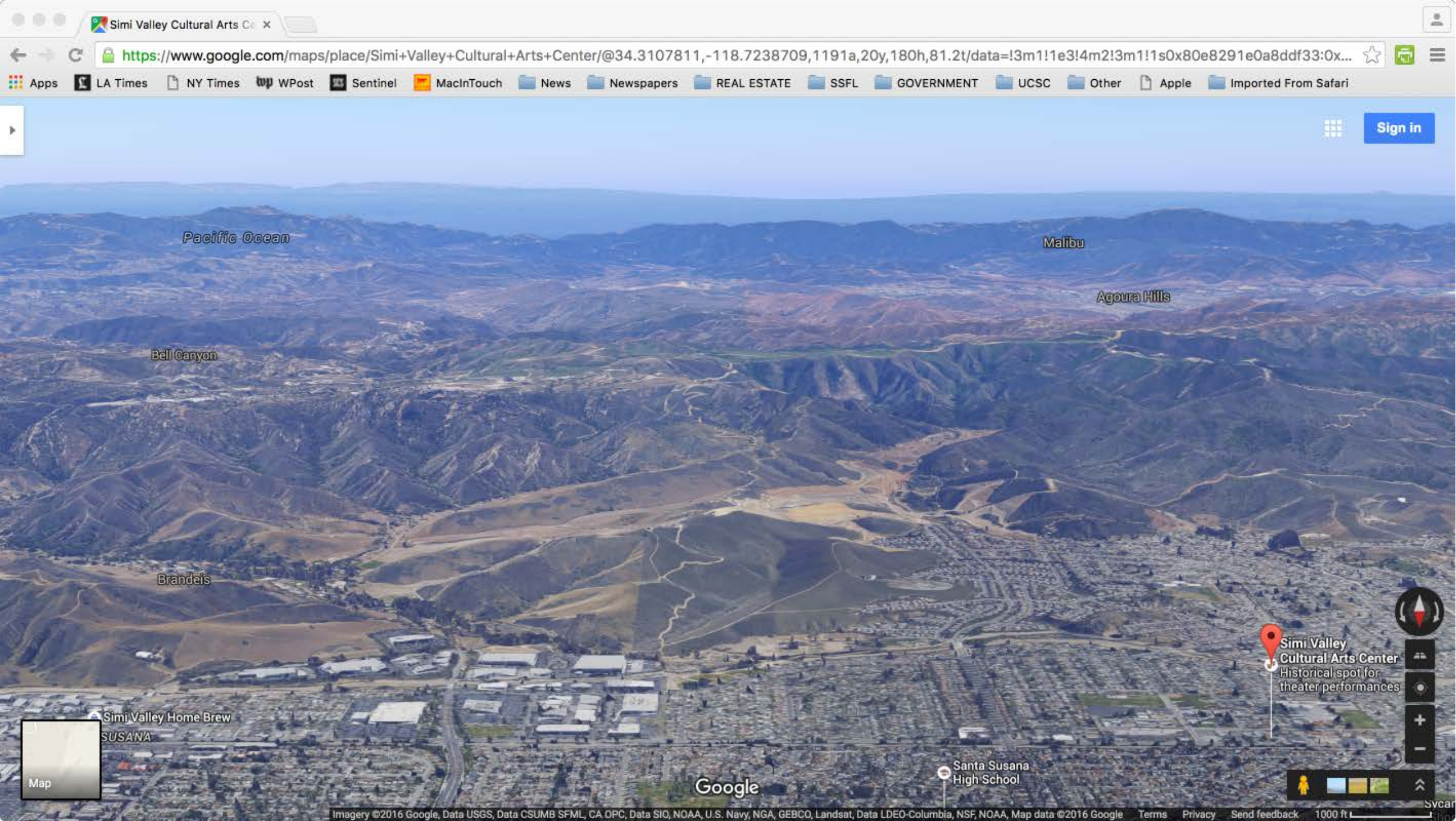


Potential Migration of Contamination from Santa Susana Field Laboratory to Brandeis Bardin Institute and Runkle Canyon



Sign in

Pacific Ocean

Malibu

Agoura Hills

Bell Canyon

Brandeis

Simi Valley Home Brew
SUSANA

Simi Valley
Cultural Arts Center
Historical spot for
theater performances

Santa Susana
High School

Google

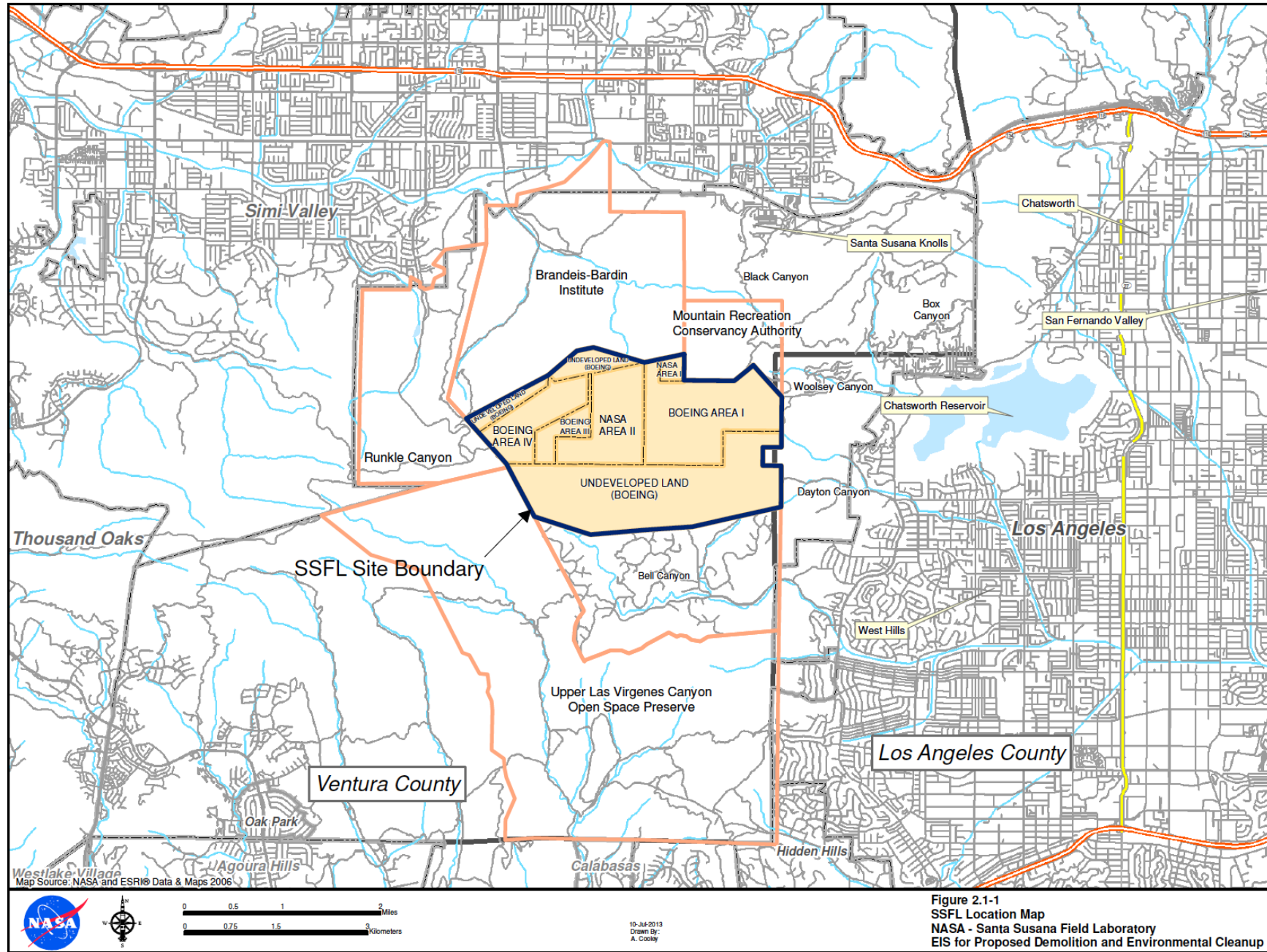
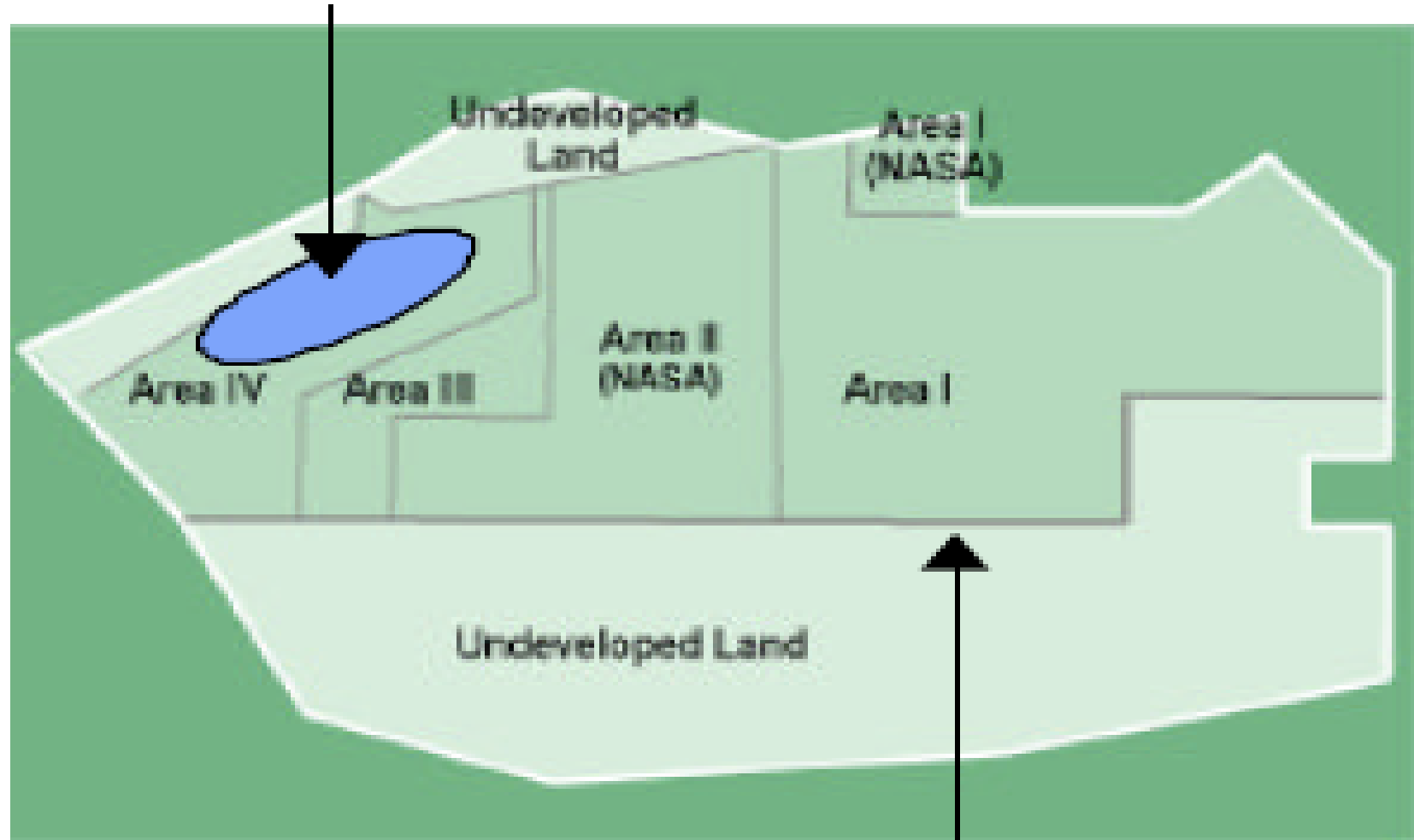


