
SUPERFUND SITES IN SUNNYVALE

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SUPERFUND HISTORY AND STATUS

- **Superfund Law:** Created by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) enacted in 1980 and amended in 1986. These acts established broad authority for the government to respond to problems posed by the release, or threat of release, of hazardous substances, pollutants, or contaminants. CERCLA also imposed liability on those responsible for releases and provided the authority for the government to undertake enforcement and abatement action against responsible parties.
- **Primary goal** of a Superfund cleanup is to reduce the risks to human health through a combination of cleanup, engineered controls like caps and site restrictions such as groundwater use restrictions. A secondary goal is to return the site to productive use as a business, recreation or as a natural ecosystem. Identifying the intended reuse early in the cleanup often results in faster and less expensive cleanups
- **The ‘Fund’:** Historically about 70 percent of Superfund cleanup activities have been paid for by potentially responsible party (PRPs). When the party either cannot be found or is unable to pay for the cleanup, the Superfund law originally paid for toxic waste cleanups through a “Polluter Pays” tax on petroleum and chemical industries. The chemical and petroleum fees were intended to provide incentives to use less toxic substances. Over five years, \$1.6 billion was collected, and the tax went to a trust fund for cleaning up abandoned or uncontrolled hazardous waste sites. The last full fiscal year (FY) in which the Department of the Treasury collected the tax was 1995. At the end of FY 1996, the invested trust fund balance was \$6.0 billion. This fund was exhausted by the end of FY 2003. Since that time superfund sites for which the potentially responsible parties could not pay have been paid for from the general fund appropriated by Congress. It is estimated that taxpayers are now paying about 80% of remaining clean-up costs.
- Information on every site on the National Priority List is online. <https://cumulis.epa.gov/supercpad/cursites/srchsites.cfm> Advanced search by location, chemical, status, etc.

WHAT ARE SUPERFUND SITES?

- **Superfund Site:** Land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.
 - The **National Priorities List (NPL)** is a list of the most hazardous contamination sites that have been identified by Superfund where long-term remedial response actions are conducted.
 - Superfunds can be sub-classified as:
 - **Active:** A non-archived Superfund site at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted under the Superfund/CERCLIS program.
 - **Archived:** A Superfund site that has no further interest under the Federal Superfund Program based on available information and is no longer part of the CERCLIS inventory.
 - Information on all sites is online: <https://cumulis.epa.gov/supercpad/cursites/srchsites.cfm>
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NATIONAL PRIORITIES LIST SITES (AS OF OCTOBER 01, 2021)

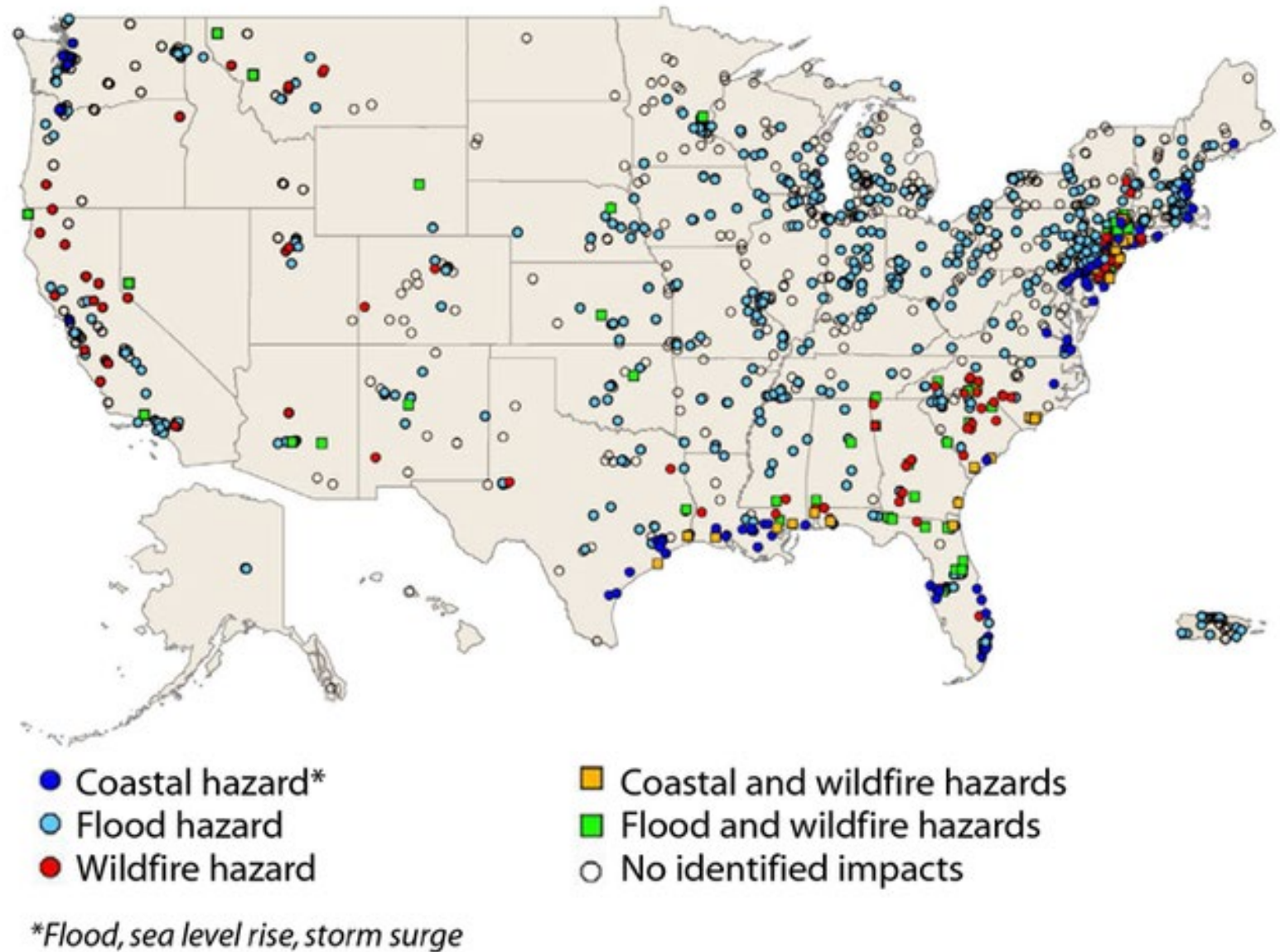
Status	Non-Federal (General)	Federal	Total
Proposed NPL Sites	48	3	51
NPL Sites	1165	157	1322
Deleted NPL Sites	430	17	447 (about 25%)

