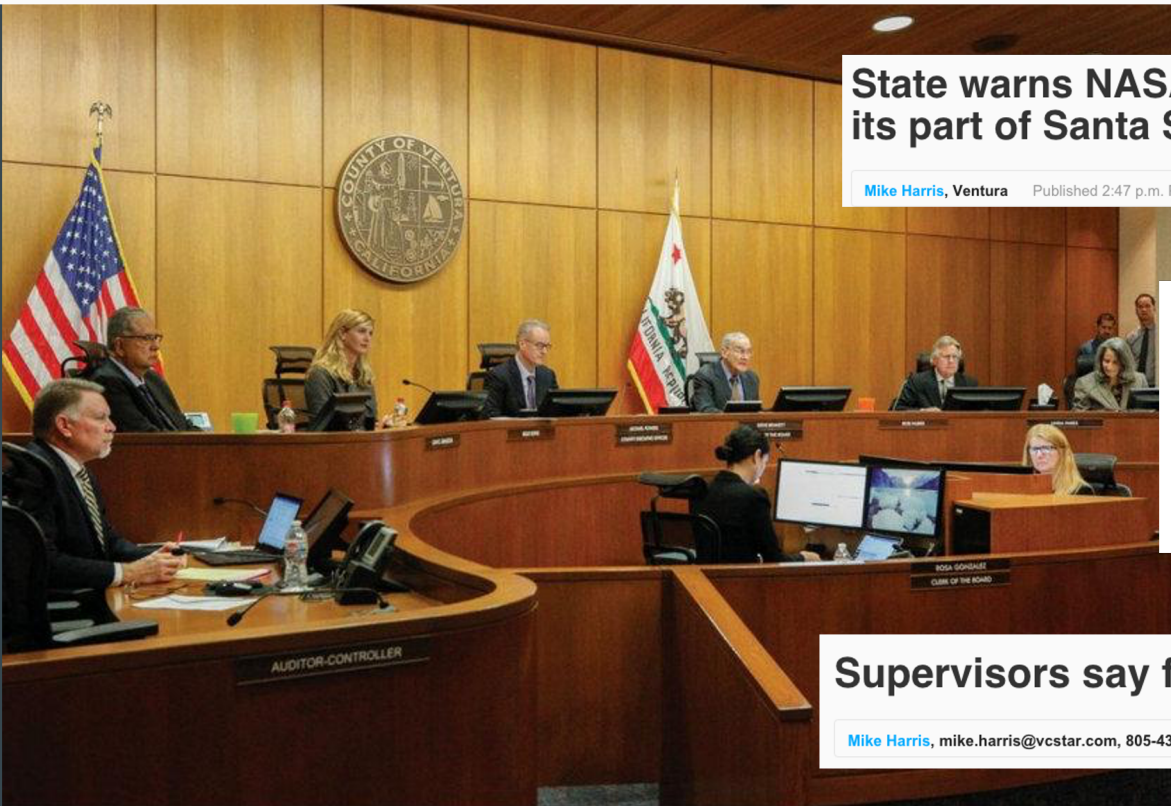
It is of the utmost importance that the SSFL property be fully cleaned up to protect public health and safety. The Ventura County Board of Supervisors strongly recommends Alternative A ("AOC Cleanup") and opposes other alternatives that leave contaminants on site that are not consistent with levels stipulated in the AOC.

Sincerely,

Steve Bennett, Chair
Ventura County Board of Supervisors

Ventura County supervisors urge NASA to stick to agreement to fully clean up toxic site

Mike Harris, Ventura County Star Published 6:00 a.m. PT Jan. 9, 2020



State warns NASA it must uphold agreement to clean up its part of Santa Susana field lab

Mike Harris, Ventura Published 2:47 p.m. PT April 1, 2019 | Updated 12:32 p.m. PT April 2, 2019

Supervisors push for field lab cleanup

| January 03, 2020

By Melissa Simon
melissa@theacorn.com

Supervisors say feds' field lab cleanup plans fall short

Mike Harris, mike.harris@vcstar.com, 805-437-0323 Published 2:12 p.m. PT March 10, 2017 | Updated 3:28 p.m. PT March 13, 2017

Recently, all three Responsible Parties have taken actions to break out of their cleanup agreements and instead leave the great majority of the contaminated soil not cleaned up.

Last year NASA issued a report saying it could save a lot of money if it breached its cleanup agreement, and then issued a draft SEIS containing proposals to leave as much as 90% of its contaminated land not cleaned up.

You are now being asked to sign off on a key part of NASA's efforts to walk away from the contamination it created and promised to clean up.

Let's Be Clear: Native American Artifacts at SSFL Are Already Protected

The Administrative Orders on Consent (AOCs) require **returning SSFL to the condition it was in before it was contaminated** (“cleanup to background”) and has special protections for Native American artifacts:

“The acceptance and exercise of any of the following exceptions is subject to DTSC’s oversight and approval, and the resulting cleanup is to be as close to local background as practicable:

Native American *artifacts* that are formally recognized as Cultural Resources.”

NASA's Strategy to Break Out of SSFL Cleanup Obligations

NASA has proposed expanding the Burro Flats site by more than a hundred-fold, to—coincidentally—cover the entire 2850 acres of SSFL *soil*.

NASA's intention is simple: to provide another excuse to breach its cleanup commitments. You should not allow this to occur; the health of Ventura County residents living in the area is at stake if the contamination which migrates off-site is not fully cleaned up as promised.

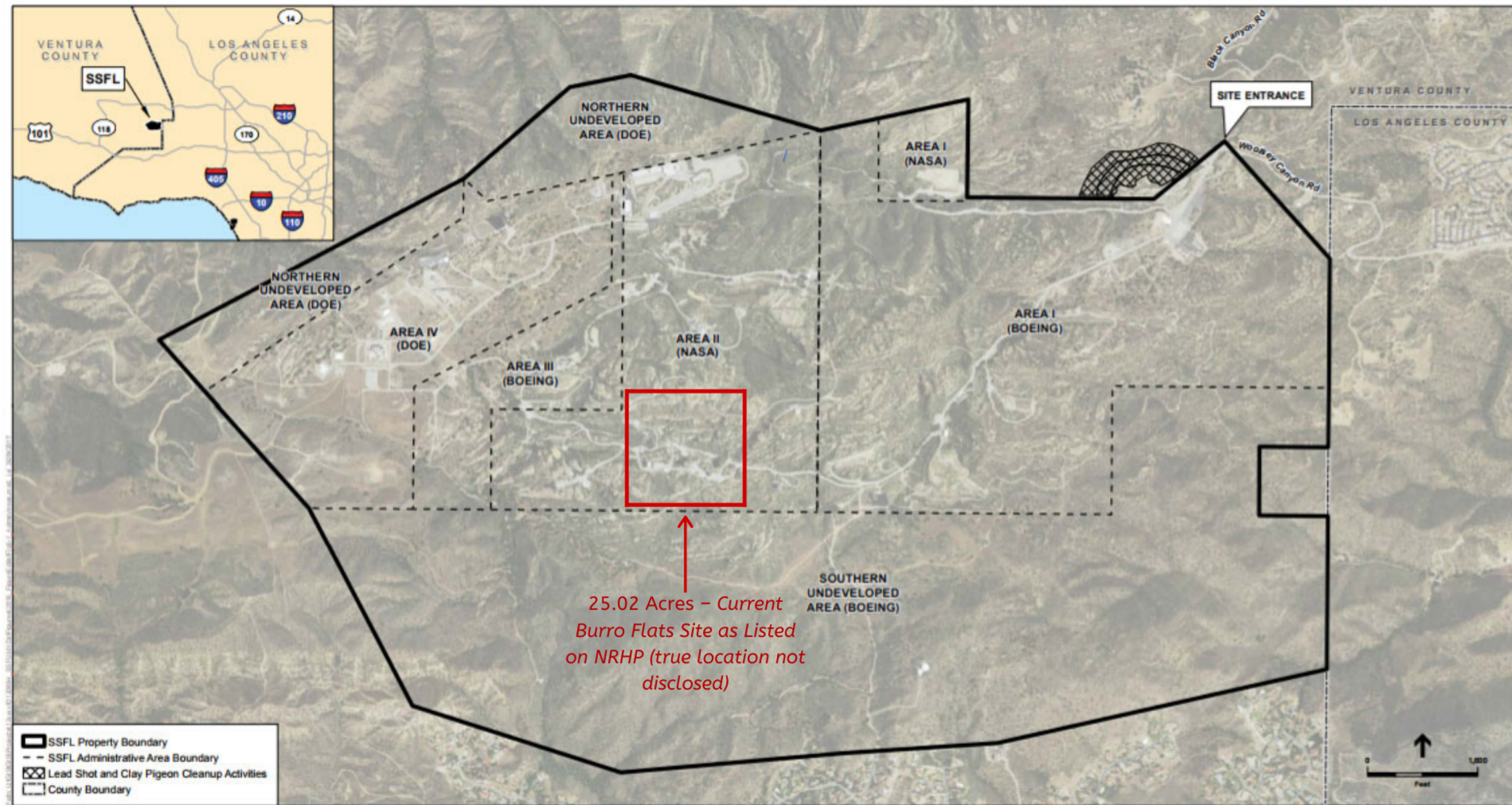
On its Face, This is Primarily About the Protection of the Burro Flats Cave Paintings & Solstice Observation Site