Figure 2.1-1
SSFL Location Map
 NASA - Santa Susana Field Laboratory
 EIS for Proposed Demolition and Environmental Cleanup

ETEC



SSFL

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)



Photo-1985

Nuclear Area at Santa Susana Field Laboratory

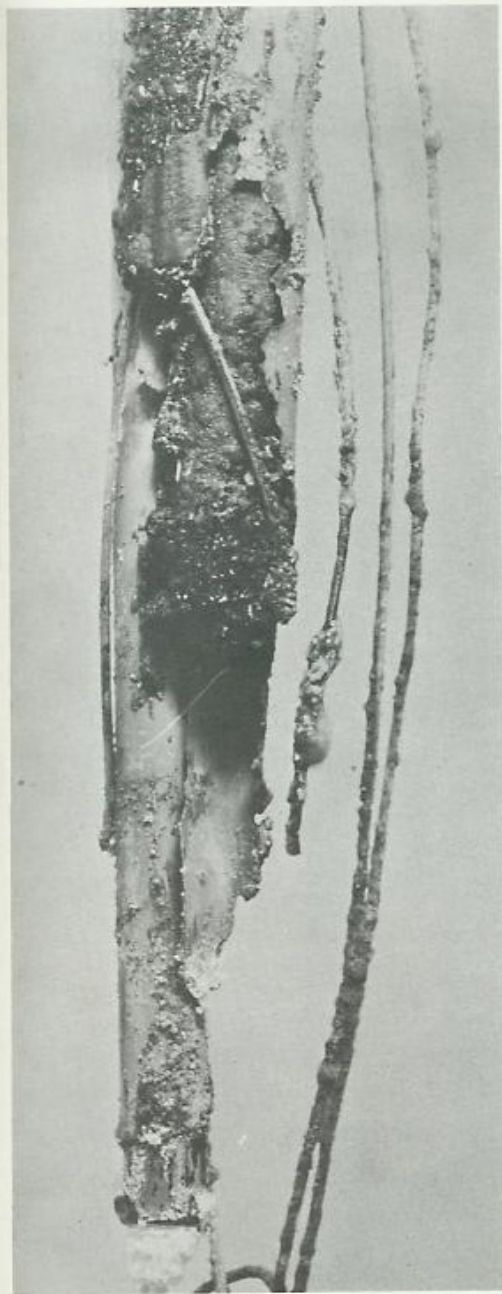
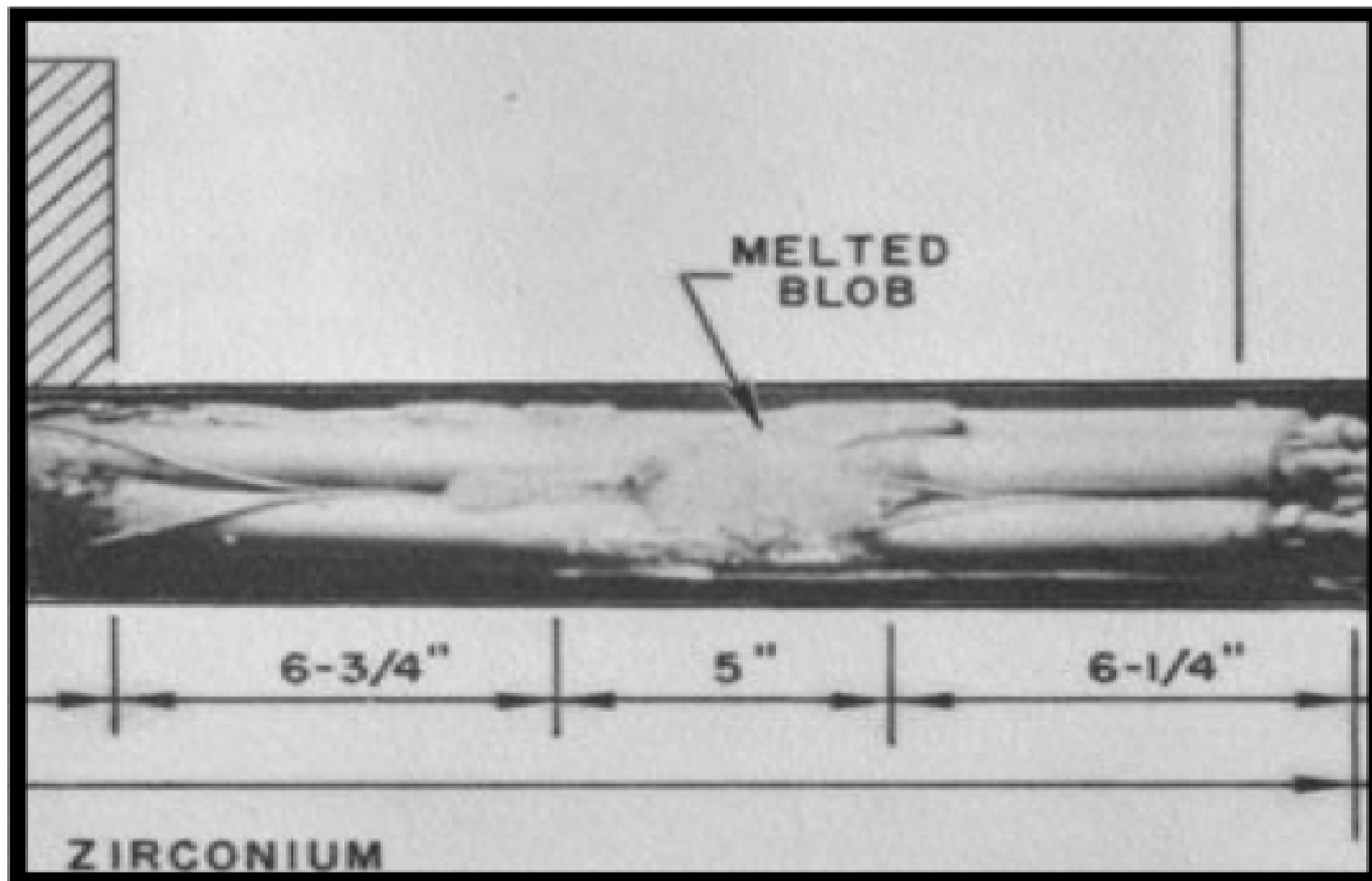
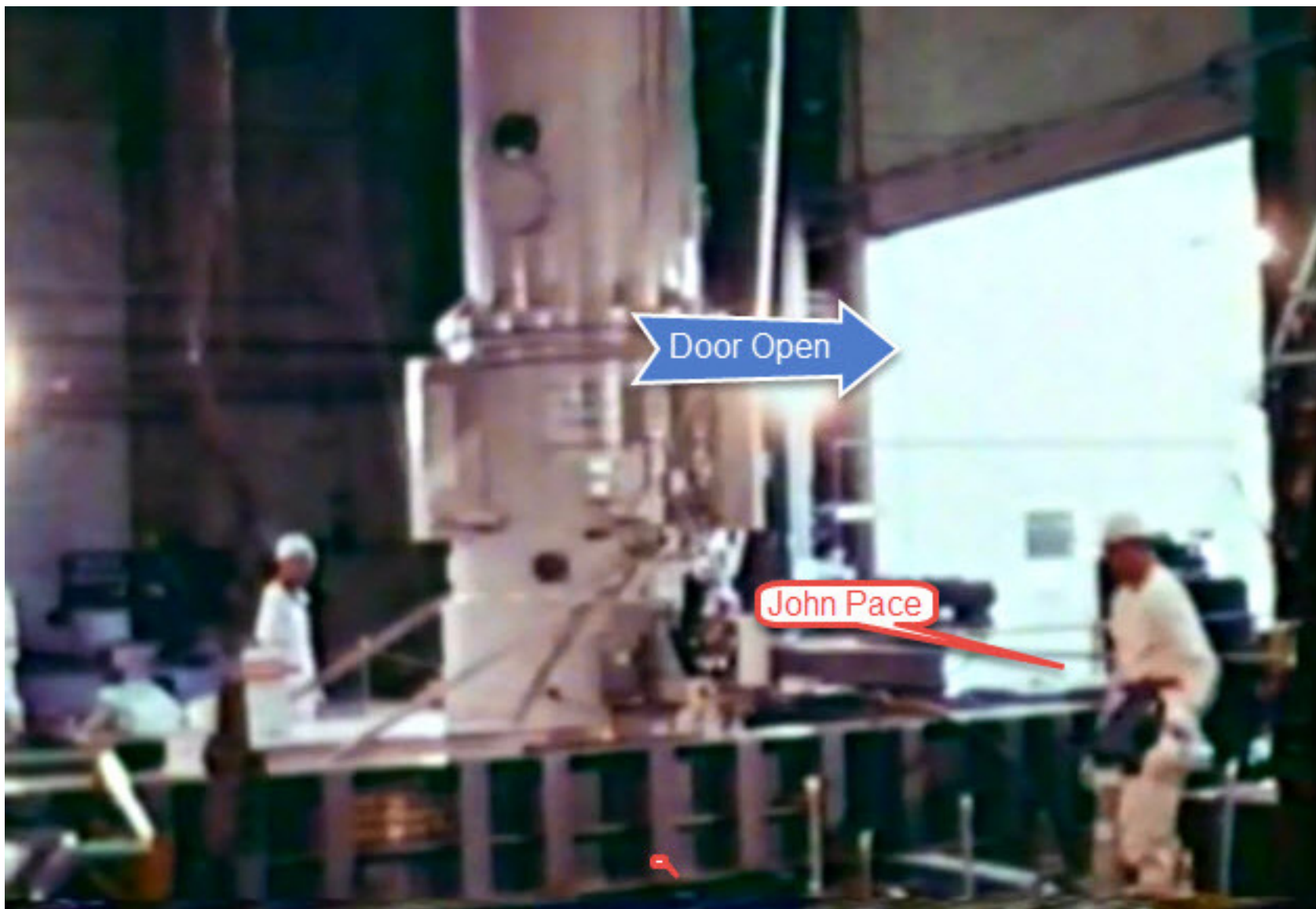


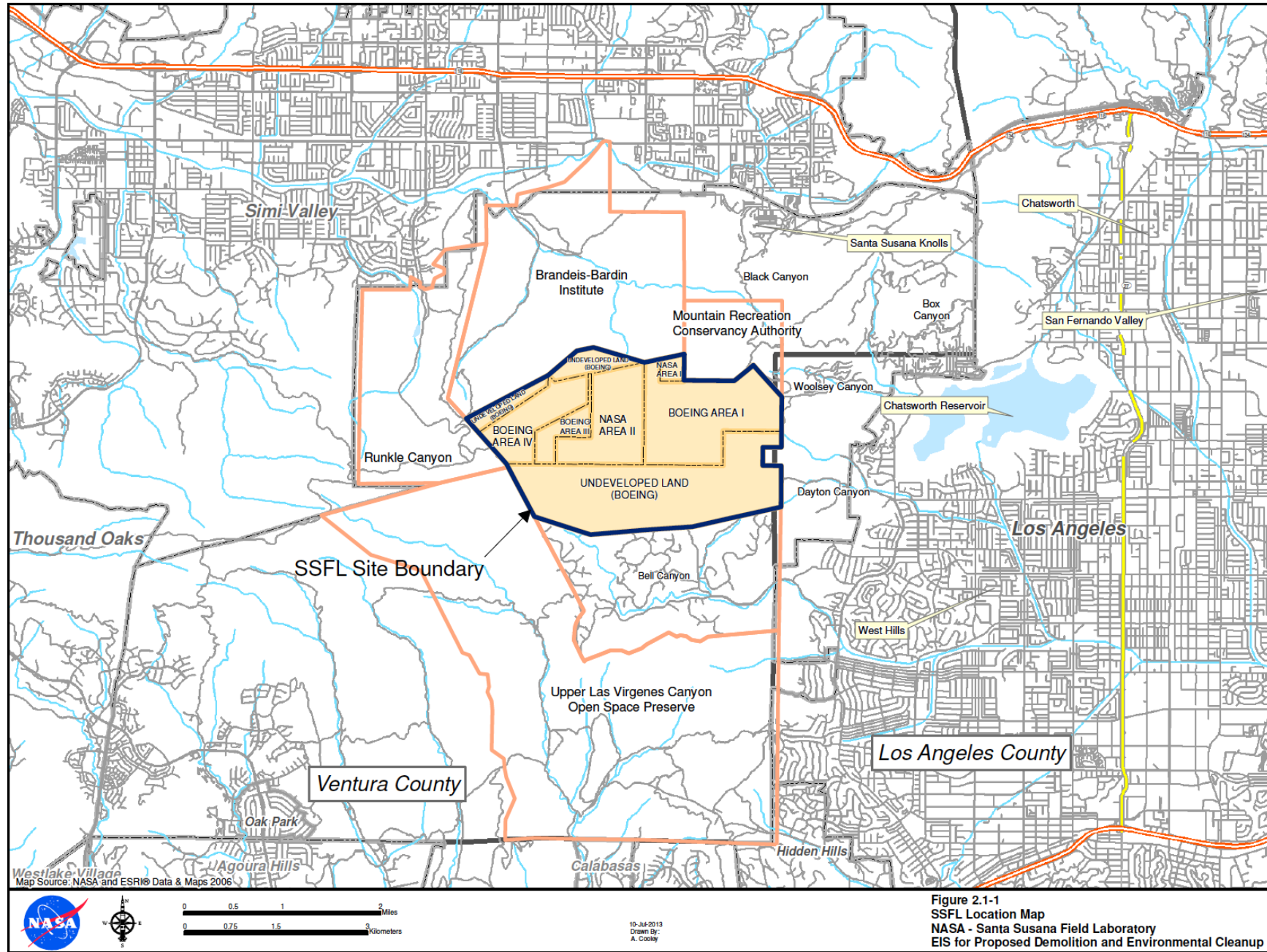
Figure IV-A-6. Bottom of Damaged Element in Channel 55

