

## Five-Year Review Interview Record

<b>Site:</b>	The Triple Site: AMD 901/902 Thompson Place Superfund Site, TRW Microwave Superfund Site, Triple Superfund Site Offsite Operable Unit, and Phillips Site.	<b>EPA ID No:</b>	CAN000900265 CAD009159088 CAD048634059 CAD070466479
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### Interview Questionnaire

**Date:** March 10 2024

### Interviewee

Name	Method	Title	Employer	Email
Ashley Gjovik	Self-Reported	Worker at 825 Stewart Drive (2017-2021)	Apple Inc	ashleymgjovik@protonmail.com

### Responses

#### 1) Overall impression of the project:

The Triple Site is a complex contaminated remediation site with numerous comingled plumes spanning enough area to be considered a Superfund “mega-site.” (ESS CSM, AECOM, 2020). Based on the site documentation and reports, the site’s pollution continues to migrate downgradient, whilst upgradient pollution from other remediation sites continues to migrate northward and into the Triple Site aquifers. Because of this complexity and continued migration “*significant uncertainty remains regarding fluid flow, plume containment, and restoration timelines.*” (ESS CSM, AECOM, 2020). Remediation of The Triple Site has lagged far behind earlier expectations. (USACE, FYR, 2019).

The Triple Site primarily occupies Sunnyvale census tract 6085508704 which is in California’s 43<sup>rd</sup> percentile for unemployment and 72<sup>nd</sup> percentile for linguistic isolation. (CalEnviroScreen4.0). The population of the tract is 7,587 people of which 47.28% are Asian American, 25.86% are White, 19.65% are Hispanic, and 3.99% are Black. (Id.). 16% of residents have low income and 21% speak limited English. (US EPA EJ Screen). Resident’s primary languages include English (45%), Spanish (22%), Chinese (11%), Tagalog (7%), and others. 80% of the population are non-White.

#### 2) Impact of site operations on the surrounding community:

The groundwater and soil VOC contamination at the Triple Site vaporizes into the ambient, outdoor air – either directly up from un-capped ground, or through the exhaust of vapor intrusion mitigation systems. Today the Triple Site still contains high levels of Class A and Class B carcinogenic substances including TCE and Vinyl Chloride. Recent medical studies have shown that living near a Superfund site like The Triple Site can reduce life expectancy by multiple years.

US EPA documents, including the 2019 FYR, note “*outdoor air TCE levels have shown a generally upward trend over time since regular sampling commenced in January 2015.*” (FYR Issues and Recommendations Report 2021). As of 2019, there was up to 3.6µg/m<sup>3</sup> of TCE in the ambient air at The Triple Site. (FYR 2019, page 27). More recent results do not appear to be published yet.

The worst of the air pollution rising directly from the ground is surely around the ‘ground zero’ mound on the Phillips site just south of Stewart Drive towards Wolfe. Notably, this area, (which contains upwards of 20,000 µg/m<sup>3</sup> of TCE in shallow groundwater), has no fencing or barrier, nor any type of warning to the public – instead a sidewalk winds around ‘ground zero’ taking pedestrians directly alongside the hazard.

#### 3) Awareness of community concerns regarding the site and/or its operation and administration:

There’s confusion around morphology, migration, and comingling with numerous units and sub-units

including:

- Triple Site with TRW Microwave, Philips/Signetics, AMD, and OOU
- SDOU with five sub-units including 999 Arques, Inprint/Sobrato, and CAE
- SDOU1 with three sub-units including National Semiconductor and AMD/Kifer
- CSOU with sub-units including Mohawk and Fairchild/HP
- AMD 915 Site, Former United Technologies Site, Pilkington Barnes/Hind Site, etc.

In addition to the number of sites, the sites are also overseen by a variety of government agencies (federal, state, local) with disparate site management plans.

There's ambiguity around buildings within TRW Microwave site:

- 825 Stewart is generally noted as the only building for the site, however TRW Microwave also used 455 De Guine, 835 Stewart, etc.
- There are no published records of vapor intrusion evaluations for 455 De Guine or 835 Stewart Drive.

US EPA documents describe attempts to contact the owner of 830 Stewart Drive with no response as of around 2022. This building is a large office complex with probably around ~30 different businesses. My prior therapist had an office there and I fainted in her office in 2020 (when I was also fainting at TRW Microwave and near the exhaust of Apple's fabrication activities at a site in Santa Clara). She did not know the site was a Superfund site, and later, I was the one to inform her. The owner of 830 Stewart Drive is assumably not informing any of the tenants of the CERCLA status.

Many people who work, live, or shop on Triple Site do not know it is a Superfund site. There is generally no direct communication from the agencies or Responsible Parties to those potentially impacted by the pollution. There are few or no warnings of possible air contamination. To that point, I highly encourage the US EPA to consider other ways to notify the community about the upcoming FYR process beyond printing an ad in a local physical paper (it is not even online/digital), as very few people are likely to be made aware of the site or this process otherwise.

#### **4) Knowledge of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities:**

At 825 Stewart Drive (TRW Microwave Site), at least the following government inspections occurred since the prior Five-Year Report:

- 2019 01 29 – Sunnyvale HazMat inspection (violation of CFC 315.3.3)
- 2020 07 01 – Sunnyvale HazMat inspection (violation of CFC 315.3.3 and CA NFPA 25 Tbl 5.1.1.2)
- 2021 09 09 – Sunnyvale HazMat inspection (violation of CFC 315.3.3)
  - o Corrective action due 10 09 2021 but overdue and resolved 11 17 2021
- 2021 08 19 – US EPA CERCLA site inspection of vapor intrusion controls

At 825 Stewart Drive (TRW Microwave Site), I witnessed the following CERCLA-related activities/issues occurring since the prior Five-Year Report:

- 2021 05 – Operator conducted first floor survey since 2015.
- 2021 06 – Operator identified cracks in the slab. Operator refused to test indoor air prior to fixing it and refused to notify US EPA of the cracked slab.
- 2021 07 – I told US EPA about the cracked slab and US EPA requested a site inspection to see the floor.
- 2021 08 – Site operator repaired floor prior to US EPA and Northrop Grumman inspection.
- 2021 09 – I was fired in retaliation for making CERCLA disclosures. See US Department of Labor OALJ case: *Ashley Gjovik v Apple Inc.*, 2024-CER-00001.

At 825 Stewart Drive (TRW Microwave Site), I witnessed the following health/safety issues:

- 2019-09 – I was dizzy and almost fainted at TRW Microwave
- 2019 11 – Brown water in kitchen plumbing at TRW Microwave
- 2020 03 – I fainted at 825 Stewart Drive and 830 Stewart Drive.
- 2020 08 – Workers complained about air quality issues at TRW Microwave



- 2021 04 – I filed a Worker’s Compensation claim about my 2019 fainting spell, attributing it to vapor intrusion.
- 2021 07 – Operator of TRW Microwave used ADA accommodations as a response to my vapor intrusion concerns and offered to provide me an air purifier at my desk to mitigate the known pollution. I complained of ADA misuse.

A search of published Sunnyvale city records between January 1 2020 and now, shows the following complaints and reports across The Triple Site:

- 2024-02-16, 4xx N Wolfe Road, “burglary – commercial,” (SPD #240001413, 240001414)
- 2024-02-15, 9xx E. Arques Ave, “burglary – commercial,” (SPD #240001378)
- 2023-11-28, 815 Stewart Drive, “broken down trailer behind Movement Sunnyvale with a rusted propane tank, within a few feet of the building’s rear wall.” (NP-2023-3450).
- 2023-07-12, 830 Stewart Drive, “HVAC, no air flow 128-130,” (NP-2023-2296)
- 2023-06-05, 811 E. Arques Ave, “weeds at Lowes. RP mentioned to mayor.” (NP-2023-2702)
- 2023-05-18, 770 Lucerne Dr, “Homeless encampment on private property,” (NP-2023-2423)
- 2023-03-20, 875 E. Arques Ave, “overgrown weeds and fallen trees and branches on property,” (NP-2023-2150)
- 2023-02-22, 906 E. Arques Ave, “green graffiti,” (NP-2023-2064)
- 2023-01-30, 785 E. Duane Ave, “construction daily without permits. Bottom two units. Dust and noise are affecting the neighbors at 775 E Duane.” (NP-2023-1981)
- 2023-01-27, 632 Bernal Ave, “unpermitted addition in the backyard,” (NP-2023-1973)
- 2022-12-27, 825 Stewart Drive, “noise – parking lot sweeper,” (NP-2022-1898)
- 2022-12-05, 455 De Guine Drive, “Someone is using a leaf blower in the middle of the night (typically around 3am always on Saturday,” (NP-2022-1832)
- 2022-06-27, 625 Johanna Ave, “unlivable conditions. Electrical and some plumbing issues. bathroom floor is always wet with water leakage,” (20221144)
- 2022-05-22, 611 San Luisito Way, “Hot water coming out discolored, yellow or brown,” (#20220941)
- 2022-05-09, 830 Stewart Drive, “The property had a load bearing wall removed over the weekend. No permits were filed for this completed construction job.” (#20220861)
- 2022-03-28, 815 Stewart Drive, “weeds in the front property Planet Granite” (#20220610)
- 2022-03-22, 811 E Arques Ave, “weeds in the vacant lot along Stewart Drive,” (#20220611)
- 2021-09-21, 811 E Arques Ave, “weeds in the landscaping area along Stewart Dr,” (#20211836)
- 2021-03-29, 663 Cypress Ave, “person living in the garage and shed,” (#20210885)
- 2021-01-24, 602 Johanna Ave, “demo without permit,” (#20210320)
- 2020-12-10, 920 De Guine Drive, “noise-landscaping company comes every weekend and starts leaf blowing at 6am,” (#20201513)
- 2020-12-10, 639 Johanna Ave, “construction – no permits on file, hears construction noises, sees modifications done to the residence.” (20201571)
- 2020-12-01, 849 Galt Tr, “Trash from community trash receptable in various places. Numerous residents have complained, but HOA fails to take action solve problem. Meanwhile, trash and debris around trash bins and blow all over property.” (#202001552)
- 2020-09-27, 678 Cypress Ave, “cardboard and bottles in the front yard, garbage and debris throughout house and backyard, rat droppings in the house and backyard.” (#20201299)
- 2020-03-11, 910 Thompson Place, “overgrown vegetation – ivy blocking driver view on De Guine Drive,” (#20200597)