The Burro Flats Painted Cave is about the size of a tanning bed. There are markings inside recording where sunlight entering through a hole in the cave hits during summer and winter solstice. The paintings and solstice markings are ethnographically valuable.

Native Americans had requested that NASA enclose the cave in glass to protect it from vandals and weather, but NASA declined to do so.

Let's be clear: The Burro Flats Site *should* be listed on the National Register of Historic Places. *But it already is.*

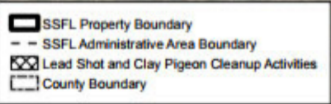
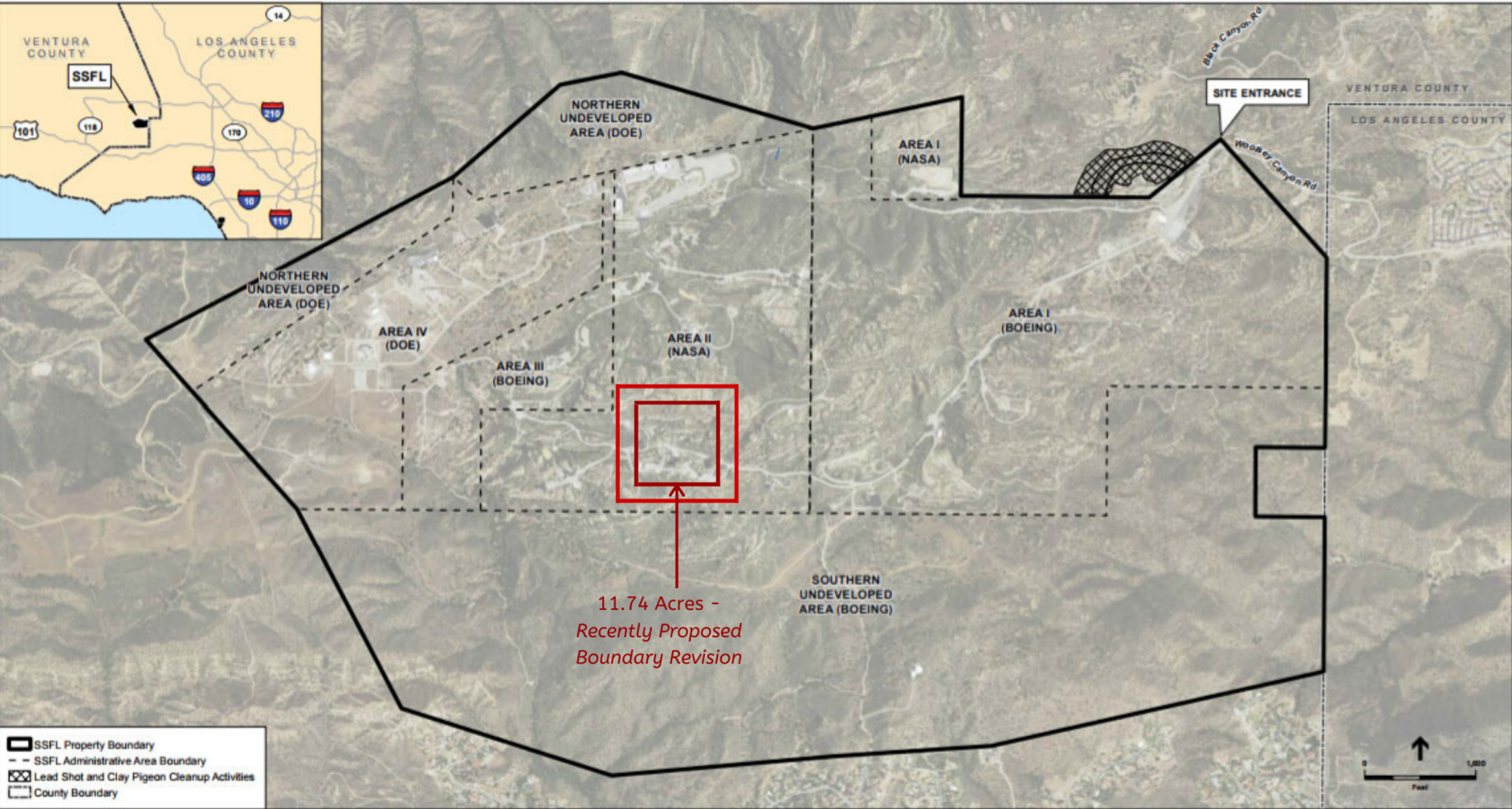
In 1975, the Ventura County Heritage Board recommended it be listed, and in 1976 the National Park Service added it to the NRHP (CA-VEN-1072). The 25 acres include the Burro Flats Painted Cave and the solstice site. They are thus already protected.