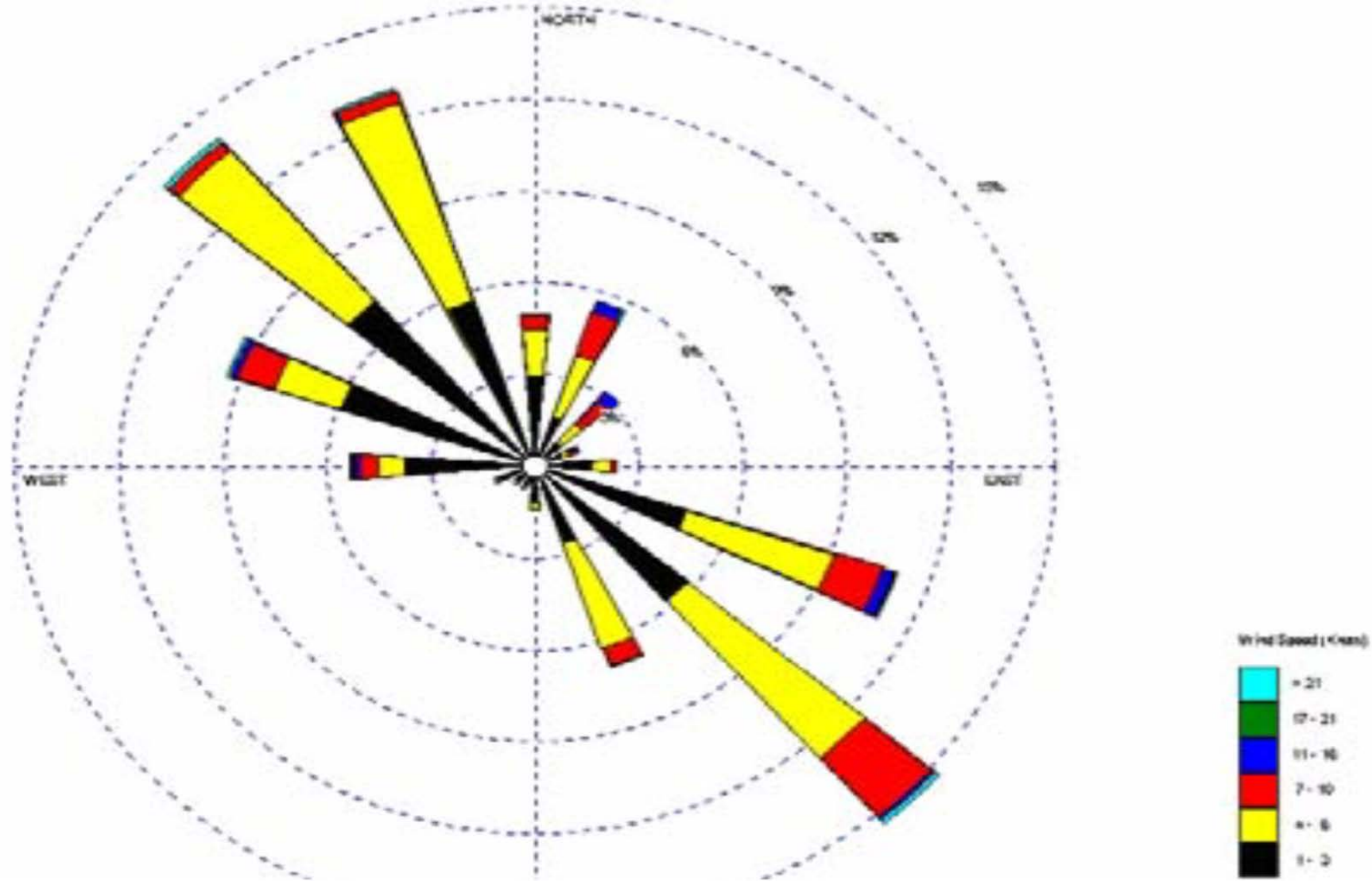


Figure IV-A-7. Midsection of Damaged Element in Channel 55



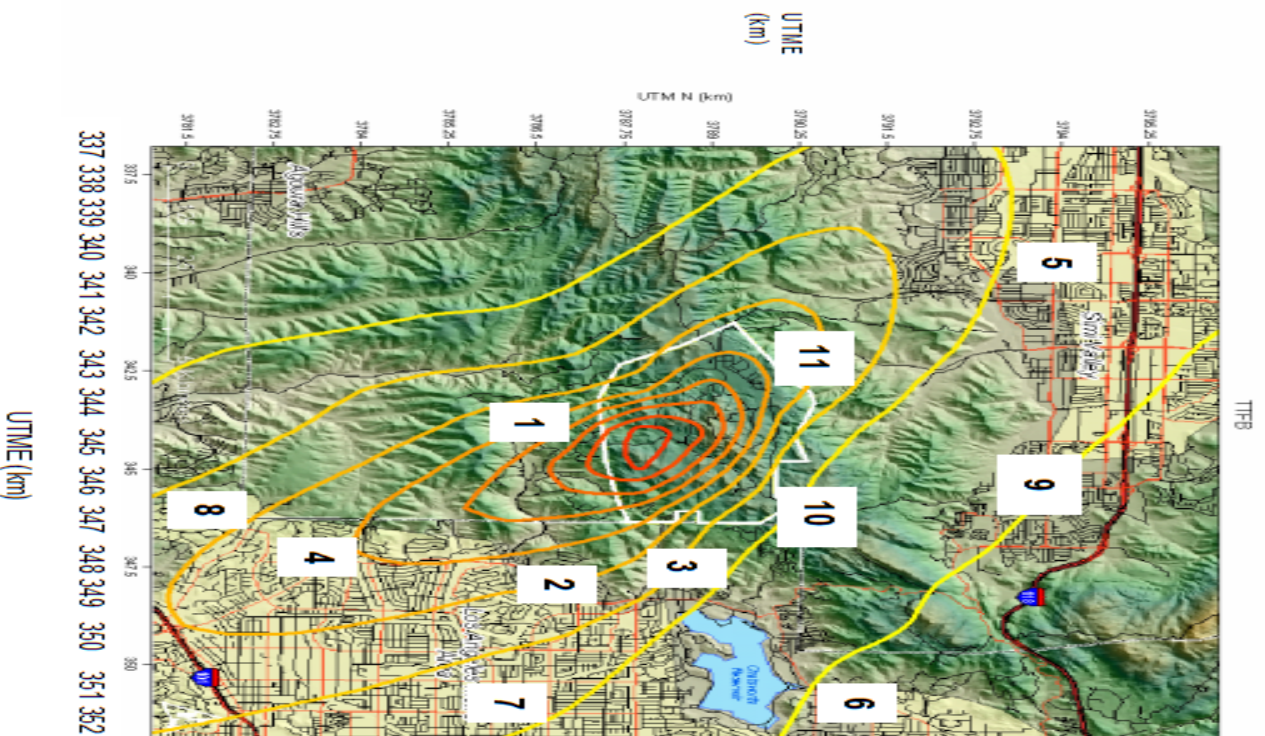






Wind Rose Plot of Surface Wind Data
SSFL Area IV: All Hours (Day); 94-97

Location of Receptor Communities used in Exposure Analysis



COMMUNITIES

1. Bell Canyon
2. West Hills
3. Dayton Canyon
4. Woodland Hills
5. Simi Valley
6. Chatsworth
7. Canoga Park
8. Hidden Hills
9. Santa Susana Knolls
10. Sage Ranch
/ Woolsey Canyon
11. Brandeis-Bardin Inst.