Milestone	Non-Federal (General)	Federal	Total
Partial Deletions at NPL Sites	103	31	134 (at 104 sites or about 8% of sites)
Construction Completions at NPL Sites	1148	81	1229* (about 69% of NPL and deleted NPL sites)

Source: <https://www.epa.gov/superfund/superfund-national-priorities-list-npl>

SUPERFUND SITES AT RISK FROM CLIMATE CHANGE (2019)

The US Government Accountability Office found that 60% of non-federal Superfund sites contaminated with hazardous substances were at risk from climate change effects such as coastal and river flooding and wildfires.



SOURCE: GAO

InsideClimate News

97 CALIFORNIA NATIONAL PRIORITIES LIST SITES

24 sites have a hazard rating between 50 and 75 on the 100-point scale assessing risk to humans and the environment. None are above 75. The rating must be above 28.5 to be included on the NPL.



TERMS

- **Hazard Ranking System:** A numeric estimate of the relative severity of a hazardous substance release or potential release based on (1) the relative potential of substances to cause hazardous situation (2) the likelihood and rate at which the substances may affect human and environmental receptors and (3) the severity and magnitude of potential effects. The score is computed using the hazard ranking system (HRS). A score of 28.5 or higher makes the site eligible to be placed on the National Priorities List.
 - **Active Sites:** Active CERCLIS sites are sites at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted under the Superfund program. (not necessarily on NPL)
 - **Archive Site:** The Archive designation indicates the site has no further interest under the Federal Superfund Program based on available information. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. The Archive designation is removed and the site is returned to the CERCLIS inventory if more substantive assessment and/or any cleanup work is necessary under the Federal Superfund program.
 - **Construction Complete:** Remedies at a site often require physical construction (e.g., building of water treatment systems). A site is categorized as Construction Complete by meeting one of the following criteria: any necessary physical construction is complete, whether or not final cleanup levels or other requirements have been achieved; EPA has determined that the response action should be limited to measures that do not involve construction; or the site qualifies for deletion from the NPL.
 - **Deleted from the NPL:** Deletion of sites from the National Priorities List (NPL) may occur once all response actions are complete and all cleanup goals have been achieved. EPA has the responsibility for processing deletions with concurrence from the State. EPA can also delete portions of sites that meet deletion criteria.
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WHAT'S IN SUNNYVALE? 67 SITES: 5 ON NATIONAL PRIORITIES LIST 62 NOT ON NPL (8 ACTIVE, 54 ARCHIVED)