## 5) Access to information about the site's activities and progress:

### A) US EPA Website

The US EPA webpages for the Triple Site sites have not been updated frequently and are missing many critical documents for the sites. I am not aware of any type of outreach to community members at the Triple Site other than the Philips/OOU activities per the 2019 Order. CalEPA documents on Geotracker have not been transferred and/or republished by US EPA creating a data gap on the US EPA website.

## **B) CalEPA GAMA Data**

The groundwater sampling data for the Triple Site sites has not been uploaded to the GAMA Groundwater Information System for over 5 years, resulting in a grossly inaccurate picture of groundwater quality in the area when using the CalEPA GAMA tool.

## **C) Air Quality & Emissions**

Other than the 2019 FYR, I have not seen any public information about the known TCE air pollution in the ambient air at the site. It also appears that TRW Microwave, AMD 901/901, and OOU have not registered with CARB for any emissions or exhaust. Philips does appear to be registered through Lowe's but it is unclear if it is tracking the soil/groundwater vaporization emissions or only commerce emissions. All sites with emissions should have CARB permits and proper monitoring.

Further, there does not appear to be any ongoing air quality monitoring for the ambient air or for the mitigation system exhaust stacks. If there are monitors, they are not accessible to the public and it does not appear the data is being published. This data is especially critical for the many new residential developments on Triple Site, and those which are fence line communities to VIM activities and technology.

The Triple Site plumes are unstable and pollution continues to increase from upgradient sources, which should drive an increase in the frequency and extent of vapor intrusion testing and VIM operations. The TRW Microwave air testing apparently finally occurred in 2023 (nearly 8 years after the last testing) but the results still have not been published and the US EPA response that was published complained the testing analysis was "*inaccurate*," "*confusing*," and "*fundamentally incorrect*." (VI Evaluation Report, US EPA, Aug. 2023). It is unclear if other TRW buildings have been tested, and there has not been much communication about the current testing at Lowe's (Philips Site).

## **D) Real Estate**

"Residences are being sold in the OOU and building permits for construction are being issued by the city without notification of site conditions and transmittal of mitigation system O&M plans and EPA requirements to existing owners, prospective purchasers, and new buyers. An Institutional Controls" plan needs to be prepared to address this gap, the development of which will be coordinated with the city of Sunnyvale to integrate into their existing permitting process and municipal record keeping system." (Triple Site – Site Management Plan, US EPA, 2021, page 4). This must be urgently addressed if it is not already.

## **6) Comments, suggestions, or recommendations regarding the site's management and/or operations:**

### **A) Record of Decision and Deed Updates**

Most of the RODs for Triple Site are no longer operating, with the ROD for TRW no longer in operation for over 20 years. Documentation for the site repeatedly urges the agencies to update the ROD, but so far, the ROD has not been updated. This should be prioritized. It is unclear if Philips/Signetics is now a CERCLA site or if it is still a RCRA clean-up site.

The RODs also do not include plans for vapor intrusion. As the RODs will need updated to consider vapor intrusion anyway, the teams should also consider modern understandings of vapor intrusion pathways such as conduits like sewer lines. (DTSC Supplemental Guidance Screening and Evaluating VI, 2023, page 5-6). The Triple Site has extensive contamination of shallow groundwater which likely puts conduits like sewer and other utility lines at a high risk for transporting vapors into buildings, but which has not been considered in most vapor intrusion plans at the site.

The deed for TRW Microwave has been out of date for over a decade and site documentation continues to remind the agency and parties to update the deed to comply with C.C.C. Section 1471(b). (FYR, 2019, US ACE/US EPA). The deed update should be prioritized.

## **B) VIM Vent Riser Best Practices**

Many buildings on Triple Site use a VIM system which utilizes some form of exhaust vents. Apple became the tenant of TRW Microwave in 2015. Apple's installation of a new HVAC system for the building in late 2015 included Apple sawing the sub-slab exhaust vent stacks on the main building roof down from three feet to one foot and then installing the HVAC system intakes in "*close proximity*" to the sub-slab vapor exhaust vents, "*without consideration for the function of the [sub-slab] system vents and their function.*" (Evaluation of Passive Sub-Slab Depressurization System, AECOM, 2022). The HVAC intakes for the area of the building where Gjovik worked were in "*the assumed sphere of influence*" of the vent exhaust, including the chemicals TCE and vinyl chloride. (Id.)

Apple's tampering with the exhaust stacks and indifference towards the exhaust's proximity to HVAC intakes resulted in a significant risk of re-entrainment of the hazardous waste vapors and gases into the HVAC system, and thus into the indoor air of the building where Gjovik and her coworkers would be exposed. US EPA intervened in July 2021 after discovering the issue, however Apple apparently took multiple years to correct the issue and no corrective action report has been published. Issues like this should trigger incident reports and an after-action review with the agency, including publication of reports for community awareness.

California Labor Code § 5154.1(e)(4)(d) requires that these types of stacks exhaust upward from at least seven feet above the highest portion of the roof. California Mechanical Code § 407.2.1 requires outdoor air intakes be placed at least 25 feet away from any "*exhaust outlets of ventilating systems... that may collect ... Noxious fumes.*" California Labor Code § 5143(a)(1) and § 5143(c)(1) prohibit the exhaust of gas and vapor in a way that causes harmful exposure to employees.

Also, current Bay Area RWQCB guidance for Vapor Intrusion Mitigation includes targeted guidance for vent risers which should be incorporated into O&M plans and other site agreements. To avoid creating issues like Apple did, any party installing/operating this type of VIM system should be aware of, and comply with, applicable laws and also collect vent riser exhaust air as a sample when they collect indoor and outdoor air, which enables analysis to verify there is no reentrainment. Monitoring best practices also include monitoring discharge exhaust rates, air flow rates, and ensuring exhaust complies with permit requirements. Parties should also ensure they obtain permits from the Air District for their CERCLA related emissions, which needs to be done here.

## **C) VIMS and Slab Maintenance Best Practices**

Best practices for VIMS includes incident reports and 5-Year Reports. (SFB RWQCB, VI Mitigation Guidance, 2022, pages 53-54). In addition, occupants of a building with a VIM should be notified of the VIM's presence, purpose, and function – and this notification should be captured in the O&M plan. (Id at page 44).

In addition to issues with the operator at TRW Microwave refusing to notify the occupants of the building about the VIMS, and refusing to notify the US EPA about possible issues with the VIMS, the operator also failed to conduct regular slab inspections, and was neglectful with the interior sub-slab ports. US EPA documents note issues with at least four of the ports, including that one was "*compromised*," two were "*missing*," and one was not poured well/rusted. It also appears Apple took multiple years to correct the issues.

Further, another issue with the oversight at TRW Microwave was poor record keeping about the locations of

sub-slab ports and also indoor air testing locations. In fact, there are several test result entries between 2003-2015 which use a location name/number previously associated with a completely different area of the building. The current documentation is incoherent and creates great difficulty in analyzing trends over time. Responsible Parties and PRPs should gather records and try to create a revised summary of historic details with consistent location names if possible.