The Burro Flats Boundary Should Be Revisited, But It Already Has Already Been

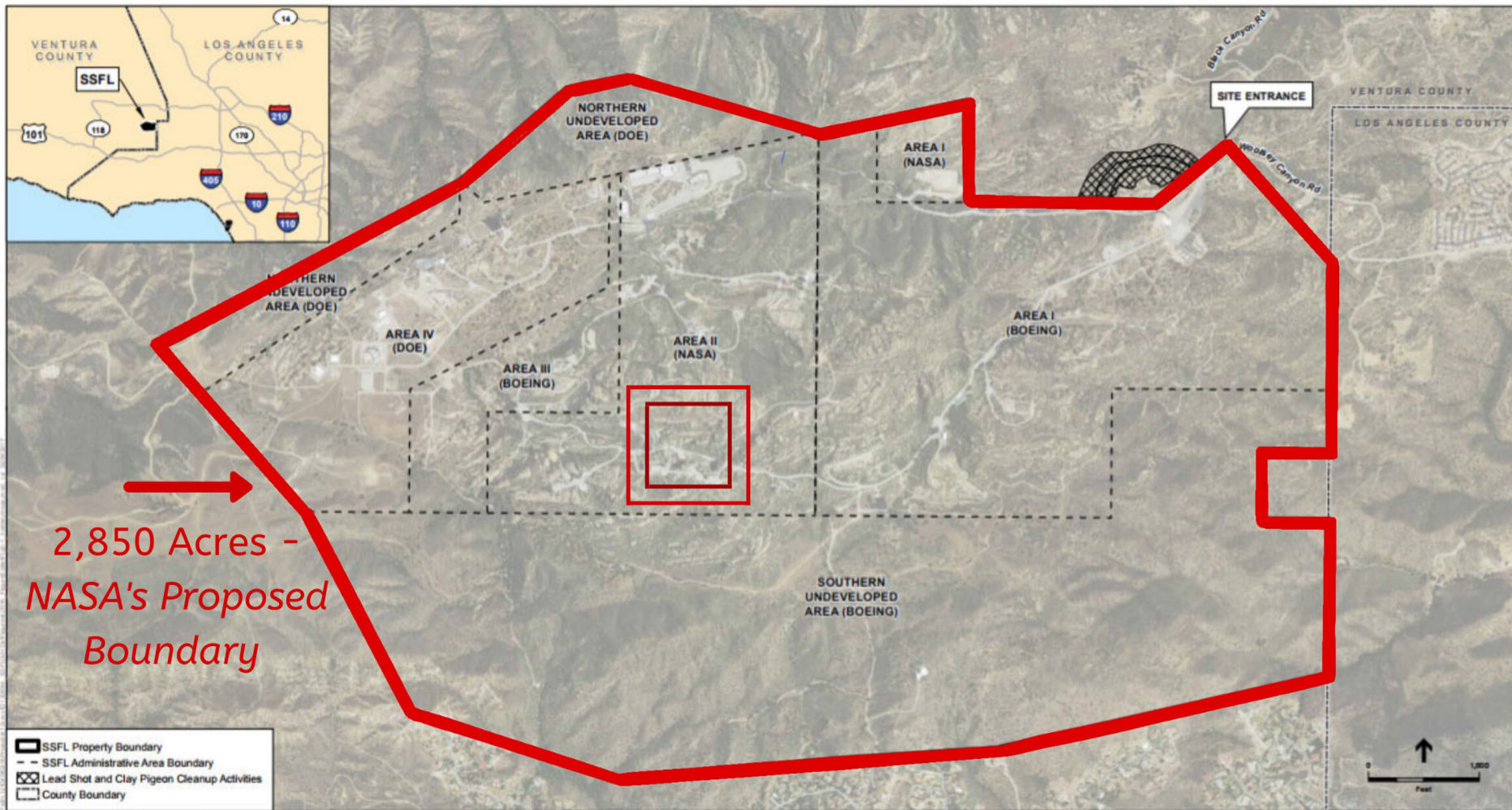
“Researchers have since suggested that the 1976 boundary of the site does not adequately reflect the number, density, and distribution of loci associated with the site. **An updated nomination includes four additional loci and reduces the overall site footprint from 25.02 acres to 11.74 acres**, resulting from data gathered during pedestrian surveys (Corbett et al., 2013, 2016b) and the testing of loci boundaries in some locations (Corbett et al., 2016b). The updated nomination is currently under review with the California SHPO.”

NASA Draft SEIS, p. 3-8, emphasis added.



BUT NOW NASA PROPOSES PLACING ON THE NRHP THE ENTIRE CONTAMINATED SANTA SUSANA FIELD LABORATORY

Whether that brazen move by NASA to help get out of its cleanup obligations should be approved is the matter before the Board today.



NASA's Proposal is based on NRHP Criteria

Consideration A: “*Religious Properties as a clearly defined property* whose importance has been ethno-historically documented” (p. 41, emphasis added)

However, the Burro Flats religious property has long been clearly defined, and already listed on the NRHP, and more recent research has refined the boundary by reducing its size. No defensible basis has been provided for increasing the size more than a hundred-fold.

NASA's Sole Justification for the Boundary

“Consultants indicated the boundary of the TCP coincides with the SSFL boundary because the construction of the field lab and its restricted access has protected this part of the Simi Hills from exposure to human housing developments, vandalism, and other impacts that occur in well-populated places.”

NASA NRHP Registration Form,

“Boundary Justification,” pg. 63

This of course is not true

SSFL is heavily impacted, and indeed, the area immediately outside its boundary is far less impacted than is the area inside.

NASA Falsely Claims SSFL Retains “Excellent Site Integrity,” A Requirement for Listing

“ INTEGRITY

Consultants indicated that although the district has been used for various scientific purposes since the 1940s, **overall integrity is still excellent**. The use of SSFL by the government and Boeing resulted in **keeping the area in a state similar to when the consultants’ ancestors used and occupied the area.**”

"The district retains all aspects of integrity." NRHP Nomination p. 7

The Facts However Show “Extreme” Impacts at SSFL

“Over the course of its use as a testing and development facility, NASA and other agencies and private companies **have made extreme changes to the landscape at SSFL** to carry out their various missions. Roads, buildings, infrastructure, and testing facilities have altered the landscape...”(Nomination p. 32).

There has been “extreme soil movement during the construction of the test stands and other buildings throughout SSFL”(Nomination p. 36).

**Most Importantly, SSFL is
in fact one of the Most
Contaminated Sites in the
Country**

**There is Not a Word in the
Nomination Disclosing
Decades of Radioactive and
Chemical Contamination**

Briefly, here is the truth
that is missing from the
NASA Nomination Form...

SSFL History

Established in late
1940s for rocket testing
and nuclear reactor
development too
dangerous to do in
populated areas