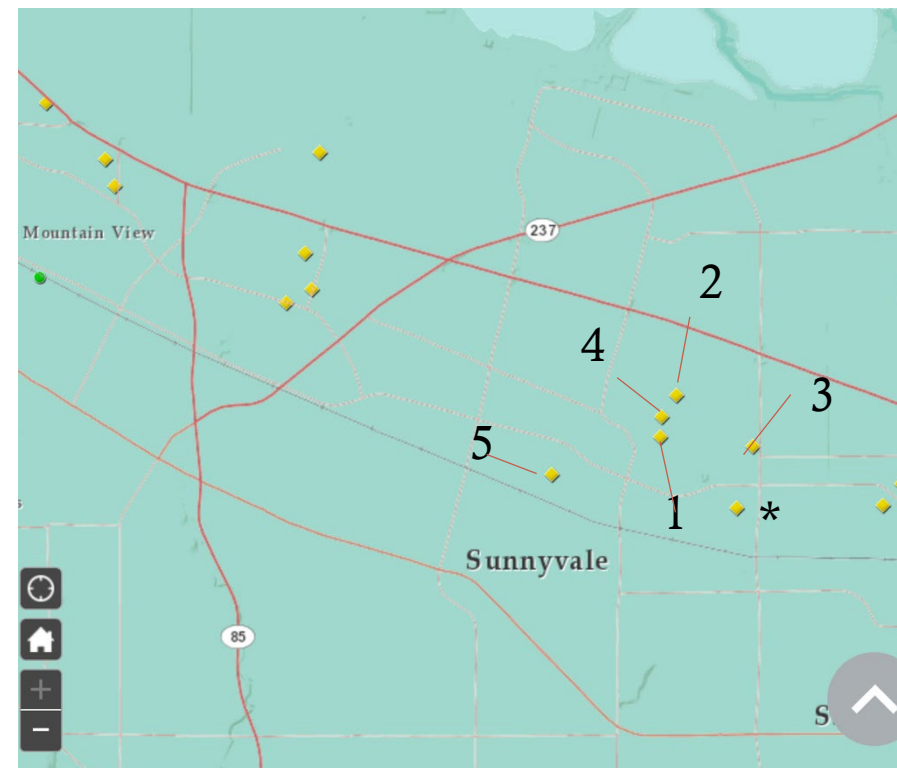
Of 5 sites on NPL:

All are in zip codes 94085 & 94086.

All have status of "Construction Complete"

All are marked as "Human Exposure Under Control", and "Groundwater Migration Under Control".

#	Site Name	Site-wide Ready for Anticipated Use
1	ADVANCED MICRO DEVICES, INC.	No
2	ADVANCED MICRO DEVICES, INC. (BUILDING 915)	Yes
3	MONOLITHIC MEMORIES	Yes
4	TRW MICROWAVE, INC (BUILDING 825)	No
5	WESTINGHOUSE ELECTRIC CORP. (SUNNYVALE PLANT)	Yes



Source: <https://www.homefacts.com/environmentalhazards/superfunds/California/Santa-Clara-County/Sunnyvale.html>

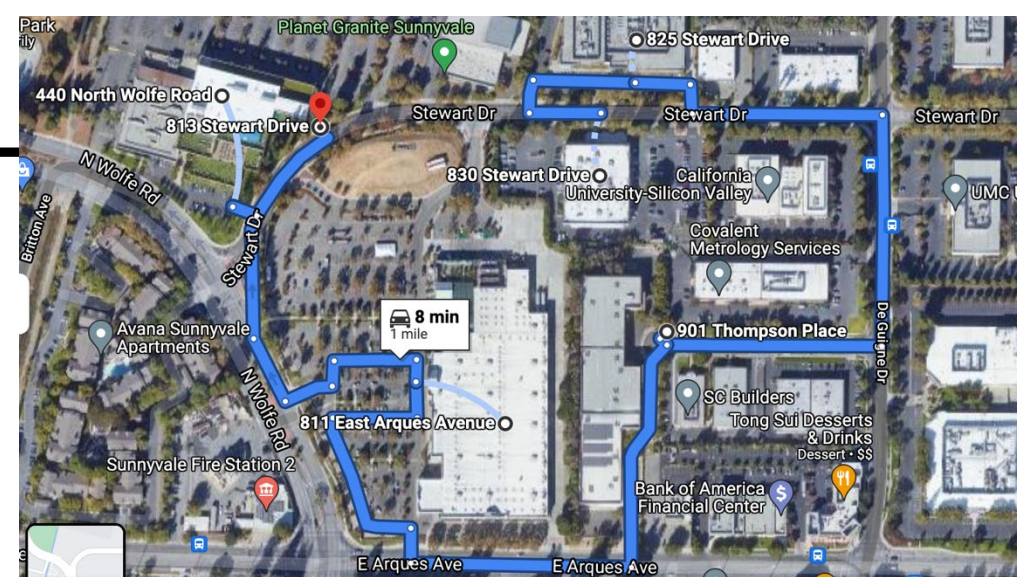
* National Semiconductor (in Santa Clara city limits)

SITE SUMMARY: AMD INC

HAZARD RANKING SYSTEM SCORE 37.93 AND PART OF THE 'TRIPLE SITE'

- The former Advanced Micro Devices, Inc. 901/902 Thompson Place Superfund Site (Site) covers 6 acres in Sunnyvale, California. AMD designed and fabricated semiconductor devices at two adjoined low-rise buildings at the Site between 1969 and 1992. **Groundwater beneath the site is contaminated by volatile organic compounds (VOCs), including trichloroethene (TCE).**
- The site is covered by a 1991 Record of Decision (ROD) for the Triple Site. The four parts of the Triple Site are:
 - (1) AMD 901/902 Site;
 - (2) Philips Site;
 - (3) TRW Microwave Site; and
 - (4) Offsite Operable Unit (OOU), a commingled plume of contaminants which originated from the other three sites (and has contributions from other sites in the area). It is defined as a 100-acre area, downgradient and north of the Triple Site in an area bounded by the Sunnyvale East Drainage Channel on the west and Santa Paula Avenue on the east, and as the area inside a 5 micrograms per liter (µg/L) isopleth for trichloroethene (TCE) in groundwater. Over 1,200 residences and 4 schools are present within the OOU. The closest residence is approximately 2,000 feet north of the Site. Drinking water in this area is not affected by the groundwater contamination.