Indoor air monitoring plans should be based on site conditions and approved by US EPA. However, in December 2015, the most recent published indoor air testing was performed at TRW Microwave and the US EPA “approved” the wrong data. There was an earlier test in May 2015 prior to Apple’s renovations which reported the highest amount of TCE at  $0.58\mu\text{g}/\text{m}^3$ . After Apple’s renovations that penetrated the slab and compromised the exhaust vents, the December 2015 testing showed results with double the amount of TCE in the air compared to May 2015 ( $0.58\mu\text{g}/\text{m}^3$ ,  $1.2\mu\text{g}/\text{m}^3$ ). US EPA’s approval letter cites the  $0.58\mu\text{g}/\text{m}^3$  amount as supposedly the highest amount in December 2015, which is incorrect and implies US EPA did not actually review the December 2015 results. This mistake was then repeated in the 2019 FYR.

The December 2015 results showed a dramatic and sudden increase in TCE under the floor of the building. TCE concentrations under the lobby floor increased from  $250\mu\text{g}/\text{m}^3$  in May 2015 up to  $8500\mu\text{g}/\text{m}^3$  in December 2015 in the area of the building closest to upgradient ‘Ground Zero.’ TCE air concentrations under other areas of the building remained stable, such as the air under my lockdown in the main building presenting  $1900\mu\text{g}/\text{m}^3$  of TCE vapor in both December 2013 and December 2015 – however the indoor air vapor intrusion doubled between May and December 2015 in the same area, implying that Apple’s renovations reduced the effectiveness of the VIMS.

In addition, the December 2015 results showed exceeding levels of Toluene and Ethylbenzene in the indoor air, as well as the chemicals in the sub-slab air, in the groundwater, and in upgradient plumes – however the results were ignored and assumed to be unrelated, but no testing was done to confirm the assumption. Communication about the matter in 2021 also failed to consider the newer chemical spill in 2008 with Toluene entering the soil and groundwater and causing significant new contamination. (Detection of Toluene, CDM, 2008).

## **7) Comments, suggestions, or recommendations regarding the overall project:**

### **A) Zoning Plan**

While there has been improvement in some of the aquifers, the B1 TCE contour “*has remained relatively stable for 30 years.*” (Annual Groundwater Report, Philips, 2022). Much more work needs to be done. Despite the current conditions of the Triple Site, around March 2023 the city of Sunnyvale converted the property to Residential zoning, apparently without consulting US EPA. (“Future Opportunity Sites – Stewart and DeGuine”). This should be urgently reassessed and corrected as appropriate.

In addition to ensuring diligence with current conditions, planning must consider that the site conditions are actively changing and worsening across multiple plumes, and per site across Triple Site.

Signetics/Philips (811 Arques) is upgradient of TRW Microwave and the contaminated groundwater plumes are already migrating under TRW Microwave, and then into the OOU. Recent testing at 811 Arques showed very high levels of TCE, vinyl chloride, and 1,2-DCE. (Annual Groundwater Report, Philips, 2022; Locus Tech, 2021). TCE is present at levels up to  $16000\text{--}20000\mu\text{g}/\text{m}^3$  in shallow groundwater flowing towards TRW Microwave. Vinyl chloride is present in shallow groundwater in levels up to  $1900\mu\text{g}/\text{m}^3$  and 1,2-DCE at levels up to  $60000\mu\text{g}/\text{m}^3$  – also migrating towards TRW Microwave. (Id.)

The 2023 groundwater monitoring report for TRW Microwave showed elevated and increasing levels of pollution in the southern groundwater wells, apparently showing new contamination from upgradient sites. With only a few exceptions, the highest elevations of pollution at TRW Microwave are on the southern edge

of the property near the upgradient sources, and the lowest concentrations are at the northern edge of the property the furthest way from upgradient sources – however, some of the northern wells have also started showing increased contamination which implies that the upgradient contamination may have already migrated under the building and is then migrating downgradient north of the property. The southern wells near upgradient sources show increased contamination of TCE, C-DCE, and vinyl chloride including in the shallow A and B1 aquifers – including TCE up to 1300 µg/m<sup>3</sup>, vinyl chloride up to 22 µg/m<sup>3</sup>, and C-DCE up to 900 µg/m<sup>3</sup>. (2022 Annual Groundwater Report, AECOM/GES, June 2023).

## **B) Southern Contours of Signetics Site**

The Triple Site shallow groundwater and aquifer exposure pathways for vapor intrusion are poorly delineated, or completely unknown, for the Philips/Signetics plume south of Arques. For years, maps show the contours of the plume entering the property (between Arques and Central, along Wolfe), with question marks. Despite this, a large new development was constructed and leased without any sort of hazardous waste assessment in the EIR or with a regulatory agency. (This gap was confirmed through PRA requests).

This property also appears to have other plumes entering its aquifers, including Mohawk and CSOU, from the south (Central Expressway) and east (Sunnyvale Corporate Yard) boundaries. This site should also be evaluated as part of the Philips review or assigned to the Mohawk and/or CSOU teams to evaluate.

If the tenant of this site south of Arques, (Apple), refuses to cooperate in the investigations, enforcement action should be considered against the party due to a continued pattern of non-cooperation in agency remediation activities in this area. I can provide a dossier of evidence upon request.

## **C) Mohawk Plume**

The Mohawk Plume is flowing downgradient into the Triple Site aquifers. However, the Mohawk Plume itself still may continue to worsen as there is still existing soil contamination which could then leach into the groundwater and then that groundwater may also migrate to Triple Site. Contaminated soil was recently identified on the western edge of the Mohawk site with 680 µg/m<sup>3</sup> TCE, 35000 µg/m<sup>3</sup> PCE, and 180 µg/m<sup>3</sup> Benzene. The groundwater flow is directed towards the Philips Site, and then the TRW Microwave site. (Mohawk - Five Year Status, 2023, Apex). Recent groundwater monitoring of the Mohawk plume north of Arques, flowing to Triple Site, already showed 465 µg/m<sup>3</sup> of TCE and 314 µg/m<sup>3</sup> of 1,2-DCE. (Id.). Along Mohawk and CSOU plumes, there are also at least two active USTs registered with the Sunnyvale Department of Public Safety, and which are upgradient from Triple Site. (Geotracker).

## **Additional Responses about Triple Site**

### **8) Climate Change & Groundwater Rise**

The updated ROD for the Triple Site sites should also include considerations for imminent groundwater rise due to sea-level rise caused by climate change. Much of the contaminated groundwater at Triple Site is already near to the surface, but with groundwater rise the pollution could potentially raise and pool at the surface, creating a new type of hazard. At the very least, increased risk and severity of vapor intrusion should be anticipated. Similarly, there should be consideration of an increase in extreme weather events including floods, wind storms, fires and smoke, snow and freezing rain, heat waves, and other events impacting the site controls and contamination.

### **9) Health Considerations**

#### **A) TCE & TSCA**

Since the last Five-Year Report in 2019, toxicological research and guidance for vapor intrusion evaluations

have continued to advance. As of January 2023, the US EPA issued a Final Risk Evaluation for Trichloroethylene under TSCA. US EPA found TCE creates an unreasonable risk to public health as a whole chemical. In October 2023, US EPA proposed “to ban the manufacture, processing, and distribution in commerce of TCE for all uses.” The US EPA also proposed an ECEL of either 0.0011 ppm or 0.0040 ppm over an 8-hour day, replacing the OSHA standards for TCE. (Trichloroethylene, Regulation Under the Toxic Substances Control Act, 40 CFR Part 751, 2023).

Triple Site RODs and land use covenants should consider the new TSCA standards for TCE exposure. The prior OSHA PEL for TCE was 100ppm, Cal/OSHA PEL was 25ppm, and the US EPA Commercial level was 3.0 µg/m<sup>3</sup>. Under a new protective level of 0.00589 mg/m<sup>3</sup> – 0.02143 mg/m<sup>3</sup>, all published vapor intrusion testing results at TRW Microwave documented air pollution with levels of TCE that create an unreasonable risk to human health under TSCA. Similarly, the most recent published sub-slab vapor results (such as 1900 µg/m<sup>3</sup> and 8500 µg/m<sup>3</sup>), using the 2023 DTSC sub-slab gas attenuation factor of 0.03, produce results (57-255 µg/m<sup>3</sup>) which would also exceed all existing and new health thresholds (DTSC, VI, 2023, page 8; TSCA). An aggressive vapor intrusion mitigation plan is needed.

### **B) Prop 65 / Right to Know**

The ROD/deed should consider the potential applicability of Proposition 65 disclosures and warnings for community members exposed to carcinogenic vapor intrusion and ambient air vapors. SARA and Right to Know should also be considered for exhaust and ambient air pollution.

Further, due to the extent of the pollution, and imminent worsening of conditions at Triple Site – a new health study should be considered. The last public health baseline was in 1990 and there have been dramatic advancements in science and medicine since then, as well as advancements in understanding of the conditions at the Site. The extensive pollution of carcinogenic chemicals creates a risk for cancer clusters around the worst areas at the site.