UNCLASSIFIED

NAA-SR-30

Subject Category: BIOLOGY

UNITED STATES ATOMIC ENERGY COMMISSION

GENERAL REACTOR SITE SURVEY OF THE
LOS ANGELES AREA

By
R. G. Chalker

UNIVERSITY OF CALIFORNIA
LIBRARY
MAY 9 1953
GOVT. PUBL. ROOM

June 1, 1949

North American Aviation, Inc.
Los Angeles

Technical Information Service, Oak Ridge, Tennessee



Intensive Nuclear Work

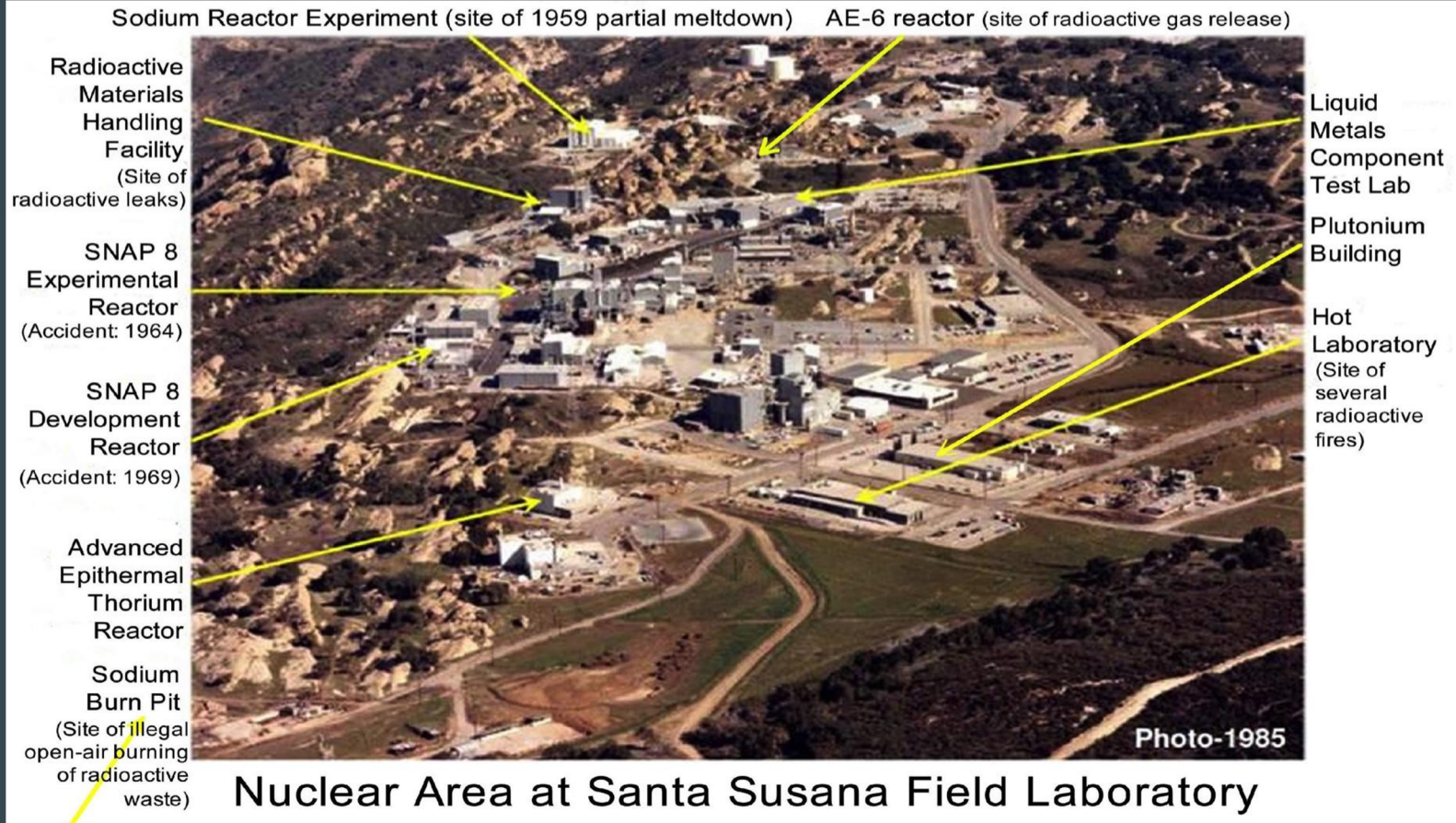
Ten nuclear reactors

Plutonium Fuel Fabrication facility

“Hot Lab” to Cut Apart Highly Irradiated Nuclear
Fuel from Around the Country

Radioactive Materials Handling Facility

SSFL NUCLEAR WORK OCCURRED OVER FOUR DECADES



PARTIAL NUCLEAR REACTOR MELTDOWN IN 1959

LARGE AMOUNTS OF
RADIOACTIVITY RELEASED INTO
THE ENVIRONMENT

MELTED
BLOB

6-3/4"

5"

6-1/4"