<https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0901398>

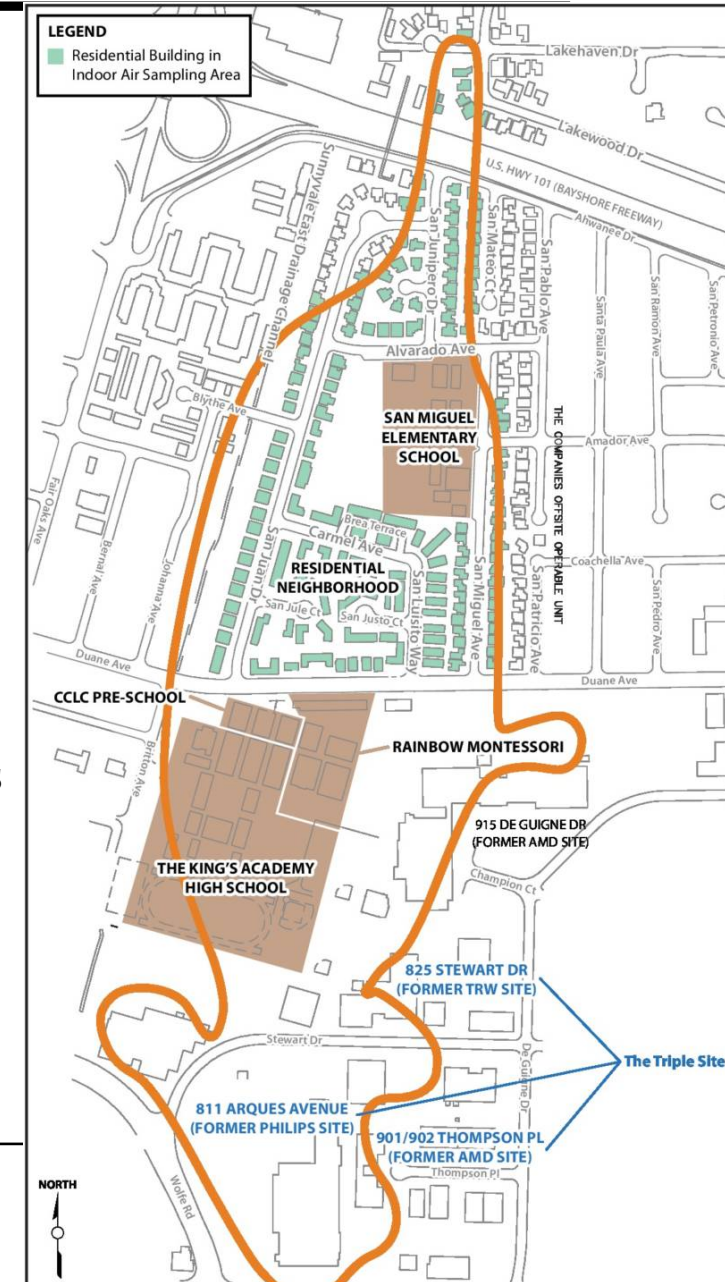


Milestone	Date(s)
Initial Assessment Completed	07/01/1984
Proposed to the National Priorities List	10/15/1984
Finalized on the National Priorities List	06/10/1986
Remedial Investigation Started	04/19/1989
Final Remedy Selected	09/11/1991
Remedial Action Started	09/11/1991
Final Remedial Action Started	Estimated Oct - Dec 2021
Construction Completed	09/17/1993
Deleted from National Priorities List	Not Yet Achieved
Most Recent Five-Year Review	09/18/2019
Achieved Sitewide Ready for Anticipated	Not Yet Achieved

SITE SUMMARY: TRW MICROWAVE INC.

HAZARD RANKING SYSTEM SCORE 31.94 AND PART OF 'TRIPLE SITE'