Brandeis-Bardin Institute

Pollution Concerns Go Back to the 1950s

- In the late 1950s, Shlomo Bardin wrote Rocketdyne asking that they take action to “put an end to the pollution of our grounds and water supplies.”
- Shlomo Bardin threatened to sue Rocketdyne because of pollution migrating from SSFL in Brandeis.
- He called the Sheriff to file a formal complaint about the pollution.

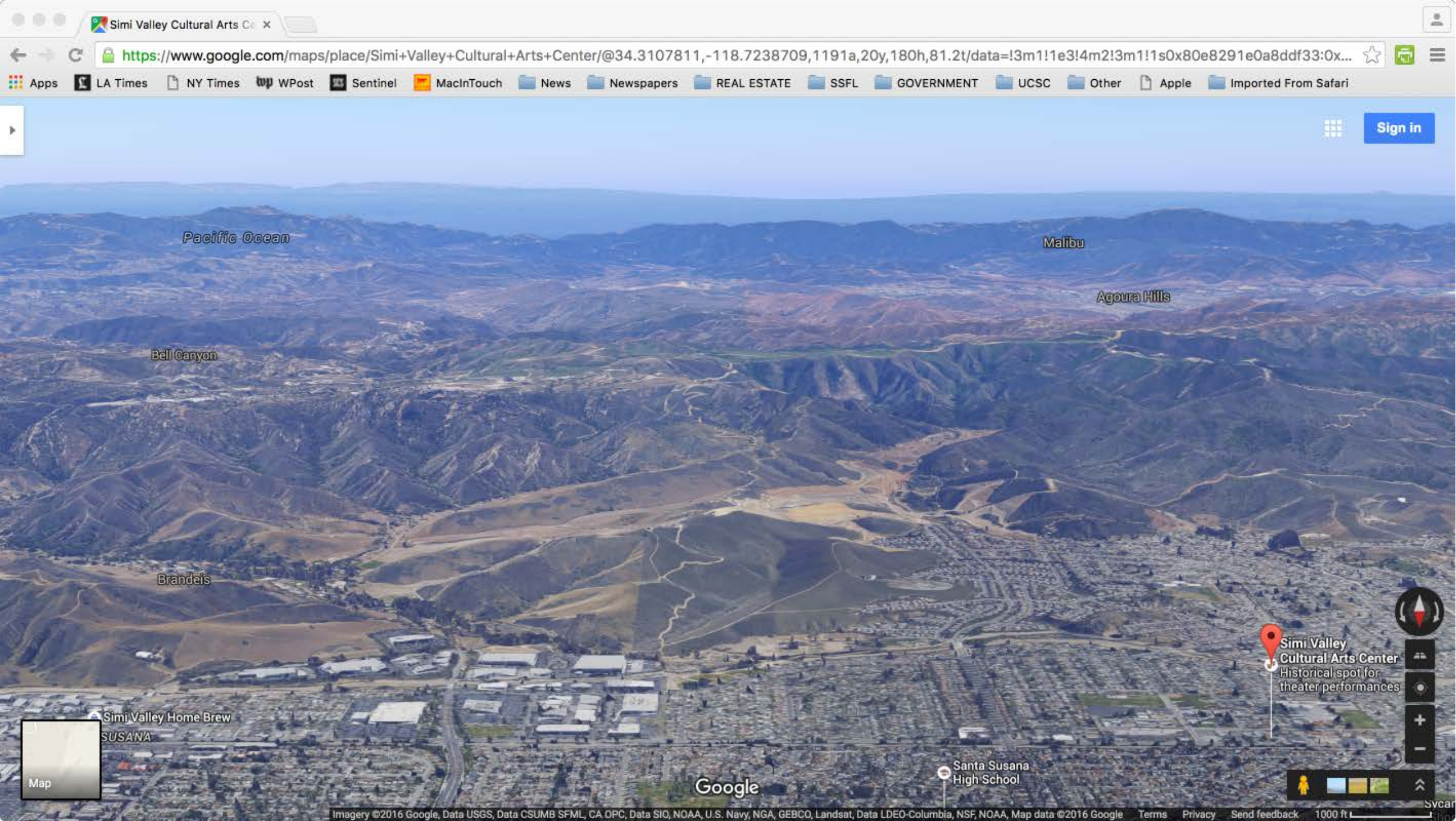
- Discolored water was being discharged into Brandeis creeks, leaving a colored “sludge” on the banks of the creeks coming off the Rocketdyne property onto Brandeis.
- The LA Water Pollution Board investigated and threatened action.

Problems Continued

- In the early 1990s tritium and TCE were found in groundwater at Brandeis
- This triggered a study of Brandeis conducted for Rocketdyne by McLaren-Hart, under supervision by EPA's Gregg Dempsey
- The study found elevated strontium-90, tritium, cesium-137, plutonium-238, and mercury in soil

Brandeis Sues Rocketdyne

- Brandeis Bardin Institute then sued Boeing, alleging SSFL had contaminated BBI, alleging that "hazardous materials" from Santa Susana had "seeped into" the "soil... and groundwater" of Brandeis, which "is injurious to the environment..."
- The case was settled for several million dollars prior to trial, and Boeing purchased part of the land in question.



Sign in

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UCLA Study

- Five year study by a team from the University of California led by Professor Yoram Cohen concluded that toxic emissions from SSFL within about two miles of the site were likely at levels in excess of EPA levels of concern

2003 Discovery of Perchlorate in “Bathtub Well”



Elevated Levels of Perchlorate

- 2/21/03 82 ppb found by Ventura County
- 5/1/03 140 and 150 ppb found by DTSC
- 6/11/03 36 and 39 ppb found by DTSC

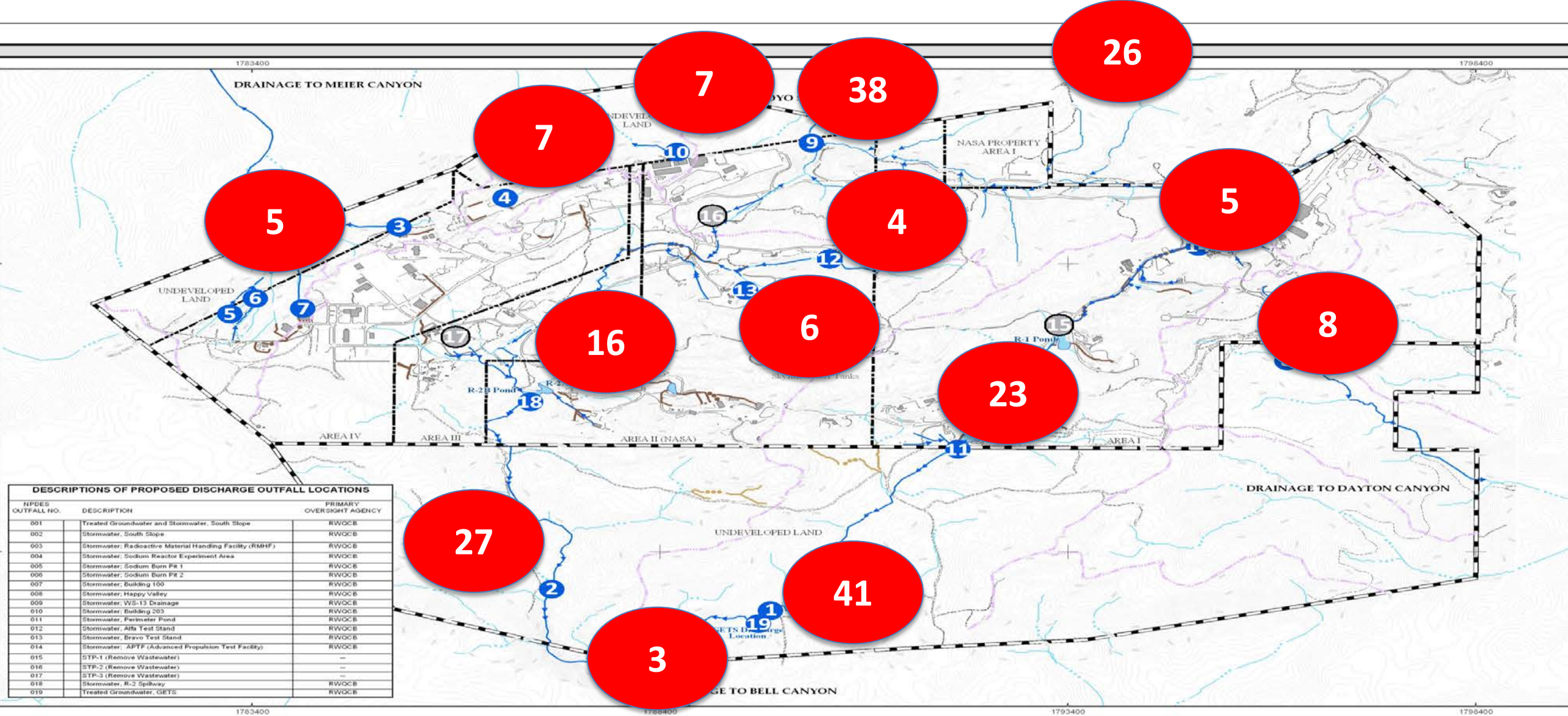
- 6 ppb = California Maximum Contaminant Limit in drinking water
- 1 ppb = California's new Public Health Goal for drinking water