**TRIPLE SITE**  
**FIVE YEAR REPORT**  
**2024**

**INTERVIEW: ASHLEY GJOVIK**  
**EXHIBITS**



**Examples of Data Gaps  
for Southern Contours  
of Philips Plume, Triple Site**

Figure B-23. A Zone Water Elevations Contours for the Offsite OU and Nearby Sites

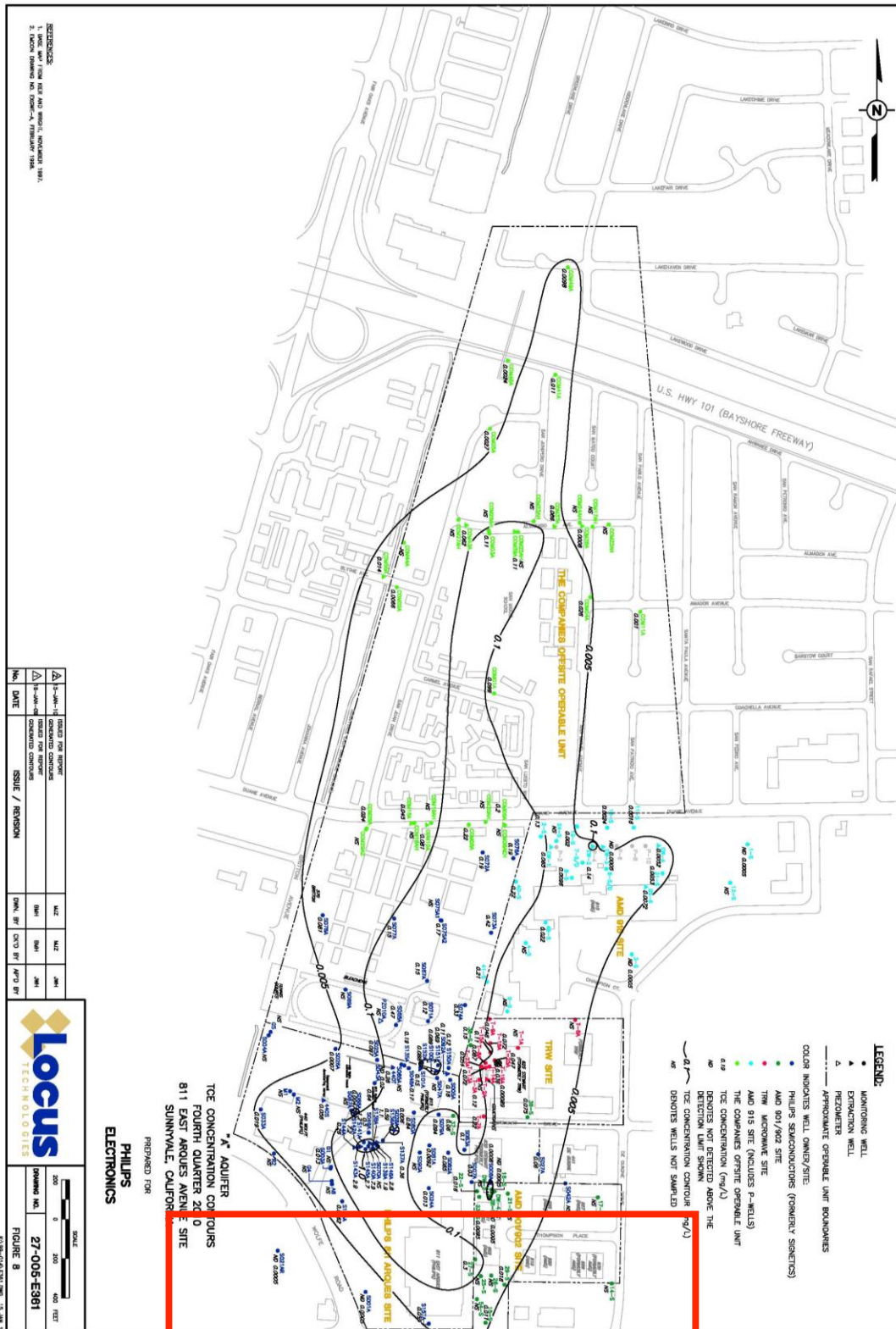
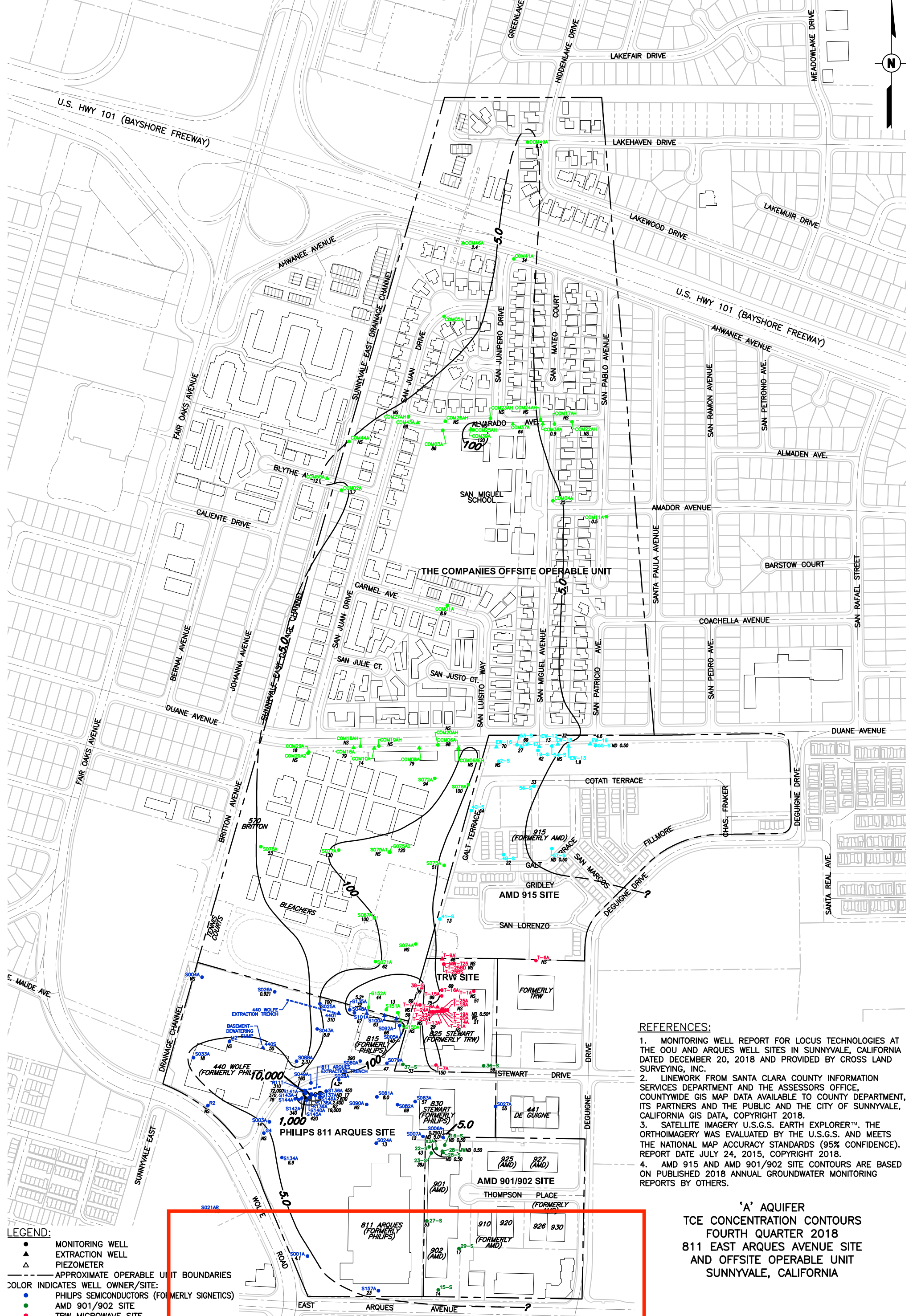


Figure B-24. TCE Concentrations A Zone 2010



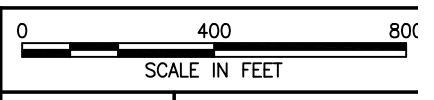
**REFERENCES:**

1. MONITORING WELL REPORT FOR LOCUS TECHNOLOGIES AT THE OOU AND ARQUES WELL SITES IN SUNNYVALE, CALIFORNIA DATED DECEMBER 20, 2018 AND PROVIDED BY CROSS LAND SURVEYING, INC.
2. LINWORK FROM SANTA CLARA COUNTY INFORMATION SERVICES DEPARTMENT AND THE ASSESSORS OFFICE, COUNTYWIDE GIS MAP DATA AVAILABLE TO COUNTY DEPARTMENT, ITS PARTNERS AND THE PUBLIC AND THE CITY OF SUNNYVALE, CALIFORNIA GIS DATA, COPYRIGHT 2018.
3. SATELLITE IMAGERY U.S.G.S. EARTH EXPLORER™. THE ORTHOIMAGERY WAS EVALUATED BY THE U.S.G.S. AND MEETS THE NATIONAL MAP ACCURACY STANDARDS (95% CONFIDENCE). REPORT DATE JULY 24, 2015, COPYRIGHT 2018.
4. AMD 915 AND AMD 901/902 SITE CONTOURS ARE BASED ON PUBLISHED 2018 ANNUAL GROUNDWATER MONITORING REPORTS BY OTHERS.