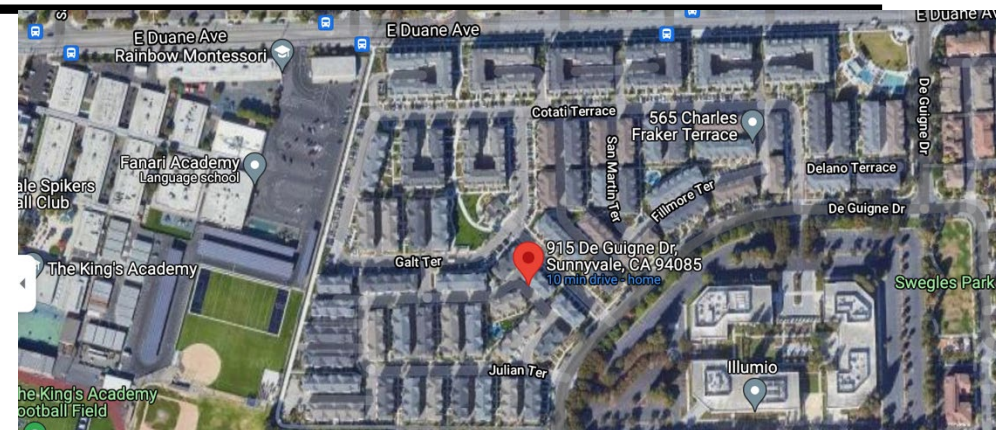
- **Address:** 825 Stewart Dr.
- On October 4, 2019, EPA announced two settlements to study indoor air quality, advance cleanup, and take action related to groundwater contamination for the Triple Site. The first, with Philips Semiconductors Inc. (Philips), requires the company to **study indoor air quality in commercial buildings** at the Signetics site and **evaluate options to speed cleanup of contaminated groundwater**. The second settlement adds Advanced Micro Devices (AMD) and Northrop Grumman Systems Corporation (formerly TRW Microwave) as signatory parties—with Philips as the party performing the work—to **assess vapor intrusion and implement mitigation measures in residential buildings** adjacent to the Signetics site that are located over the groundwater contamination.



SITE SUMMARY: AMD 915

HAZARD RANKING SYSTEM SCORE 31.94

- **Address:** 915 De Guigne Dr. 94085
- **Background** Advanced Micro Devices, Inc. makes semiconductor and microprocessor devices at this 5.5-acre site. Building 915 was built on former agricultural land in 1973. At that time, three underground acid neutralization tanks were installed north of the building. The building's operations also involved underground storage tanks of waste organic solvents. **In 1981, the company identified volatile organic compounds (VOCs) in wells near the building.** VOCs are compounds used in many applications, such as dry cleaning, paint stripping, metal plating and machinery degreasing. **High levels of VOCs present in the on-site soils resulted from leaking tanks and spills during solvent handling.** Following construction of the site's remedy, ground water treatment and monitoring are ongoing.
- The Site is located in close proximity to other sites undergoing groundwater remediation and vapor intrusion evaluation and mitigation work: the AMD 901/902 Thompson Site, the TRW Microwave site, and the Philips/Signetics site (collectively referred to as the "Triple Site"). Another source of regional groundwater contamination originating south of the Site is the former Mohawk facility. A plume of contamination from the Mohawk facility has been mapped beneath the eastern portion of the AMD 915 Site. The Site does not impact municipal drinking water supplies.
- In 2016 the buildings previously located on the AMD 915 Site were demolished. A multifamily residential development project has been built at the location under the oversight of the State of California, Regional Water Quality Control Board. To facilitate Site redevelopment, in 2016 the groundwater treatment system was decommissioned, including the air stripper. A replacement treatment system was installed in a different location to accommodate the ongoing residential redevelopment. This replacement system treats groundwater via carbon adsorption. Groundwater extraction and treatment are ongoing.



Milestone	Date(s)
Initial Assessment Completed	11/01/1987
Proposed to the National Priorities List	06/24/1988
Finalized on the National Priorities List	08/30/1990
Remedial Investigation Started	05/17/1989
Final Remedy Selected	08/26/1991
Final Remedial Action Started	08/26/1991
Construction Completed	03/25/1992
Deleted from National Priorities List	Not Yet Achieved
Most Recent Five-Year Review	09/18/2019
Achieved Sitewide Ready for Anticipated Reuse	09/27/2011

SITE SUMMARY: MONOLITHIC MEMORIES

HAZARD RANKING SYSTEM SCORE 35.57

- Background** The former Monolithic Memories Superfund Site (the “Site”) comprised three buildings, at **1165 E. Arques Avenue, 1175 E. Arques Avenue, and 1160 Kern Avenue**. Two buildings, referred to as Building 1 (1165 E. Arques) and Building 2 (1175 E. Arques), were used for semiconductor manufacturing from 1970 until 1987, when Advanced Micro Devices, Inc. (AMD) merged with Monolithic Memories, Inc. (MMI) and assumed responsibility for the Site. MMI began leasing the 1160 Kern property in 1974. The building on this property, Building 3, was used for office space, product handling and testing, and administration until it was closed in 2003. The 1165/1175 E. Arques property has been sold and redeveloped as a fitness center. The 1160 Kern Avenue property is the new location of non-profit Sunnyvale Community Services.

In 1982, **soil and groundwater at the Site were found to be impacted with volatile organic compounds (VOCs) attributed to leaks from underground chemical storage tanks, acid neutralization systems (ANSs), and chemical handling areas** associated with Buildings 1 and 2. The tanks and ANSs were removed, along with impacted soil. Soil vapor and groundwater extraction systems were installed and operated to remove VOCs from soil and groundwater.

In 2005, AMD donated the 1165/1175 E. Arques property to a local charity, which then sold the property to TWC Storage, LLC (TWC). Buildings 1 and 2 and associated facilities, including the on-Site groundwater treatment system, were demolished to accommodate redevelopment. **During demolition activities, TWC’s contractors damaged a transformer, spilling approximately 250 gallons of tetrachloroethylene (also known as Perc, or PCE) on the ground surface.** TWC implemented soil and groundwater cleanup operations under oversight of the Regional Water Board.