ZIRCONIUM

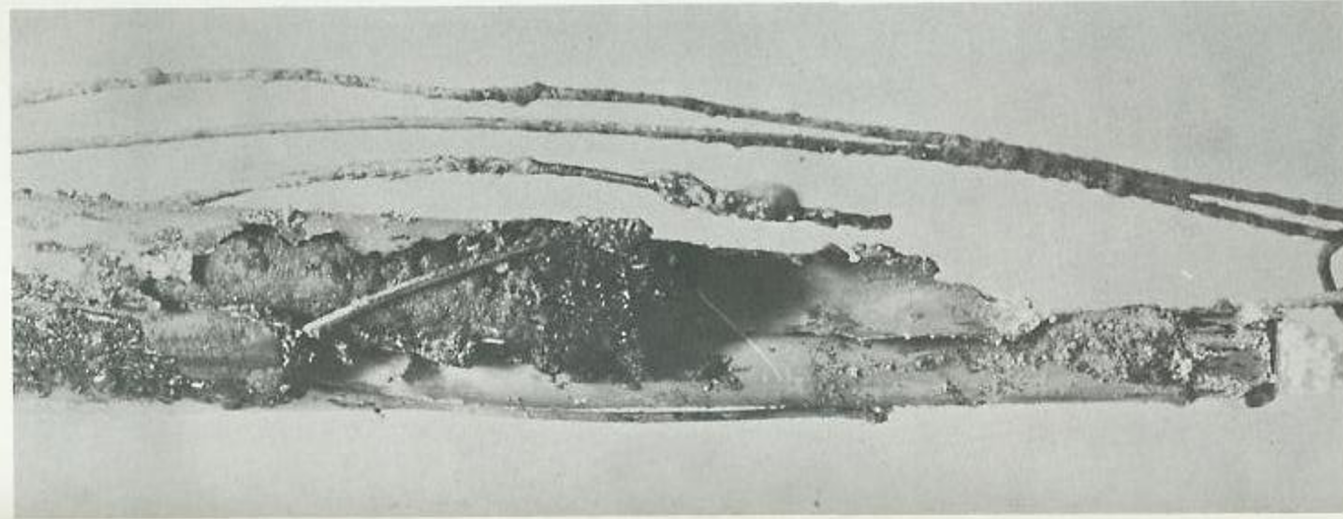


Figure IV-A-6. Bottom of Damaged
Element in Channel 55

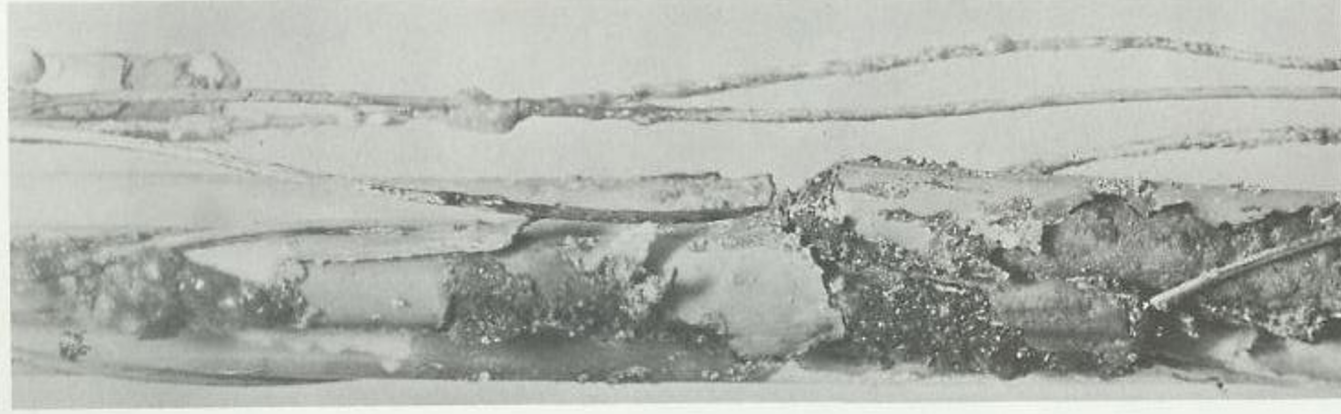
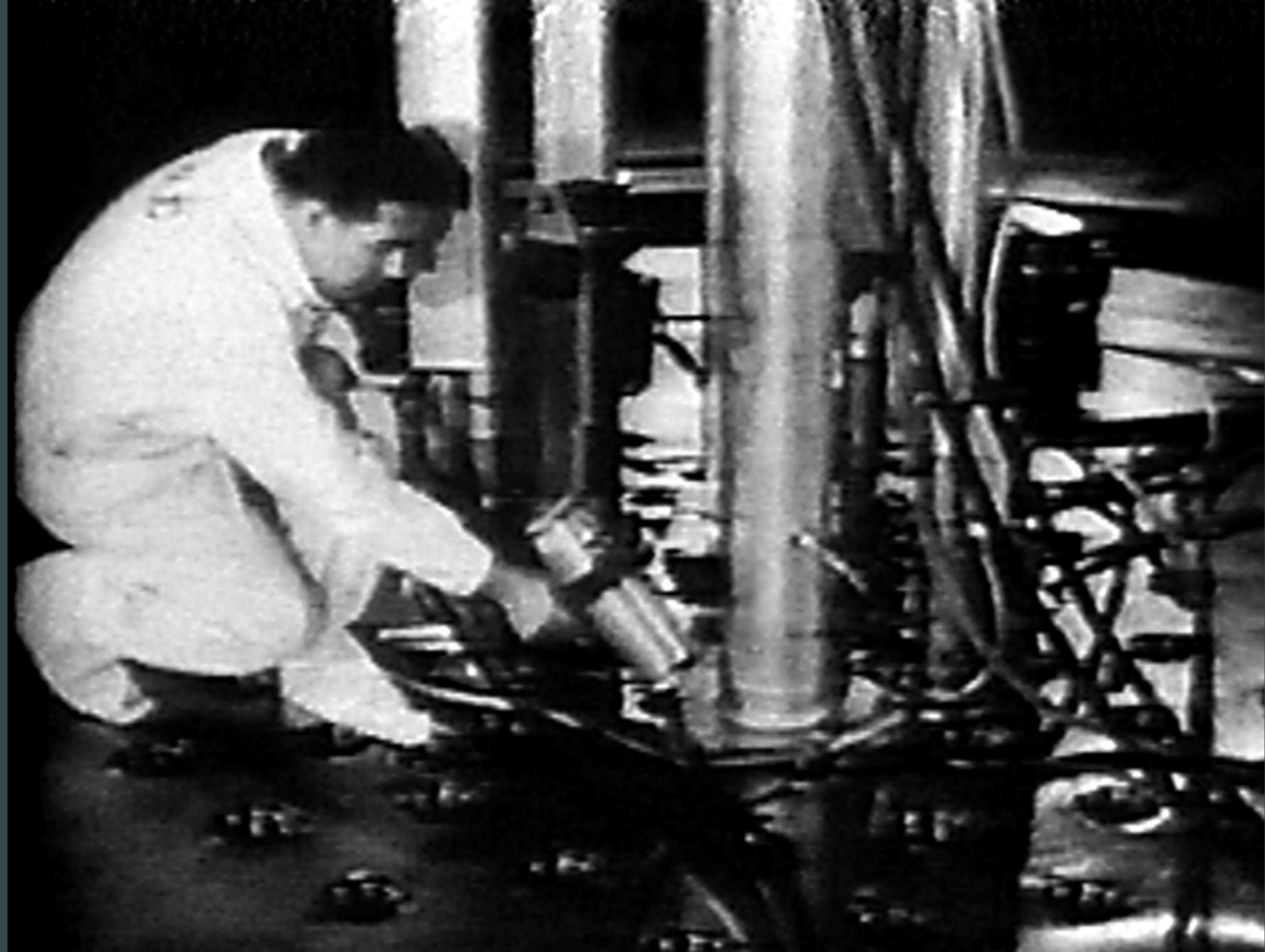
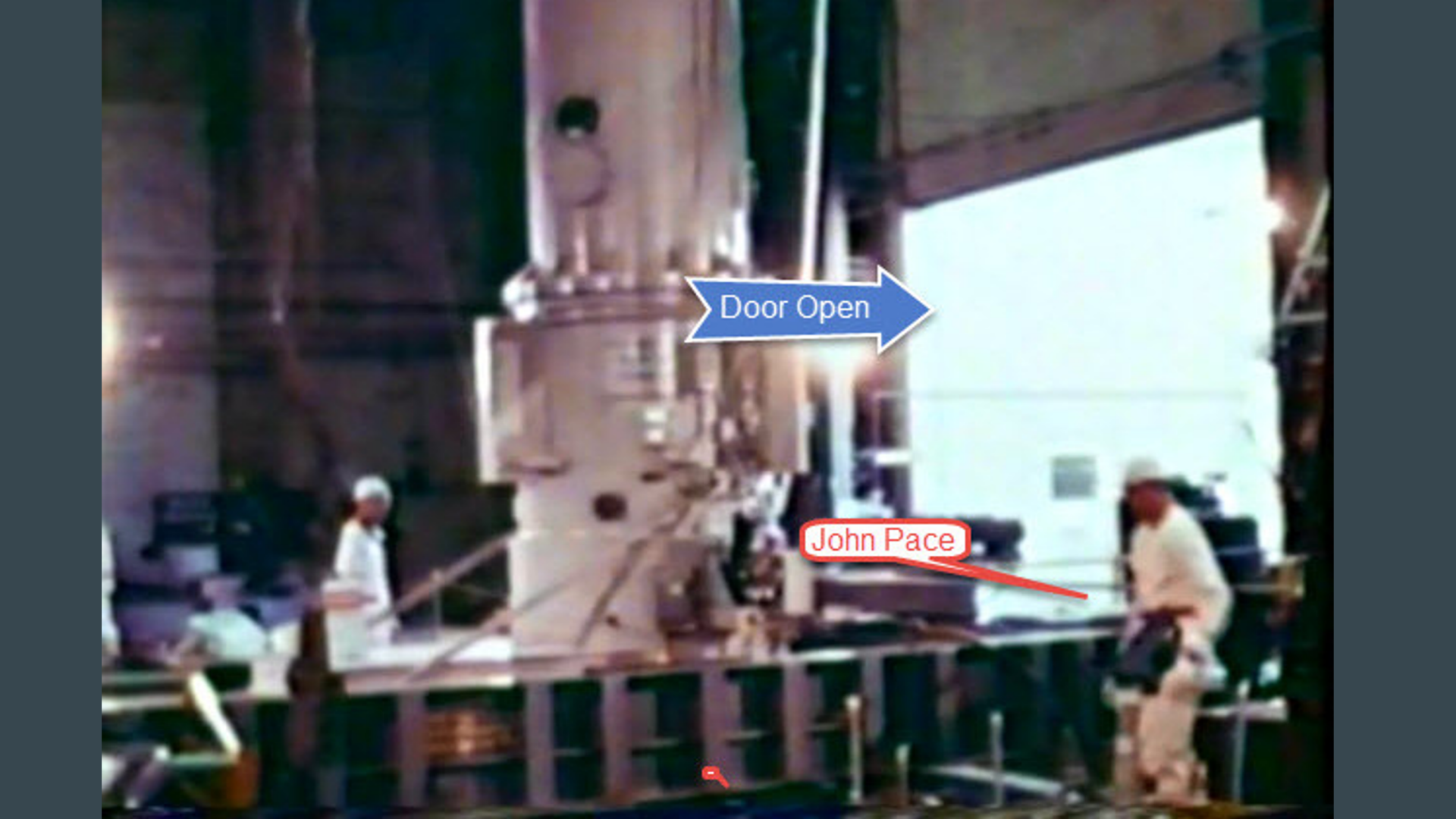


Figure IV-A-7. Midsection
of Damaged Element in
Channel 55







Door Open

John Pace

NUMEROUS OTHER ACCIDENTS AND RELEASES

At least 3 other reactors suffered accidents:

- SNAP8ER—80% of nuclear fuel damaged
- SNAP8DR—35% of fuel damaged
- AE6—release of fission gases