'A' AQUIFER  
 TCE CONCENTRATION CONTOURS  
 FOURTH QUARTER 2018  
 811 EAST ARQUES AVENUE SITE  
 AND OFFSITE OPERABLE UNIT  
 SUNNYVALE, CALIFORNIA

- LEGEND:**
- MONITORING WELL
  - ▲ EXTRACTION WELL
  - △ PIEZOMETER
  - APPROXIMATE OPERABLE UNIT BOUNDARIES
- COLOR INDICATES WELL OWNER/SITE:**
- PHILIPS SEMICONDUCTORS (FORMERLY SIGNETICS)
  - AMD 901/902 SITE
  - TRW MICROWAVE SITE
  - AMD 915 SITE
  - THE COMPANIES OFFSITE OPERABLE UNIT
- 72,000 TCE CONCENTRATION (µg/L)  
 ND 0.50 NOT DETECTED ABOVE THE NOTED REPORTING LIMIT  
 NS DENOTES WELL NOT SAMPLED  
 5.0 TCE ISOCONCENTRATION CONTOUR IN µg/L  
 DASHED WHERE INFERRED  
 \* NOT USED FOR CONTOURING

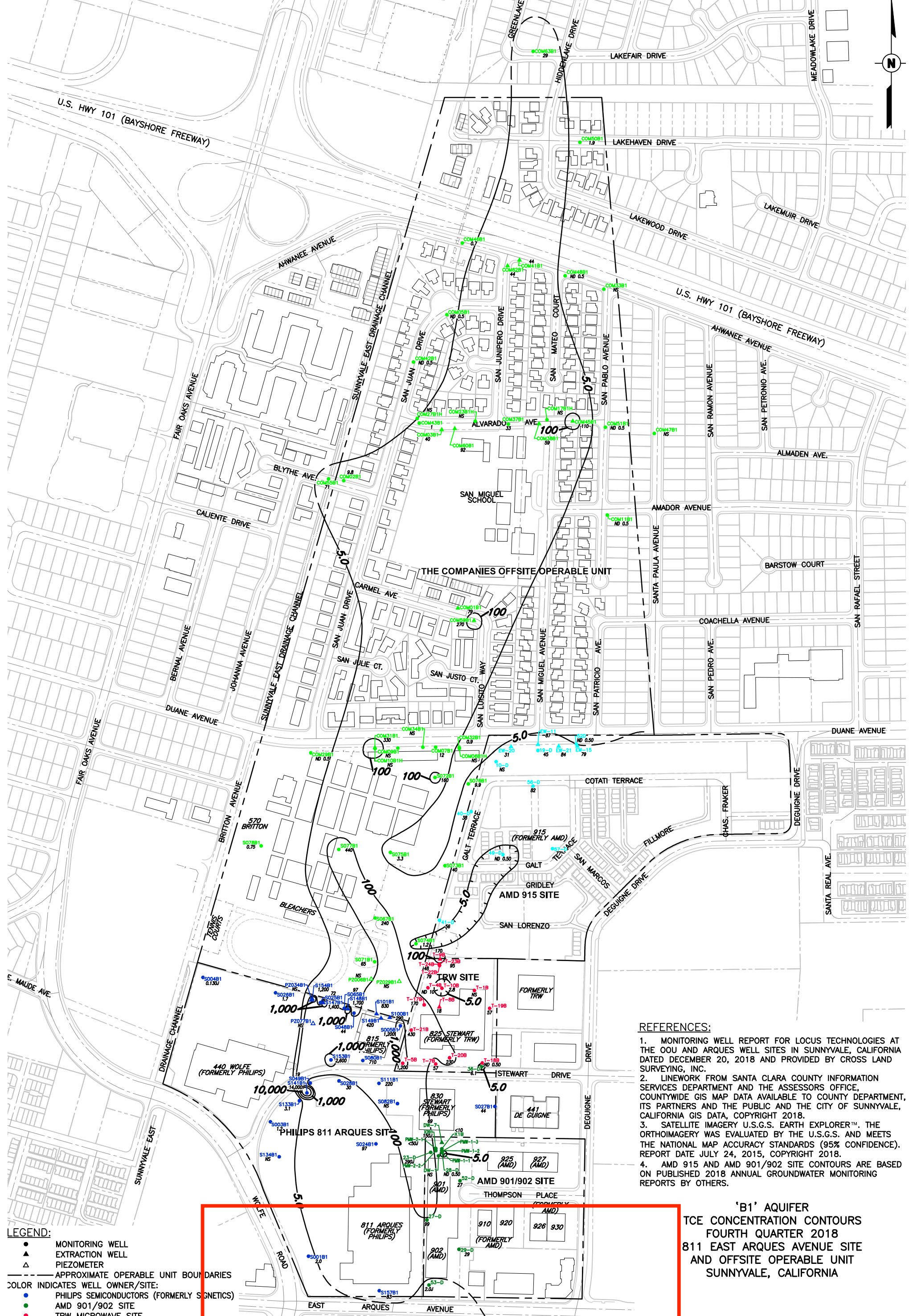
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
11	JAN 18	ADDED WELLS FROM SURVEY 56-S, 57-S, 56-D, 57-D, 56-DD, 57-DD	NUL	NUL	JWH
17	JAN 17	ADDED WELLS FROM SURVEY & SEALED WELLS/PIEZOMETERS: PZ010A, PZ012B1M, PZ012B2, PZ022B2, PZ012B3, S068A, S068B, S068C, S068D, S068E, S068F, S068G, S068H, S068I, S068J, S068K, S068L, S068M, S068N, S068O, S068P, S068Q, S068R, S068S, S068T, S068U, S068V, S068W, S068X, S068Y, S068Z, S068AA, S068AB, S068AC, S068AD, S068AE, S068AF, S068AG, S068AH, S068AI, S068AJ, S068AK, S068AL, S068AM, S068AN, S068AO, S068AP, S068AQ, S068AR, S068AS, S068AT, S068AU, S068AV, S068AW, S068AX, S068AY, S068AZ, S068BA, S068BB, S068BC, S068BD, S068BE, S068BF, S068BG, S068BH, S068BI, S068BJ, S068BK, S068BL, S068BM, S068BN, S068BO, S068BP, S068BQ, S068BR, S068BS, S068BT, S068BU, S068BV, S068BW, S068BX, S068BY, S068BZ, S068CA, S068CB, S068CC, S068CD, S068CE, S068CF, S068CG, S068CH, S068CI, S068CJ, S068CK, S068CL, S068CM, S068CN, S068CO, S068CP, S068CQ, S068CR, S068CS, S068CT, S068CU, S068CV, S068CW, S068CX, S068CY, S068CZ, S068DA, S068DB, S068DC, S068DD, S068DE, S068DF, S068DG, S068DH, S068DI, S068DJ, S068DK, S068DL, S068DM, S068DN, S068DO, S068DP, S068DQ, S068DR, S068DS, S068DT, S068DU, S068DV, S068DW, S068DX, S068DY, S068DZ, S068EA, S068EB, S068EC, S068ED, S068EE, S068EF, S068EG, S068EH, S068EI, S068EJ, S068EK, S068EL, S068EM, S068EN, S068EO, S068EP, S068EQ, S068ER, S068ES, S068ET, S068EU, S068EV, S068EW, S068EX, S068EY, S068EZ, S068FA, S068FB, S068FC, S068FD, S068FE, S068FF, S068FG, S068FH, S068FI, S068FJ, S068FK, S068FL, S068FM, S068FN, S068FO, S068FP, S068FQ, S068FR, S068FS, S068FT, S068FU, S068FV, S068FW, S068FX, S068FY, S068FZ, S068GA, S068GB, S068GC, S068GD, S068GE, S068GF, S068GG, S068GH, S068GI, S068GJ, S068GK, S068GL, S068GM, S068GN, S068GO, S068GP, S068GQ, S068GR, S068GS, S068GT, S068GU, S068GV, S068GW, S068GX, S068GY, S068GZ, S068HA, S068HB, S068HC, S068HD, S068HE, S068HF, S068HG, S068HH, S068HI, S068HJ, S068HK, S068HL, S068HM, S068HN, S068HO, S068HP, S068HQ, S068HR, S068HS, S068HT, S068HU, S068HV, S068HW, S068HX, S068HY, S068HZ, S068IA, S068IB, S068IC, S068ID, S068IE, S068IF, 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S068RX, S068RY, S068RZ, S068SA, S068SB, S068SC, S068SD, S068SE, S068SF, S068SG, S068SH, S068SI, S068SJ, S068SK, S068SL, S068SM, S068SN, S068SO, S068SP, S068SQ, S068SR, S068SS, S068ST, S068SU, S068SV, S068SW, S068SX, S068SY, S068SZ, S068TA, S068TB, S068TC, S068TD, S068TE, S068TF, S068TG, S068TH, S068TI, S068TJ, S068TK, S068TL, S068TM, S068TN, S068TO, S068TP, S068TQ, S068TR, S068TS, S068TT, S068TU, S068TV, S068TW, S068TX, S068TY, S068TZ, S068UA, S068UB, S068UC, S068UD, S068UE, S068UF, S068UG, S068UH, S068UI, S068UJ, S068UK, S068UL, S068UM, S068UN, S068UO, S068UP, S068UQ, S068UR, S068US, S068UT, S068UU, S068UV, S068UW, S068UX, S068UY, S068UZ, S068VA, S068VB, S068VC, S068VD, S068VE, S068VF, S068VG, S068VH, S068VI, S068VJ, S068VK, S068VL, S068VM, S068VN, S068VO, S068VP, S068VQ, S068VR, S068VS, S068VT, S068VU, S068VV, S068VW, S068VX, S068VY, S068VZ, S068WA, S068WB, S068WC, S068WD, S068WE, S068WF, S068WG, S068WH, S068WI, S068WJ, S068WK, S068WL, S068WM, S068WN, S068WO, S068WP, S068WQ, S068WR, 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20	JAN 03	REMOVED SEALED WELLS S085A, S086A, S091A, G-3, A-6, G-1, G-5, M-1, S065A, S070A, S087A, and S089A.	JWH	JWH	JEB