Perchlorate Found in Milk from Brandeis Cow

- Brandeis found 14.9 ppb in milk from a cow in the Brandeis herd in 2004

Boeing Repeatedly Cited by Water Quality Control Board for Pollution Migrating off SSFL

- Boeing has been repeatedly cited and fined by regulators for numerous exceedances of its pollution discharge permit, leaving the site in stormwater runoff through outfalls headed to Brandeis



DESCRIPTIONS OF PROPOSED DISCHARGE OUTFALL LOCATIONS

NPDES OUTFALL NO.	DESCRIPTION	PRIMARY OVERSIGHT AGENCY
001	Treated Groundwater and Stormwater, South Slope	RWOCB
002	Stormwater, South Slope	RWOCB
003	Stormwater, Radioactive Material Handling Facility (RMHF)	RWOCB
004	Stormwater, Sodium Reactor Experiment Area	RWOCB
005	Stormwater, Sodium Burn Pk 1	RWOCB
006	Stormwater, Sodium Burn Pk 2	RWOCB
007	Stormwater, Building 100	RWOCB
008	Stormwater, Happy Valley	RWOCB
009	Stormwater, WS-13 Drainage	RWOCB
010	Stormwater, Building 203	RWOCB
011	Stormwater, Perimeter Pond	RWOCB
012	Stormwater, Alfa Test Stand	RWOCB
013	Stormwater, Bravo Test Stand	RWOCB
014	Stormwater, APTF (Advanced Propulsion Test Facility)	RWOCB
015	STP-1 (Remove Wastewater)	---
016	STP-2 (Remove Wastewater)	---
017	STP-3 (Remove Wastewater)	---
018	Stormwater, R-2 Spillway	RWOCB
019	Treated Groundwater, GETS	RWOCB

- NPDES Outfalls
- Historical NPDES Outfalls
- Groundwater Extraction Treatment System (GETS)
- Exceedances per outfall

- Legend
- Effluent Pathways
 - Surface Water Drainage Divide
 - Natural Drainage
 - Concrete Lined Drainage
 - Graded Drainage
 - Surface Water Reclamation Ponds

- Base Map Legend
- SSFL Property Boundary
 - Administrative Area Boundary
 - Ground Elevation Contours
 - Drainage Pathways
 - AVC Cutting
 - Dirt Road
 - Existing Building or Structure

Site Map with Outfall Location and Storm Water Drainage

Date: April 12, 2010
File: \\MapServer\app1\data\work\drainage\GIS\MapServer\SiteMap\SiteMap.mxd
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DTSC Issued an Imminent Endangerment Order
Against Boeing for Perchlorate, Lead, and
Other Materials Buried in the SSFL Northern
Drainage which Drains into Brandeis

AJU/BBI Has Failed to Release Full Set of Measurements

- AJU/BBI has said BBI has undertaken routine measurements since the early 1990s.
- However, to date it has only released reports from about one third of those years, and those reports are quite minimal—1 to a few pages in length, with the actual data often missing
- No BBI data for the first half century of BBI's existence have been released.

Runkle Canyon

QST 1999 Study of Runkle Ranch for Developer

“The purpose of the investigation was to determine if operations conducted at the adjacent ‘Rocketdyne’ facility had impacted on-site soils, based on surface run-off carrying radionuclides to the site. Results of the investigation would determine if further site investigation is necessary for the subject site.”

QST Findings

- “The analytical results of the soils samples ... indicated the *presence of Strontium in all samples collected* from S-1 and S-2 (ranging from 0.25 to 0.86) *that exceeded the EPA average local background concentration of 0.052....*”

QST Conclusion

- ***“Based on the analytical results of the soil samples, it would appear that there may have been some impact of radionuclides to the site from the Rocketdyne facility. Consequently, a more extensive site investigation appears to be necessary to determine the lateral and vertical impact of radionuclides in the soil.”***

(emphasis added)