Radioactive Fires at the Hot Lab

Releases from Plutonium Fuel Fabrication

Numerous Other Spills and Releases

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

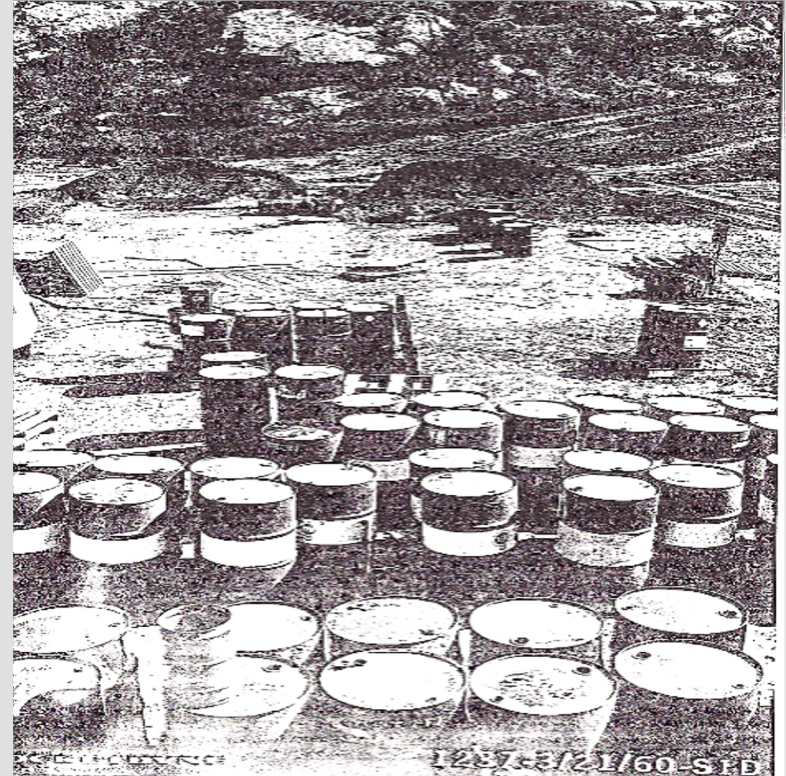






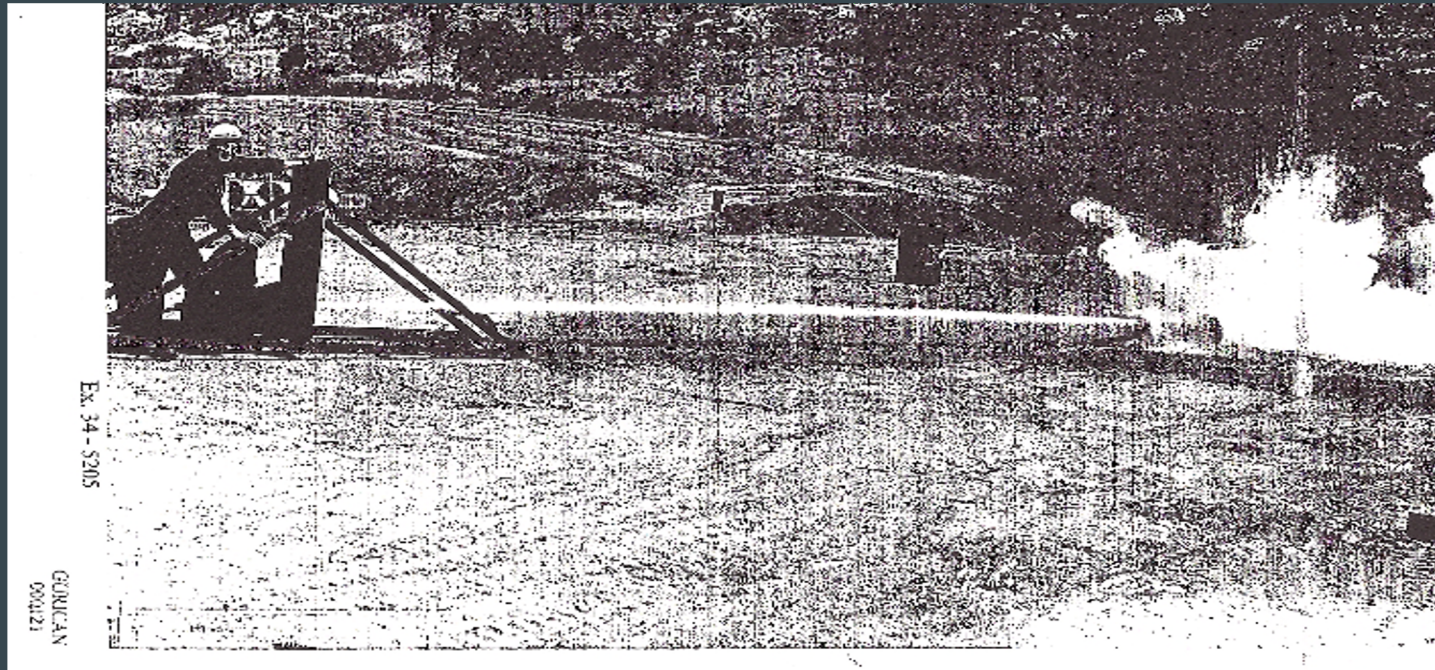
HISTORY OF IMPROPER DISPOSAL OF HAZARDOUS MATERIALS

- Radioactive and chemical materials burned in Area IV sodium burn pit against rules for decades
- Rocketdyne cited for unpermitted burning of hazardous materials in Area I
- In mid-1990s two workers were killed in an explosion caused by illegal disposal of hazardous materials. FBI raided SSFL and US Attorney charged Rocketdyne with 3 felonies, largest environmental fine at the time.





Workers “disposed” of highly toxic waste in barrels by shooting at them, causing them to explode and release contents into the environment, with the contaminants spread widely by toxic smoke.



Ex. 34 - 5204

GURICAN
000120



Extremely Toxic Chemicals Were Released in the Rocket Work

For example, 1 million gallons of TCE were used to flush rocket engines after tests, and then to percolate into the ground and groundwater. The TCE plume covers much of the site and has migrated offsite.

Tons of perchlorate, a component of solid rocket fuels, were used. It has migrated offsite contaminating numerous wells. Both TCE and perchlorate are dangerous in parts per billion.

SSFL Contaminants of Concern

Radionuclides: cesium-137, strontium-90, plutonium-239, 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. The National Academy of Scientists has concluded there is no safe level of exposure to radiation.

Chemicals: TCE, perchlorate, dioxins, heavy metals, PCBs, and various 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. SSFL disposed of tons of perchlorate in open-air burn pits which polluted soil, groundwater and surface water. At SSFL, 500,000 gallons of TCE are estimated to be in the soil column and aquifer.

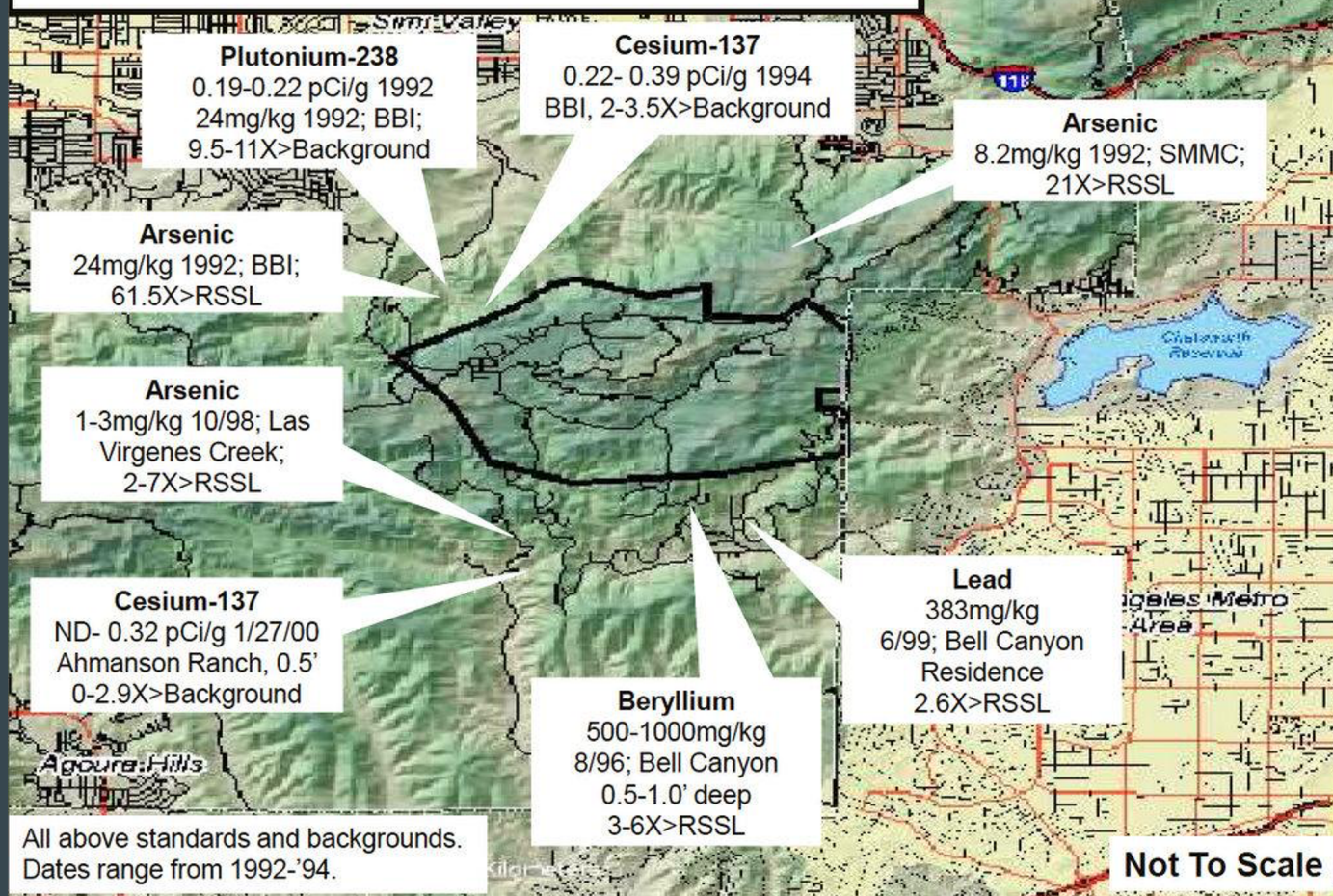
Radionuclide	Health/Environmental Effects
Tritium	Linked to developmental problems, reproductive problems, genetic abnormalities.
Radium	Lymphoma, bone cancer, leukemia, aplastic anemia linked with inhalation. Other cancers with external exposure.
Technetium-99	Cancer linked to ingestion (contaminated food and water).
Iodine-131	Linked to thyroid malfunction/cancer. Combines with soil and organic materials easily.
Cesium-137	Can cause cancer 10 – 30 years after ingestion, inhalation, or absorption. Moves easily in environment, difficult to clean up.
Strontium-90	Chemically similar to calcium. Can cause bone cancer, cancer near bones, and leukemia.
Plutonium	Contaminant in dust. Extreme risk of cancers, kidney damage. Can stay in the body for decades.