DRAWING NO. **27-006-E284**

**FIGURE 8**





- LEGEND:**
- MONITORING WELL
  - ▲ EXTRACTION WELL
  - ▲ PIEZOMETER
  - APPROXIMATE OPERABLE UNIT BOUNDARIES
  - COLOR INDICATES WELL OWNER/SITE:
  - PHILIPS SEMICONDUCTORS (FORMERLY SGNETICS)
  - AMD 901/902 SITE
  - TRW MICROWAVE SITE
  - AMD 915 SITE
  - THE COMPANIES OFFSITE OPERABLE UNIT
  - 0.27 TCE CONCENTRATION (µg/L)
  - ND 0.50 NOT DETECTED ABOVE THE NOTED REPORTING LIMIT
  - NS DENOTES WELL NOT SAMPLED
  - 5.0 TCE ISOCONCENTRATION CONTOUR IN µg/L DASHED WHERE INFERRED
  - \* NOT USED FOR CONTOURING

- REFERENCES:**
1. MONITORING WELL REPORT FOR LOCUS TECHNOLOGIES AT THE OOU AND ARQUES WELL SITES IN SUNNYVALE, CALIFORNIA DATED DECEMBER 20, 2018 AND PROVIDED BY CROSS LAND SURVEYING, INC.
  2. LINWORK FROM SANTA CLARA COUNTY INFORMATION SERVICES DEPARTMENT AND THE ASSESSORS OFFICE, COUNTYWIDE GIS MAP DATA AVAILABLE TO COUNTY DEPARTMENT, ITS PARTNERS AND THE PUBLIC AND THE CITY OF SUNNYVALE, CALIFORNIA GIS DATA, COPYRIGHT 2018.
  3. SATELLITE IMAGERY U.S.G.S. EARTH EXPLORER™. THE ORTHOIMAGERY WAS EVALUATED BY THE U.S.G.S. AND MEETS THE NATIONAL MAP ACCURACY STANDARDS (95% CONFIDENCE). REPORT DATE JULY 24, 2015, COPYRIGHT 2018.
  4. AMD 915 AND AMD 901/902 SITE CONTOURS ARE BASED ON PUBLISHED 2018 ANNUAL GROUNDWATER MONITORING REPORTS BY OTHERS.

**'B1' AQUIFER  
TCE CONCENTRATION CONTOURS  
FOURTH QUARTER 2018  
811 EAST ARQUES AVENUE SITE  
AND OFFSITE OPERABLE UNIT  
SUNNYVALE, CALIFORNIA**

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	11 JAN 18	ADDED WELLS FROM SURVEY 56-S, 57-S, 56-D, 57-D, 56-DD, 57-DD	NJL	NJL	JWH
2		ADDED WELLS FROM SURVEY & SEALED WELLS/PIEZOMETERS: PZ010A, PZ012B1M, PZ012B2, PZ022B2, PZ012B3, S068A, S068A, S068B1, S068B1			
3	26 JAN 07	ADDED WELLS 157A AND S157B1.	VZC	MMG	JWH
4	20 JAN 03	DELETED SEALED WELLS S042A AND S042B1.			
5		REMOVED SEALED WELLS S085A, S086A, S091A, G-3, A-6, G-1, G-5, M-1, S065A, S070A, S087A, and S089A.	JWH	JWH	JEB