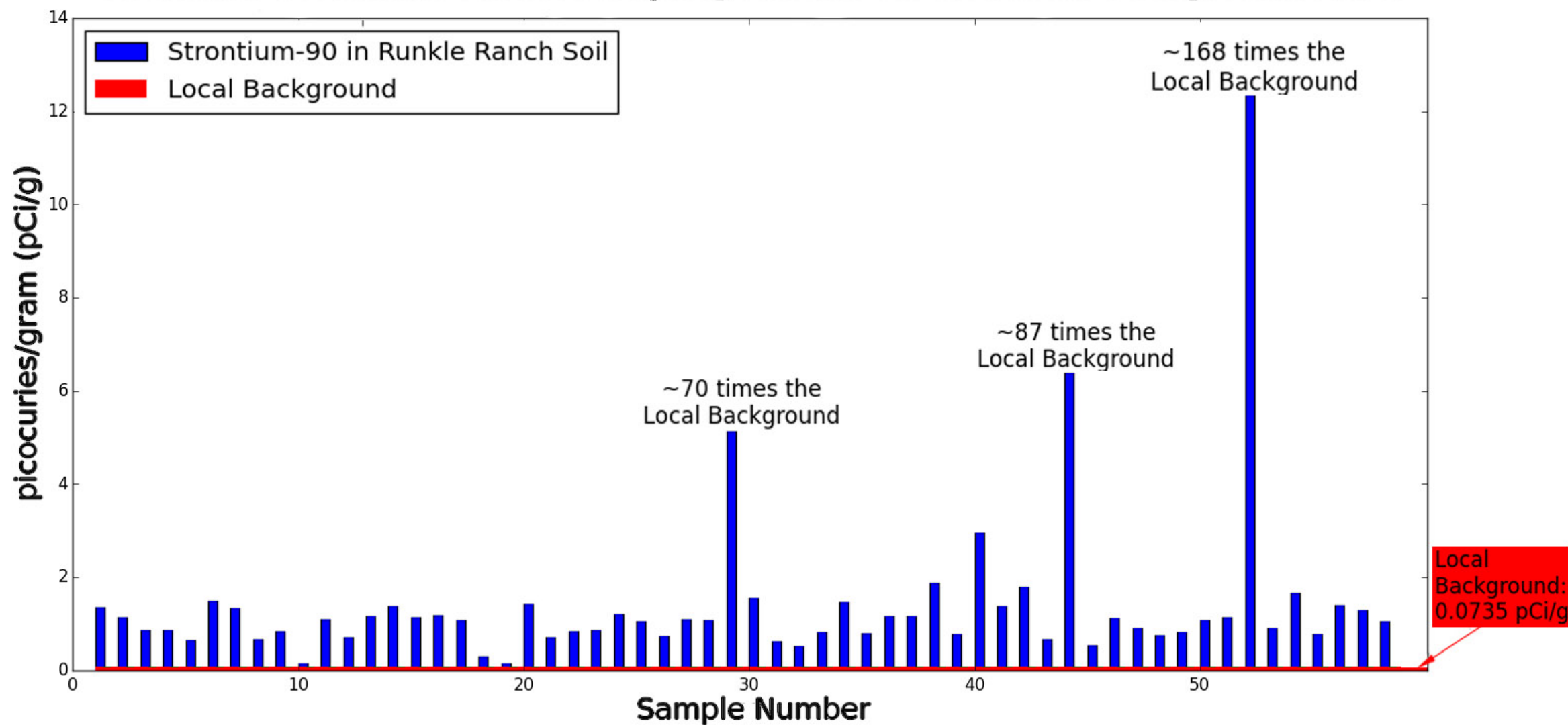
City of Simi Draft EIR

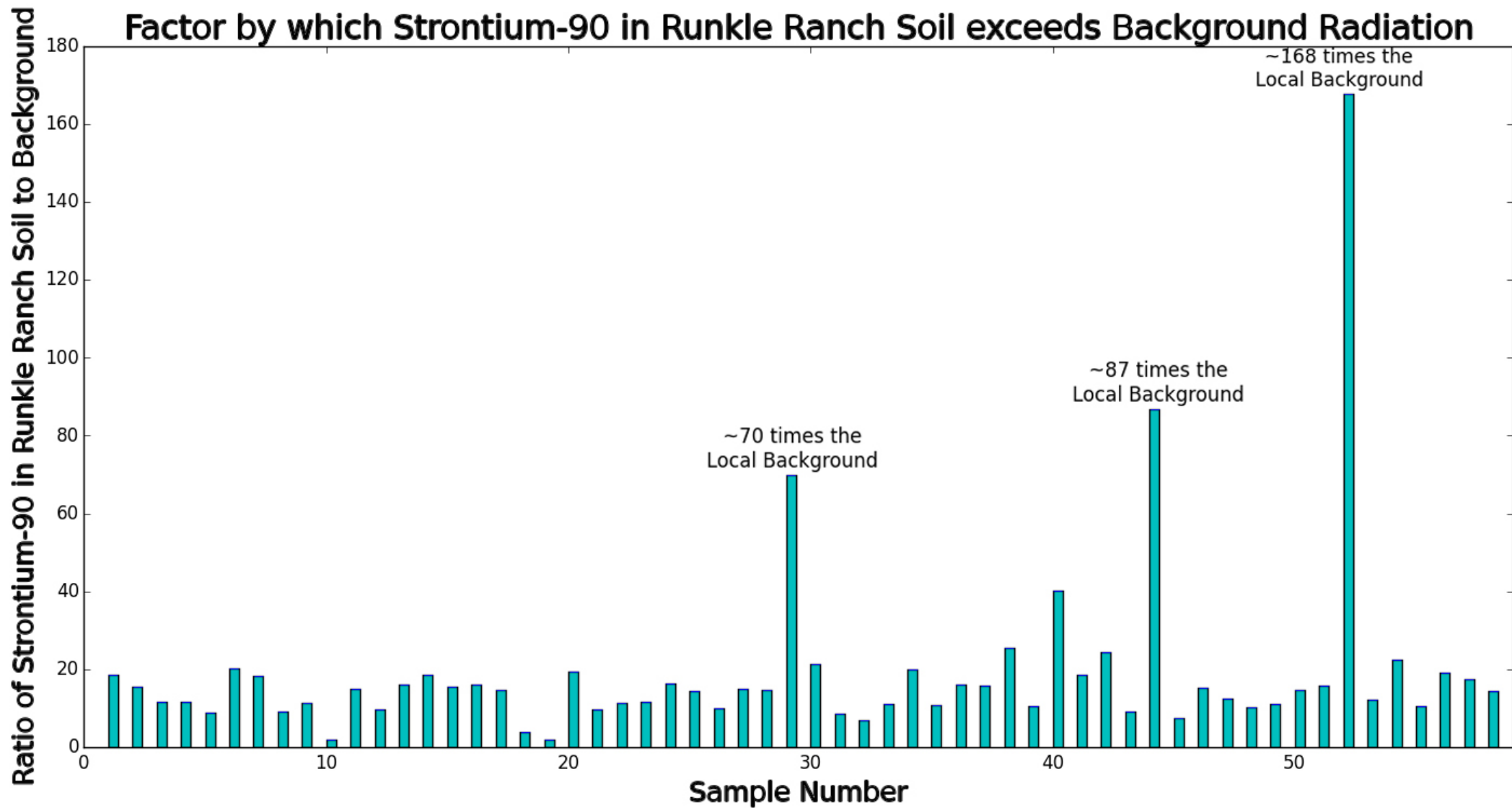
- Previous assessments of strontium-90 and tritium within the vicinity of the [Runkle Canyon] Specific Plan Area included a survey conducted by QST Environmental, Inc. in 1998.... The results of the survey indicated that the surface soil contained concentrations of cesium-137 and strontium-90 that exceeded background levels established by the EPA.
- Consequently, further testing was indicated.

- “This assessment found that radiation levels were within normal background levels. *Tritium and strontium-90 were not detected in any of the soil and groundwater samples at levels above normal background levels or at levels considered to pose a health risk.*”

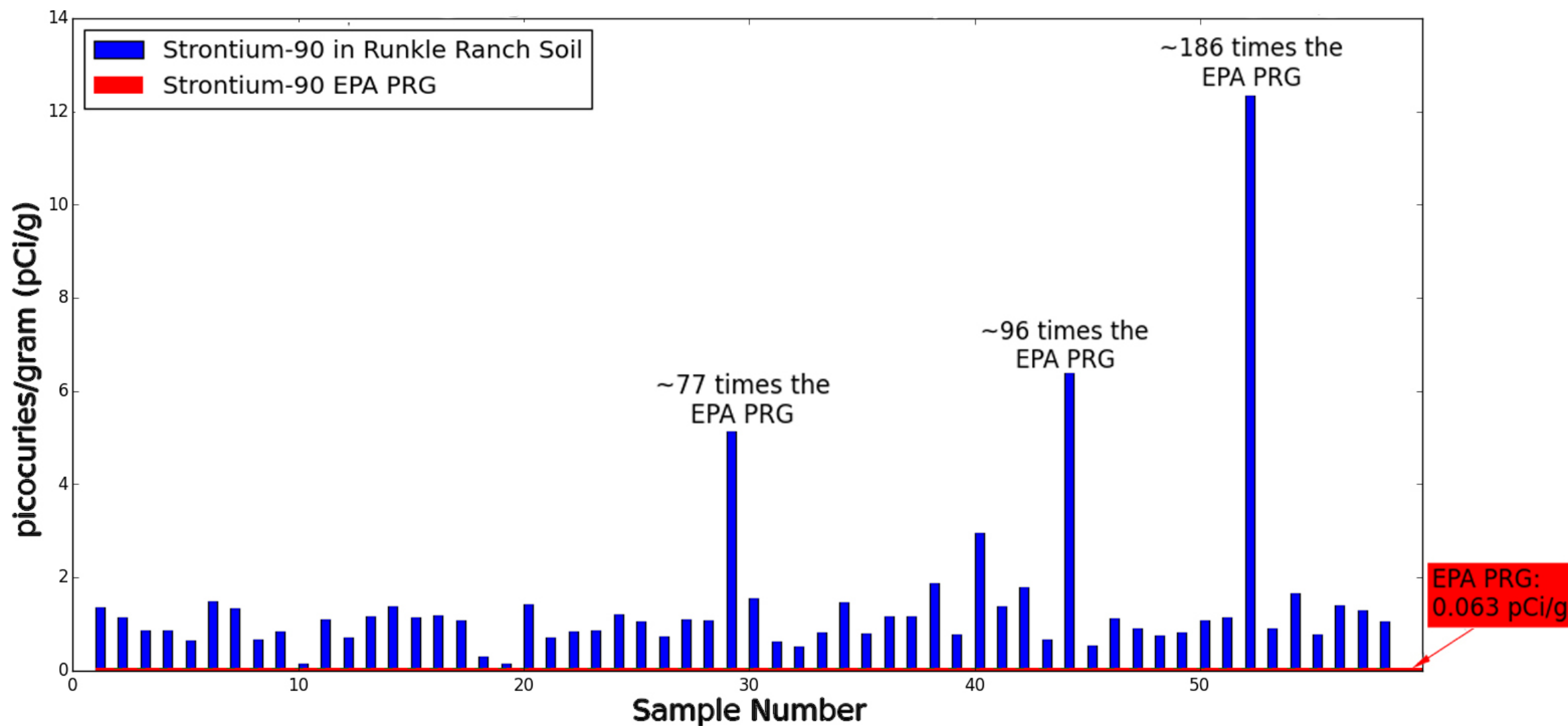
- (emphasis added)