VOCs from off-Site industrial operations to the south, including the National Semiconductor Superfund Site, have contributed to a regional groundwater plume extending beneath and downgradient (north) of the Site. Impacts related to former Site operations are generally localized and limited to shallow (A Zone) groundwater, whereas impacts from the regional plume extend into the deeper (B) Zone.

<https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0901398>



Milestone	Date(s)
Initial Assessment Completed	07/01/1984
Proposed to the National Priorities List	10/15/1984
Finalized on the National Priorities List	07/22/1987
Remedial Investigation Started	04/19/1989
Final Remedy Selected	09/11/1991
Final Remedial Action Started	09/11/1991
Construction Completed	08/22/1994
Deleted from National Priorities List	Not Yet Achieved
Most Recent Five-Year Review	09/24/2018
Achieved Sitewide Ready for Anticipated Reuse	01/29/2018

SITE SUMMARY: WESTINGHOUSE ELECTRIC (NOW NORTHRUP GRUMMAN) HAZARD RANKING SYSTEM SCORE 39.93

- **Background** The 75-acre Westinghouse Electric Corporation (Sunnyvale Plant) site is the former location of an electrical transformer manufacturing facility at 401 E Hendy Ave. *Groundwater contamination resulted from a storage tank leaking polychlorinated biphenyls (PCBs) and from localized spills.*
- **What Is the Current Site Status?** The site is being addressed through federal and PRP actions. EPA has conducted several five-year reviews of the site's remedy. The most recent review concluded that EPA could not make a protectiveness determination until it assesses potential vapor intrusion pathways. The review noted that some surface soils at the site contain contamination above cleanup levels and that institutional controls to prevent exposure to contaminated soils or groundwater are not yet in place.
- **What Has Been Done to Clean Up the Site?**
 - *Initial Actions:* The potentially responsible party (PRP) removed contaminated soils in 1984 and 1985, and a gasoline tank in 1986.
 - *Entire Site:* The long-term remedy included extracting and treating groundwater, incinerating soil contaminants off site, and implementing land use restrictions at the site. Under EPA supervision, the PRP completed groundwater and soil cleanup plans in 1994. Construction of the remedies began in 1994. Removal of soils in the main plant areas and the underground storage tank area occurred in late 1994. Full-scale treatment of contaminated groundwater began in early 1995. Groundwater treatment will continue until the groundwater meets established cleanup goals.



Milestone	Dates
Initial Assessment Completed	07/01/1984
Proposed to the National Priorities List	10/15/1984
Finalized on the National Priorities List	06/10/1986
Remedial Investigation Started	10/01/1981
Final Remedy Selected	10/16/1991
Remedial Action Started	06/28/1994
Final Remedial Action Started	03/19/1997
Construction Completed	09/27/2000
Deleted from National Priorities List	Not Yet Achieved
Achieved Sitewide Ready for Anticipated Reuse	05/02/2019
Most Recent Five-Year Review	09/23/2021

8 SUNNYVALE SUPERFUND SITES – ACTIVE, BUT NOT ON NPL

Address	Site Name
180 N WOLFE RD	<u>ICORE INTERNATIONAL</u>
111 LOCKHEED WAY	<u>NAVAL INDUSTRIAL RESERVE ORDINANCE PLANT</u> (Federal)
1080 LOCKHEED WAY	<u>ONIZUKA AIR FORCE STATION 6594 ABS/CC</u> (Federal)
150 N WOLFE RD	<u>ROYAL AUTO BODY & TOWING</u>
100 SAN LUCAS CT.	<u>SIGNETICS CORP</u>
811 E ARQUES AVE	<u>SIGNETICS, INC.</u>
811 E ARQUES AVE	<u>TRIPLE SITE</u>
230 COMMERCIAL ST	<u>WESTERN PRECISION INC</u>

- None have achieved “Construction Complete”.
- None are “Site-wide Ready for Anticipated Use”.
- All list “Status Unavailable” for both “Human Exposure Under Control” and “Groundwater Mitigation Under Control”

54 SUNNYVALE SITES ARE ARCHIVED

Site Name	Street Address
129TH CAV AIR NATL GUARD	129TH HRMS MOFFETT FIELD
AMDAHL CORP	1250 E ARQUES
AMPEX	728 SAN ALESO
APPLIED TECHNOLOGY	645 ALMANOR AVE
ARQUES CORPORATION	999 E ARQUES AVE
BALL A C CO	141 CASPIAN CT
BARNES-HIND PHARMACEUTICALS INC	895 KIFER RD
BELL INDUSTRIES	1161 N FAIROAKS AVE
CALIFORNIA CIRCUIT ENGRNG INC	1292 REAMWOOD AVE
CIRCO	940 HAMLIN CT
DATA GENERAL CORP	433 N MATHILDA AVE
DESIGN OPTICS INC	155 MOFFETT PARK DR
ESL INC SUBSIDIARY OF TRW	425 TASMAN
EXAR INTEGRATED	750 PALOMAR
FABTECH	154 SAN LAZARO
HEPCO	150 SAN LAZARO
HEWLETT PACKARD DATA TERMINALS DIV	974 E ARQUES AVE