Chemical	Health/Environmental Effects
TCE	Impaired immune system function, damage liver and kidney, impaired fetal development. In larger amounts it may cause impaired heart function, unconsciousness and death
Perchlorate	Interferes with iodide uptake into the thyroid gland, causing hypothyroidism in mothers and negatively impacting proper childhood development such as decreased learning capability.
Dioxins	Carcinogenic and can cause reproductive, developmental, immunological, and endocrine side effects
PCBs	Can serious effects on the liver, immune, endocrine, and reproductive are classified as a probable carcinogen
Lead	Linked with learning disabilities, infertility, cancer, and increased risk of heart attacks

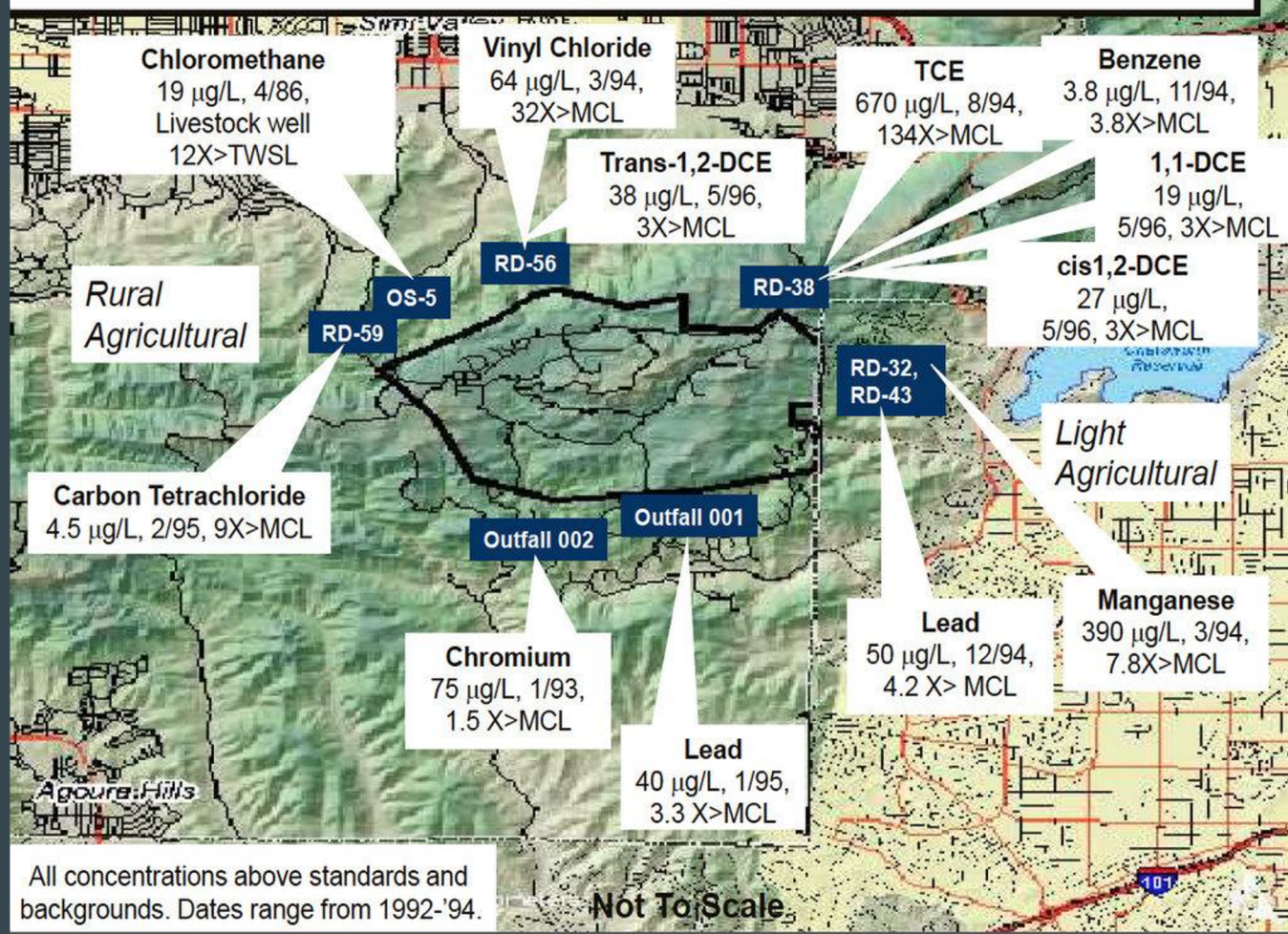
UCLA Study Found SSFL Contaminants Have Migrated Offsite

Half a million people live within 10 miles of the site.

Offsite Soil Contamination



Offsite Wells or Spring Contamination



SSFL HEALTH STUDIES

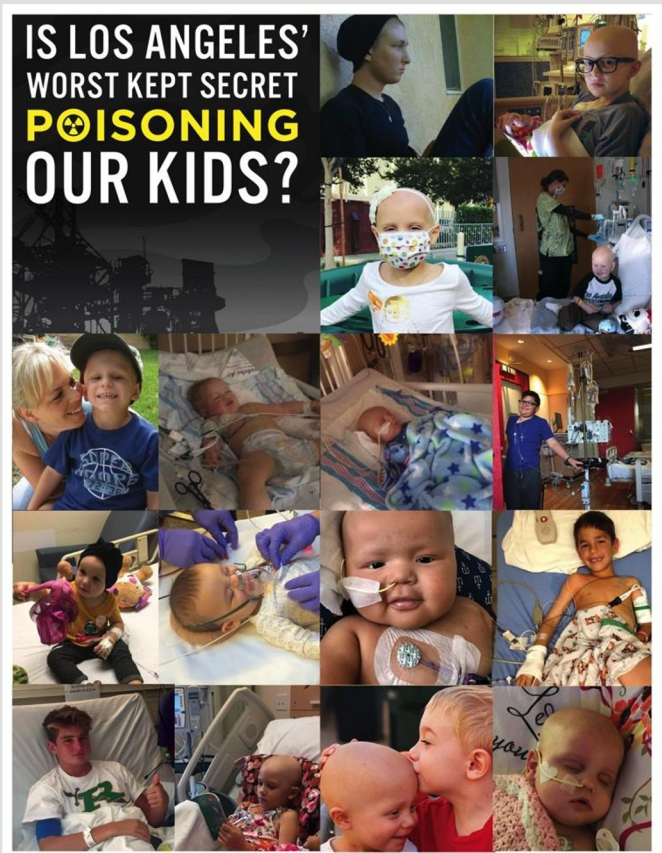
- An extensive, multi-year epidemiological study by the UCLA School of Public Health found significant increases in death rates among the most exposed workers from cancers of the lung, lymph, and blood systems.
- Independent federally-funded studies found increased incidence of key cancers in the offsite population associated with proximity to SSFL, and that SSFL contamination has migrated offsite at concentrations above EPA levels of concern.

“For the period 1988 through 1995, we found that the incidence of cancer was more than 60% greater among residents living within 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.”

Professor Hal Morgenstern

If the Responsible Parties fail to comply with the 2007 Consent Order and 2010 Administrative Orders on Consent to fully clean up SSFL, long supported by Ventura County, **contaminants will continue to migrate offsite.** Failure to remediate the site would place offsite residents and well as onsite visitors at risk.

PEDIATRIC CANCERS NEAR SSFL



Until the site is restored to the condition it was in before it was so badly contaminated, consideration of listing the full site on the NRHP could interfere with the cleanup and pose a risk to public health. Such a listing proposal should only be considered once full cleanup, as required by the agreements, has been completed.