Strontium-90: Runkle Ranch Sampling Results vs. EPA Local Background Level

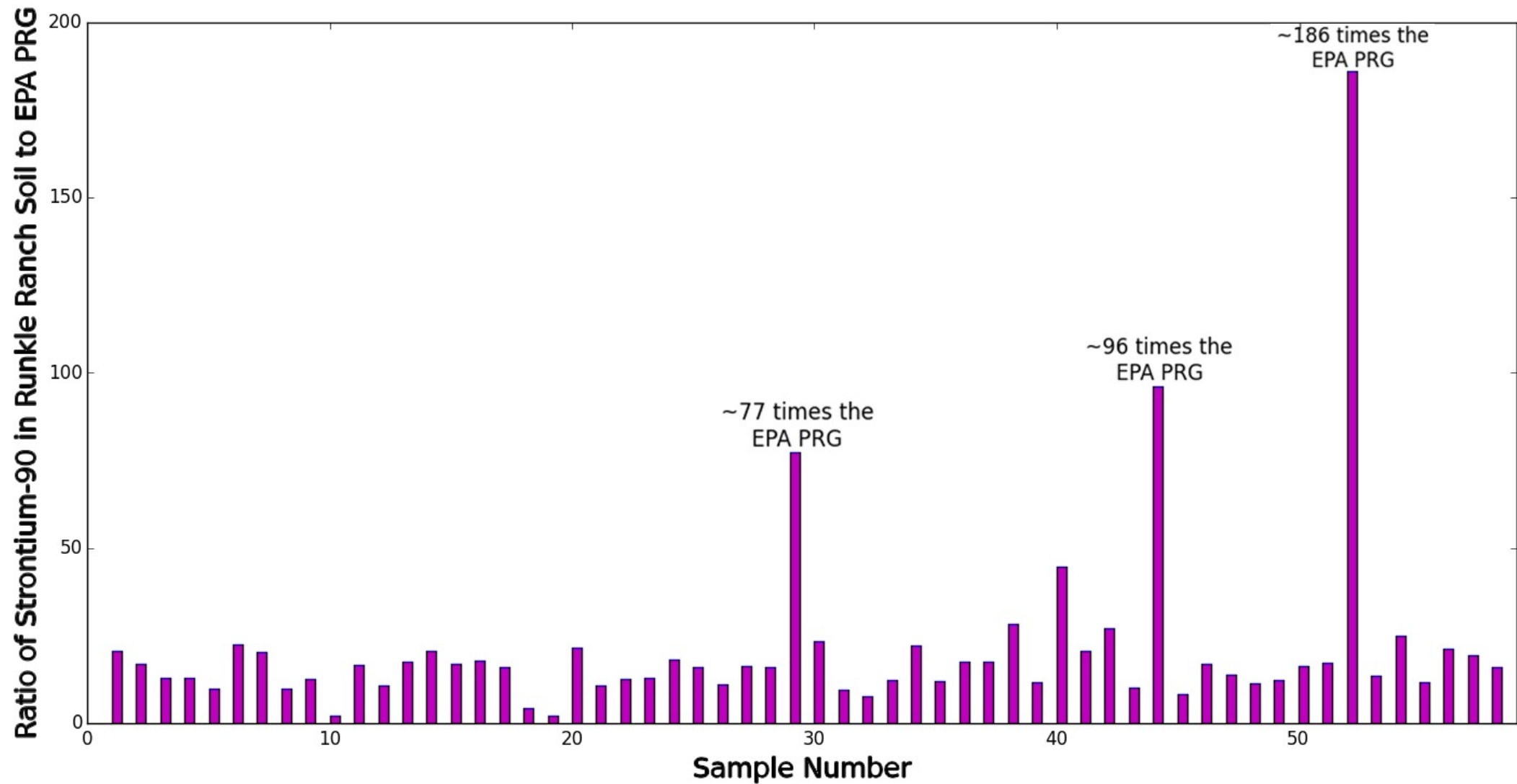




Strontium-90: Runkle Ranch Sampling Results vs. EPA Preliminary Remediation Goal (PRG)



Factor by which Strontium-90 in Runkle Ranch Soil exceeds the EPA Preliminary Remediation Goal (PRG)

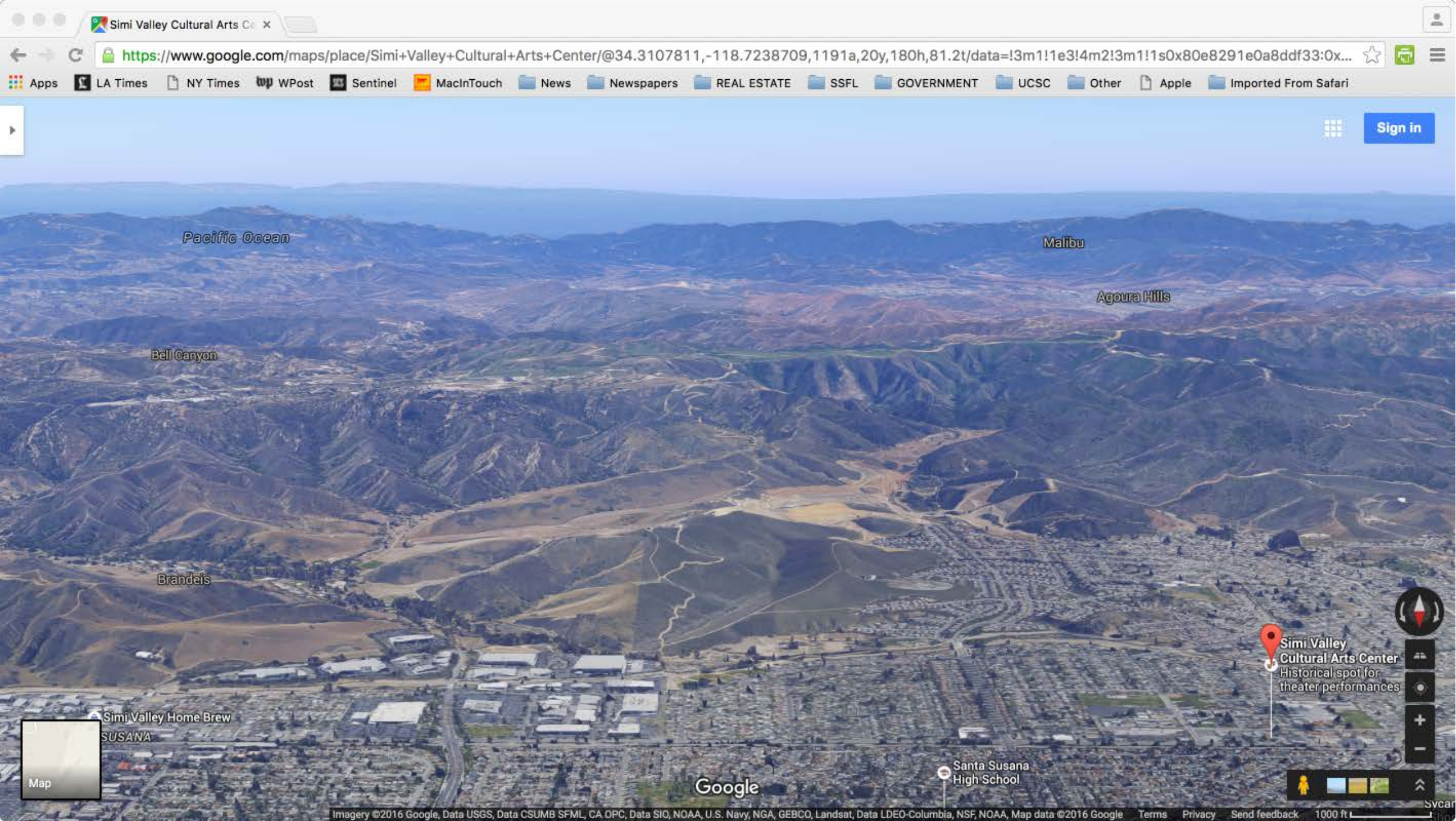


Runkle Ranch

Study	Highest Strontium-90 Detected (pCi/g)	How Many Times EPA Background (0.075 pCi/g)	How Many Times EPA Suburban Residential Preliminary Remediation Goal (0.0663 pCi/g)
QST*	0.86	11	13
FosterWheeler	12.34	165	186
Harding ESE	4.76	63	72
MillerBrooks	2.2	29	33
DadeMoeller	0.423	6	6

Runkle Ranch

Study	Highest Strontium-90 Detected (pCi/g)	How Many Times EPA Background (0.075 pCi/g)	How Many Times EPA Suburban Residential Preliminary Remediation Goal (0.0663 pCi/g)
QST 1998*	0.86	11	13
FosterWheeler 1999	12.34	165	186
Harding ESE 2000	4.76	63	72
MillerBrooks 2003	2.2	29	33
DadeMoeller 2005	0.423	6	6
DadeMoeller 2007**	0.078	1	1
DadeMoeller 2010***	0.358	5	5



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