0 400 800  
SCALE IN FEET

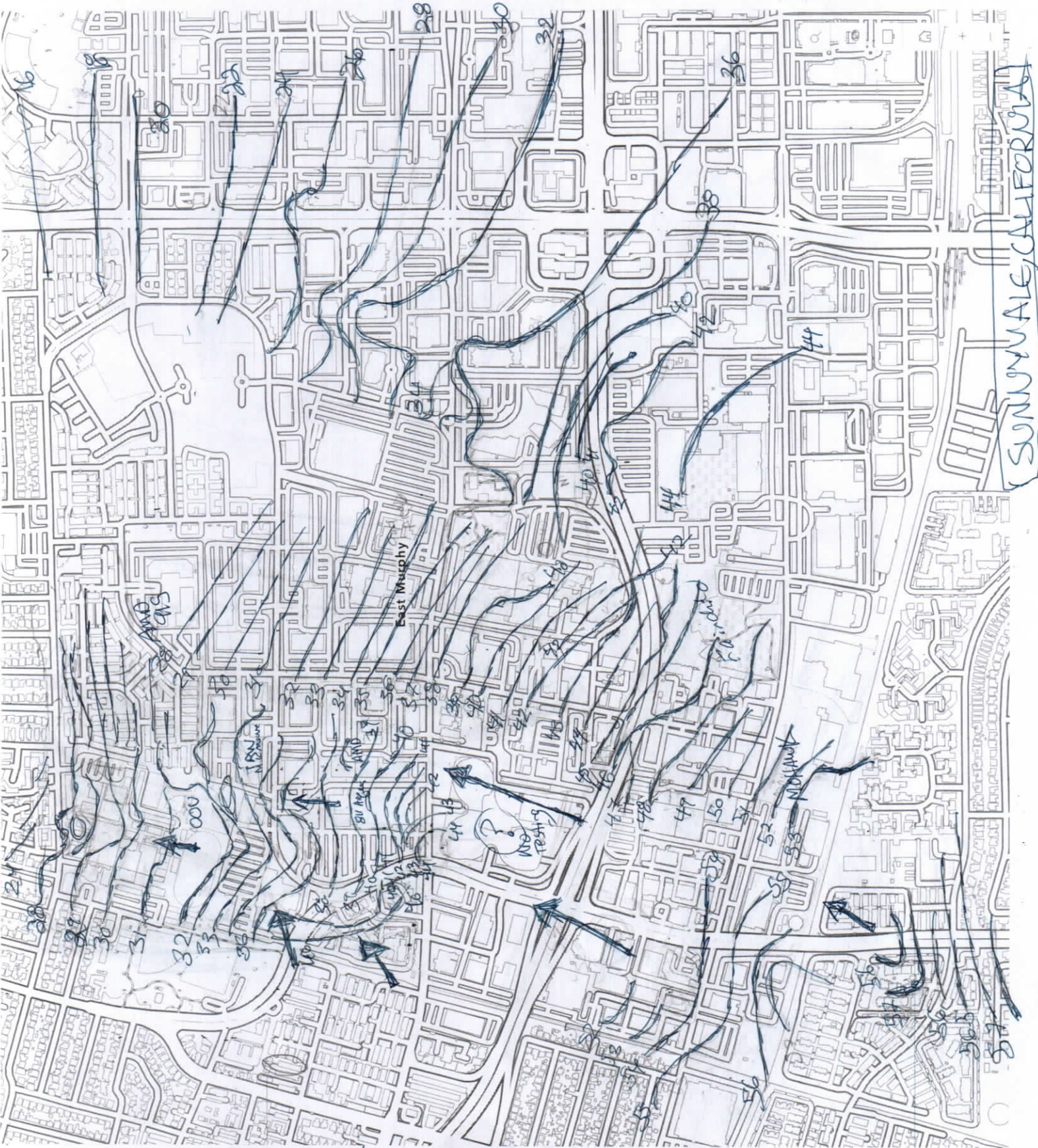
DRAWING NO. **27-006-E284**

**FIGURE 11**

**Ashley's Comingled  
Megaplume  
Maps**



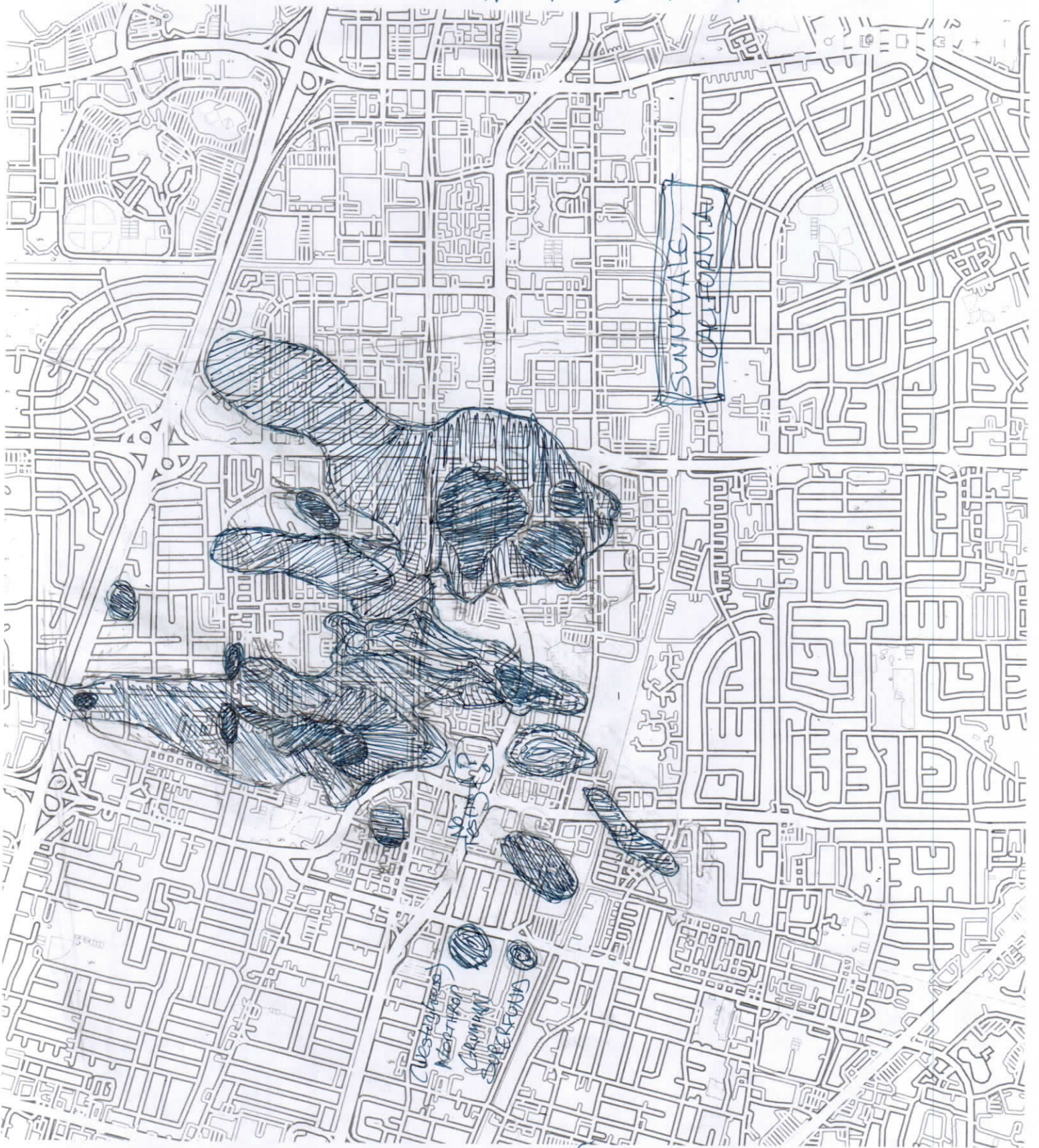
2 ←



Hand drawn by Ashley Gyles, March 2023



Hand-drawn by Ashly Gork, March 2023



A+B  
zone  
406  
The  
drawn  
012

2015  
2023

A+B  
Acquifer  
Contaminated

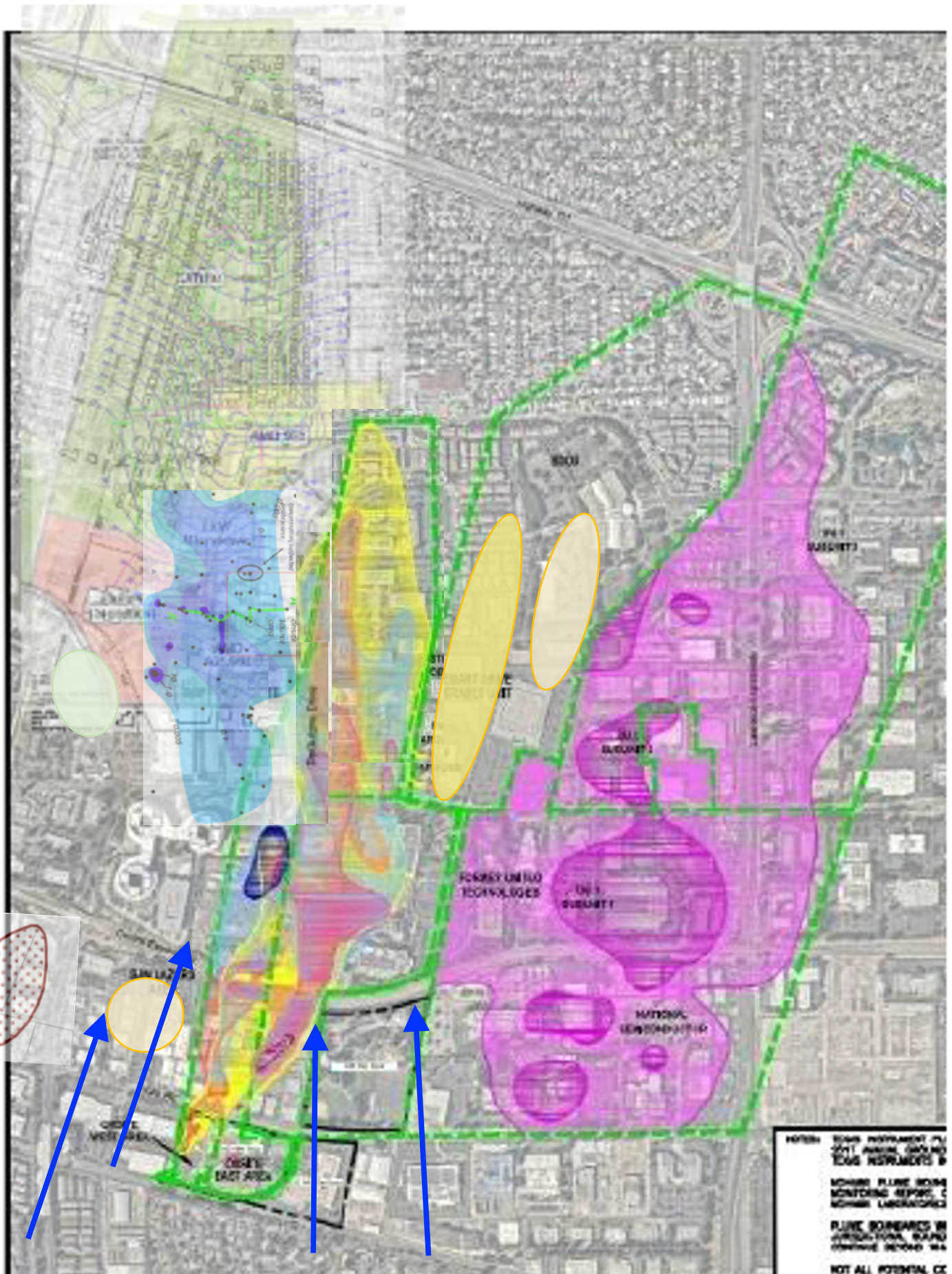
~2018-  
2023  
Data

100m  
+0m

1-  
2-3



# THE SUNNYVALE OCTUPLE SITE

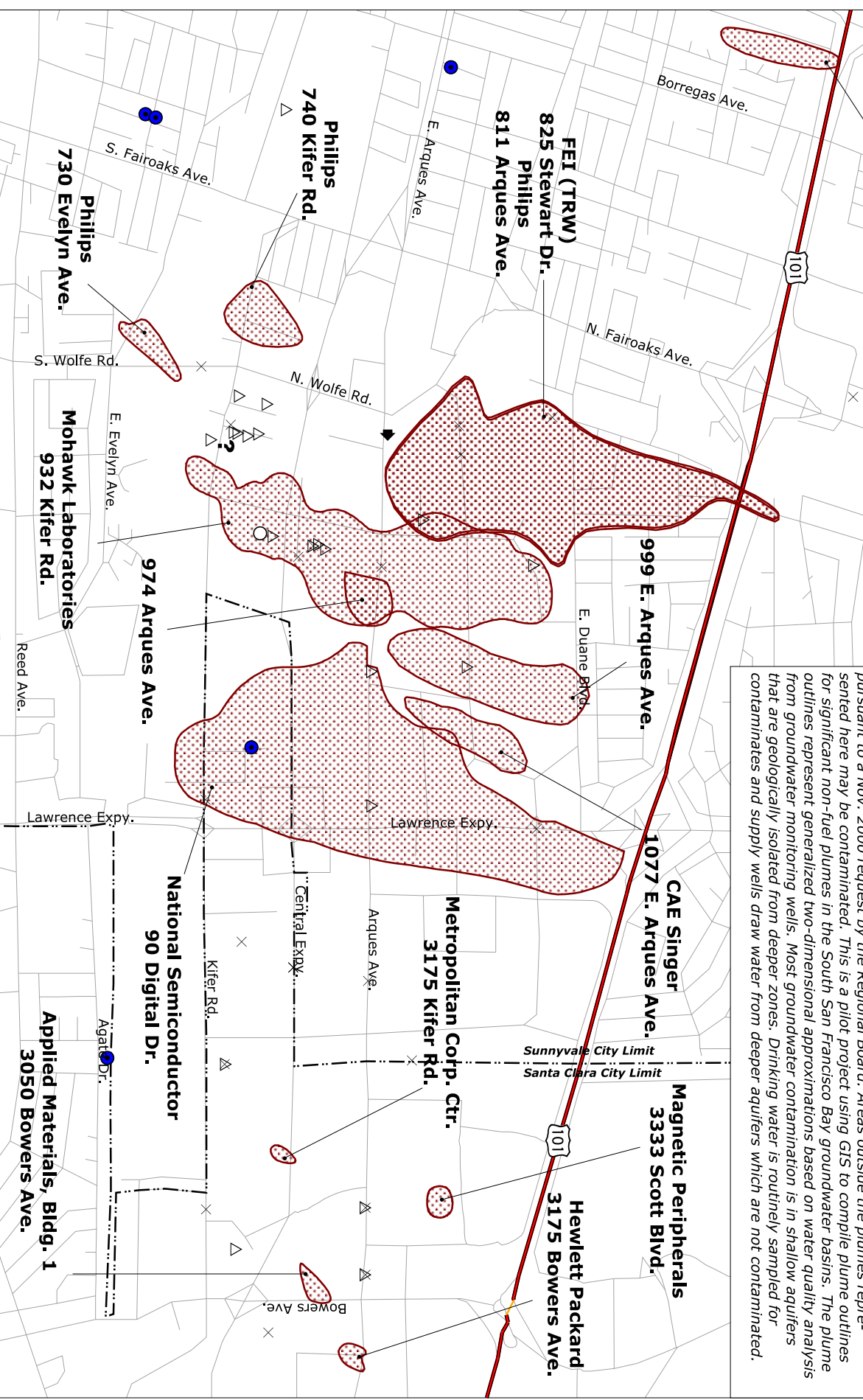


ASHLEY MADE THIS

**Former Ampex Corporation Facility**  
728 San Aleso Rd.

**Figure 23: VOC Plumes in the Eastern Sunnyvale Area**

Note: This map was generated based on plume outlines submitted by responsible parties pursuant to a Nov. 2000 request by the Regional Board. Areas outside the plumes represented here may be contaminated. This is a pilot project using GIS to compile plume outlines for significant non-fuel plumes in the South San Francisco Bay groundwater basins. The plume outlines represent generalized