THREE KEY FINDINGS THE BOARD SHOULD MAKE

NASA's proposal for expanding Burro Flats on the NRHP to cover the entire 2850 acres of the contaminated SSFL should be denied at this time because it:

- (1) FAILS TO MEET THE NRHP NOMINATIONS REQUIREMENTS FOR COMPLETENESS, ACCURACY, SITE INTEGRITY, & BOUNDARY JUSTIFICATION
- (1) COULD FACILITATE EFFORTS TO AVOID CLEANUP COMMITMENTS AND THUS IMPACT PUBLIC HEALTH, IN VIOLATION OF ORDINANCE 4225
- (1) IS NOT TIMELY, BUT MAY BE RE-SUBMITTED ONCE THE PROMISED SITE RESTORATION AND FULL CLEANUP ARE COMPLETED

Conclusions

Burro Flats is already on the NRHP and Native American artifacts are already protected.

Expanding Burro Flats on the Registry to encompass the entire SSFL does not meet the requirements for inclusion, including for integrity and non-impacted nature of the land.

NASA's Nomination failed to disclose the intense damage it and other Responsible Parties have done to the property and the radioactive and chemical contamination.

In Order for a Nomination to Qualify for NRHP Listing, it Must:

1. Be “adequately documented, technically and professionally correct and sufficient.” (54 U.S. Code § 302104.)
1. The site must have maintained integrity (be “*substantially unchanged since the period of significance*”) (NRHP, *How to Apply the National Register Criteria*, 46)
1. The proposed boundary must be factually based and defensible: “A district must be a definable geographic area that can be distinguished from surrounding properties....*It is seldom defined, however, by the limits of current parcels of ownership*, management, or planning boundaries.” (*ibid*, 6)
1. The proposed registration cannot conflict with the public health, safety, and general welfare (Ventura County Ordinance no. 4225-Section 1364-10)

Recommendations:

1. Find that the proposal for listing the heavily contaminated 2850-acre SSFL facility on the NRHP does not at present meet the requirements for listing:
 - i. The nomination is inaccurate, as it incorrectly describes the site as unimpacted and intact (e.g., pp. 49, 63) when in fact SSFL is one of the most contaminated sites in the nation.

ii. The nomination is incomplete, as it fails to include any information about the **extensive radioactive and toxic chemical contamination** and the intensive history of nuclear and rocket testing at the site.

iii. The nomination provides no defensible rationale for the proposed boundary coinciding with that of SSFL—the sole justification is the claim that the ownership of SSFL resulted in the area within the boundary being unimpacted and the area outside the boundary being impacted—whereas the opposite is true as SSFL is one of the country's most polluted places. Furthermore, the boundary was chosen based on ownership lines, which is generally not allowed.

iv. The site has not maintained integrity, and is not “substantially unchanged since the period of significance,” as it is extensively contaminated. (Native Americans did not pollute the site with plutonium-239, cesium-137, strontium-90, PCBs, perchlorate, TCE, etc.-- NASA and the other Responsible Parties did.)

The nomination should be rejected at this time, without prejudice to reapplying when the cleanup is complete, integrity is restored, and the site returned to the condition it was in before being contaminated.

2. Adopt Staff Recommendation D, as amended here:

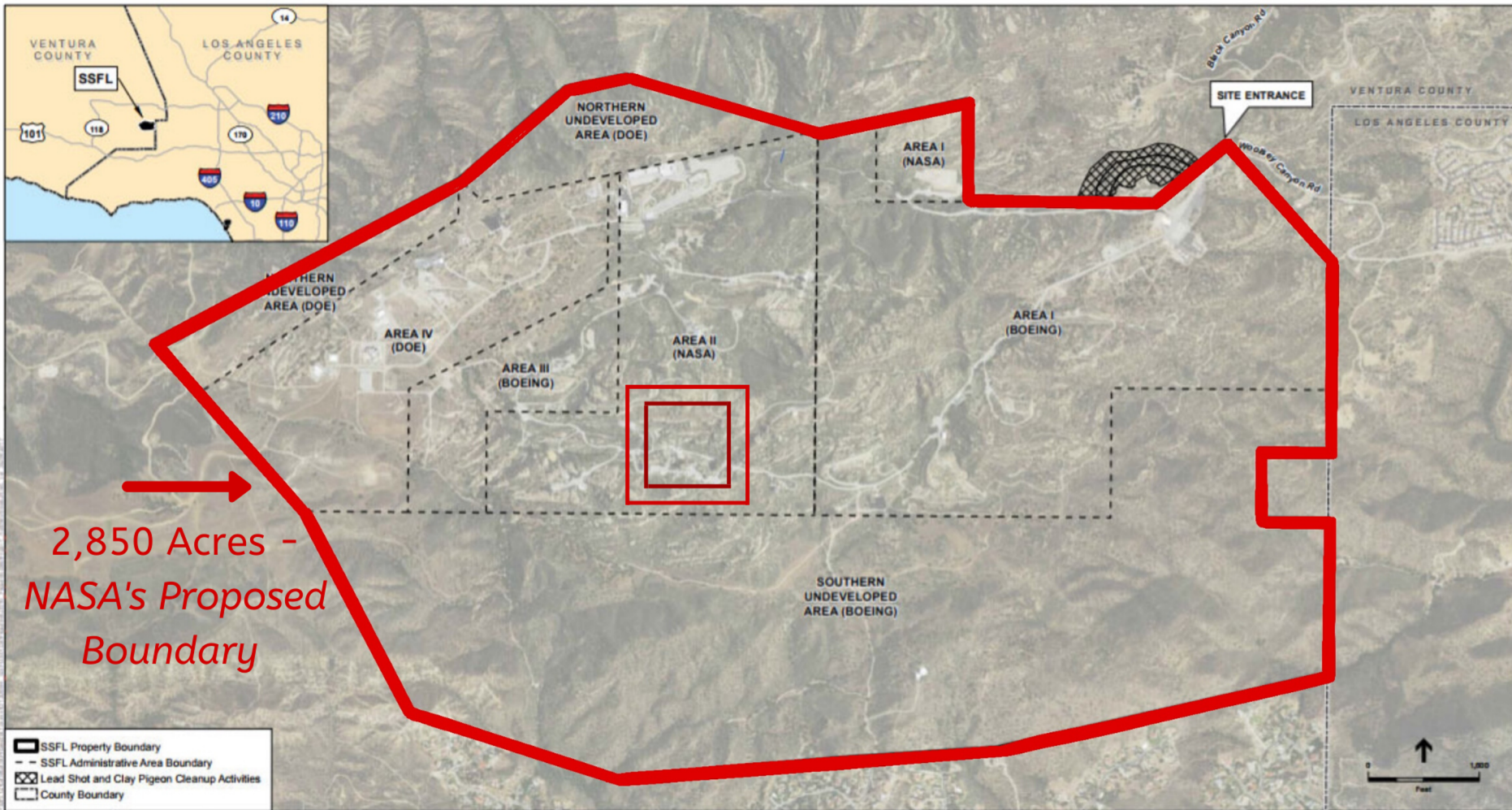
The proposed Burro Flats Cultural District nomination conflicts with the public health, safety, and general welfare ~~to the extent~~ in that the nomination may impairs or impedes the legally mandated clean-up efforts at the proposed District

Listing it without it first being fully cleaned up as promised could pose a health and safety risk to the public offsite and to members of the public, including Native Americans, who might wish to visit. Such a listing before cleanup would violate the County Cultural Heritage Ordinance.

As per Staff Recommendation D, prepare a report for the Board of Supervisors and for transmission to SHPO, but reflecting the above findings that the nomination does *not* at present meet the requirements for NRHP listing.

FUNDAMENTAL RECOMMENDATION:

Decline to approve the nomination as it doesn't meet the NRHP requirements. Declare that the site needs to be fully cleaned up and restored to the condition it was in before being so severely polluted, as required in the cleanup agreements that Ventura County has long supported, and that after such cleanup is completed, a new nomination can be considered.



2,850 Acres -
NASA's Proposed
Boundary

- SSFL Property Boundary
- SSFL Administrative Area Boundary
- Lead Shot and Clay Pigeon Cleanup Activities
- County Boundary