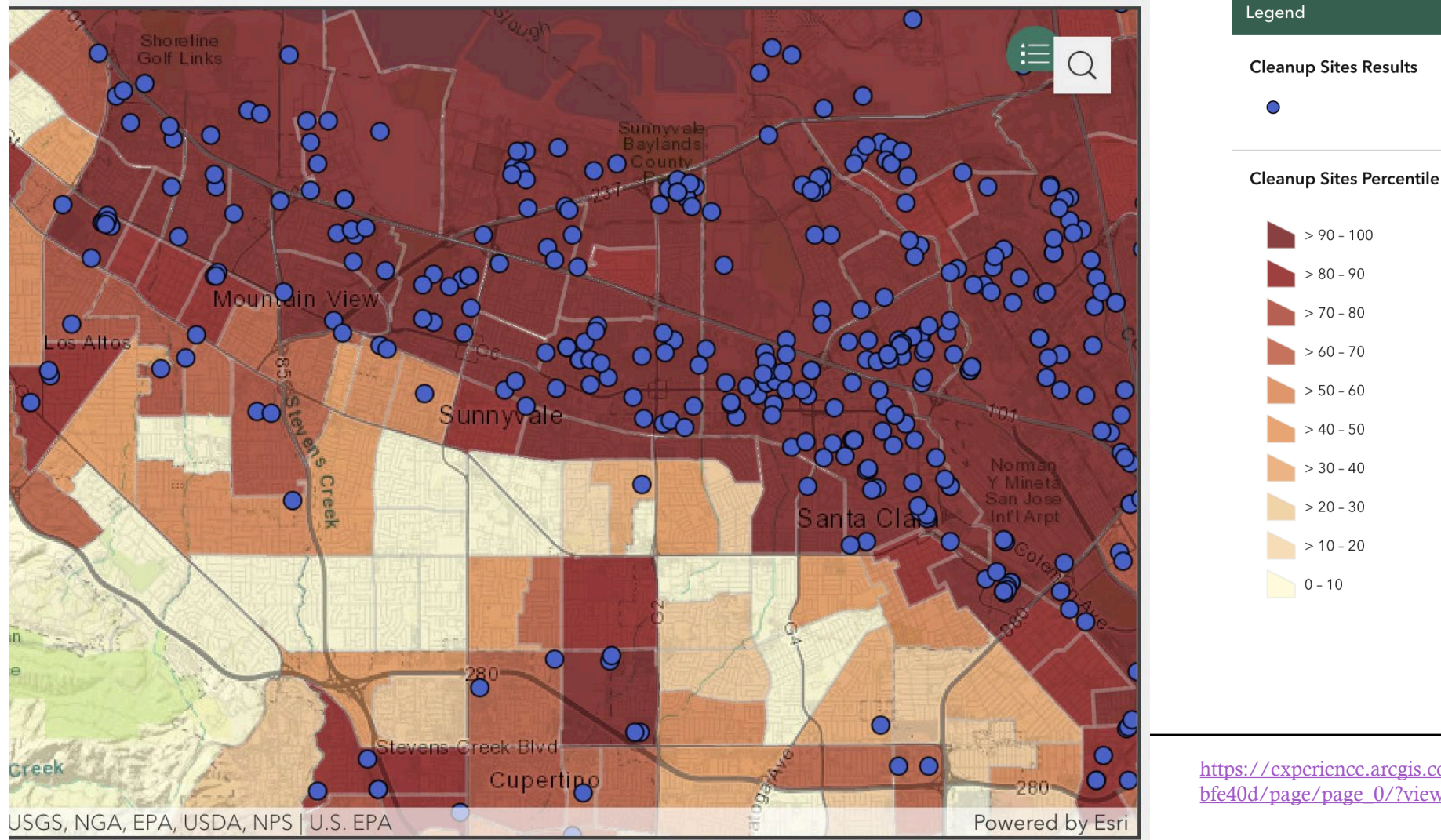
INPRINT CORP	968 STEWART DR
INTERSIL INC	1276 HAMMERWOOD AVE
KTI CHEMICALS INC	1170 SONORA CT
LITTON APPLIED TECHNOLOGY	525 ALMANDRE AVE
LOCKHEED MISSILES & SPACE COMPANY INC.	111 LOCKHEED WAY
MEMOTRONICS	1058 W EVELYN AVE
METARMICS	1107 N FAIR OAKS AVE
MICREL WAFER FAB (ADVANCED LSI)	639 N PASTORIA AVE
MICRO LITHOGRAPHY, INC.	1273 REAMWOOD AVE
MICROMASK	695 VAQUEROS AVE
MODERN MACHINE CO	214 COMMERCIAL ST
MOFFETT FIELD ANG	129 ARRG/CC
MOHAWK CHEMICAL	932 KIFER RD
PACIFIC PHOTO FAB	1237 BIRCHWOOD DR
PRECISION MEDIA CORP	1262 N LAWRENCE STN RD
PROTO ENGINEERING CORP	183 COMMERCIAL ST
SAN LAZARO AREA PLUME	SAN LAZARO AVE
SIGNETICS	305 MATHILDA
SIGNETICS (AKA 860 KIEFER RD.)	100 SAN LUCAR CT

SIGNETICS CORP	730 EVELYN
SIGNETICS CORP	848 STEWART
SIGNETICS CORP	830 STEWART
SIGNETICS CORP	897 STEWART
SIGNETICS CORP	740 KIFER RD
SUNNYVALE CORP YRD CITY OF	221 COMMERCIAL ST
SUNNYVALE LDFL	CARIBBEAN DR
SUPERTEX INC	1225 BORDEAUX DR
TEPCO	936EAST ARQUES
TOSHIBA SEMICONDUCTOR USA INC	1220 MIDAS WY
UNITED TECHNOLOGIES CORP CHEM SYS DIV	1050 E ARQUES AVE
VERBATIM	820 KIFER RD
VERBATIM CORP	360 N PASTORIA AVE
WESTERN MICROWAVE, INC.	1271 REAMWOOD AVE
WU MEI & YOUNG Y (AMERICAN FOOD & CANDY)	116 SAN LAZARO
XEROX CORP FACILITY BLDG 1	415 OAKMEAD PARKWAY
XIDEX CORP	305 SOQUEL WAY
ZYMOS CORP	477 N MATHILDA AVE

CALENVIROSCREEN 4.0 DATABASE

- Searchable by city, Zip Code, Census tract or Address. Percentile comparisons to other census tracts in California
 - Pollution Burden
 - Ozone, PM2.5, Diesel Particulate Matter, Drinking Water Contaminants, Childrens's Lead Risk from Housing, Pesticide Use, Toxic Releases from Facilities, Traffic Impacts, **Cleanup Sites**, Groundwater Threats, Hazardous Waste, Impaired Waters, and Solid Waste Sites
 - Population Characteristics
 - Pollution Burden, Population Characteristics, Asthma, Cardiovascular Disease, Low Birth Weight, Education, Housing Burden, Linguistic Isolation, Poverty, Unemployment
-

CAL ENVIROSCREEN 4.0 CLEAN-UP SITES



https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/page_0/?views=view_36

120 SUNNYVALE SITES TRACKED BY CA DEPT OF TOXIC SUBSTANCES CONTROL

Status	How Many	Status Meaning
Inactive - Needs Evaluation	44	Identifies non-active sites where DTSC has determined a PEA or other evaluation is required.
Referred to Regional Water Quality Control Board	36	Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by the California Regional Water Quality Control Boards (RWQCBs).
No action required or no further action	13	<u>No Action Required:</u> Identifies sites where a Phase I Environmental Assessment was completed and resulted in a no action required determination. /// <u>No Further Action:</u> Identifies completed sites where DTSC determined after investigation, generally a PEA (an initial assessment), that the property does not pose a problem to public health or the environment.
Closed	11	Closure: The act of closing a hazardous waste management facility or hazardous waste management unit pursuant to the requirements of chapters 14 and 15 of California Code of Regulations, Title 22, Division 4.5. In California, all hazardous waste Treatment, Storage, Disposal or Transfer Facilities (TSDTFs) are required to prepare and submit closure plans.
Protective filer	5	?
Referred to Local or other agency	5	
Certified	3	Completed sites with previously confirmed release that are subsequently certified by DTSC as having been remediated satisfactorily under DTSC oversight.
Referred to RCRA or EPA	3	<u>Referred: RCRA:</u> Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by DTSC's Hazardous Waste Management Program and are identified as Resource Conservation and Recovery Act (RCRA). <u>Referred: EPA:</u> Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by the United States Environmental Protection Agency (U.S. EPA).

SUMMARY & DISCUSSION

- Good

- Regulation and taxation have made great strides in cleaning up many sites
- Responsible parties are paying for some clean-up costs
- The sites with greatest risk are prioritized
- Remediated sites are being returned to suitable uses.
- Work continues funded by taxpayers.
- Has had the effect of deterrence for future polluters.

- Bad

- Widespread pollution of land and water
 - Clean-up is more difficult, expensive and less effective than prevention
 - The 'Fund' is used up and 'polluter pays' taxes are not being collected.
 - Clean-ups take decades
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SOURCES & RESOURCES

- <https://en.wikipedia.org/wiki/Superfund>
 - <https://www.epa.gov/superfund/superfund-glossary>
 - <https://insideclimatenews.org/news/20112019/superfund-flooded-climate-change-toxic-health-risk-sea-level-rise-wildfires-gao-report-epa/>
 - <https://cumulis.epa.gov/supercpad/cursites/srchrslt.cfm?Start=51&sortby=site>
 - <https://www.epa.gov/superfund/national-priorities-list-npl-sites-state#CA>
 - <https://www.kqed.org/futureofyou/388730/silicon-valleys-toxic-past-haunts-sunnyvale-neighborhood> June 2017
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