two-dimensional approximations based on water quality analysis from groundwater monitoring wells. Most groundwater contamination is in shallow aquifers that are geologically isolated from deeper zones. Drinking water is routinely sampled for contaminants and supply wells draw water from deeper aquifers which are not contaminated.



**Contour of the most-dispersed chlorinated volatile organic compound in groundwater**

**Slic case sites (plume not shown):**

- △ Open/active
- ▲ Closed
- No action
- ➔ Referred by RWQCB to another agency
- × Inactive
- ? Undetermined

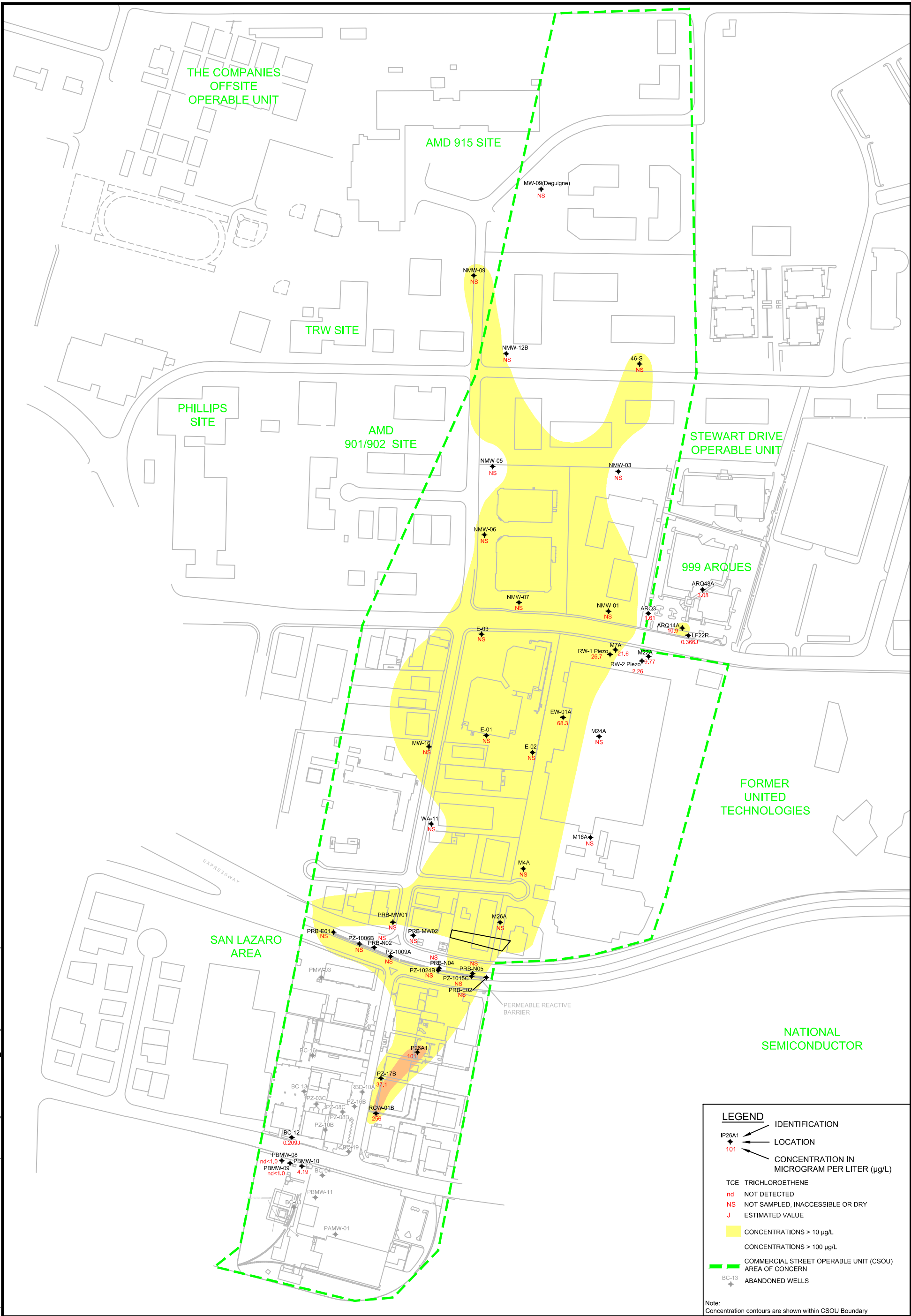
**Public drinking water well** (blue circle)

**Irrigation well** (green circle)

**Sources:** SF Bay Regional Water Quality Control Board; Santa Clara Valley Water District



I:\Client\Mohawk\NCH-001\Reports\NCH001-0314093-22007940 5 Year report\2023\Fig\_2-11-TCE in GW\_A1.dwg Modified 5/3/2023 by Mike.Randall



**APEX**  
 3480 BUSKIRK AVENUE, SUITE 210  
 PLEASANT HILL, CA 94523

**FORMER MOHAWK LABORATORIES  
 SUNNYVALE, CALIFORNIA**

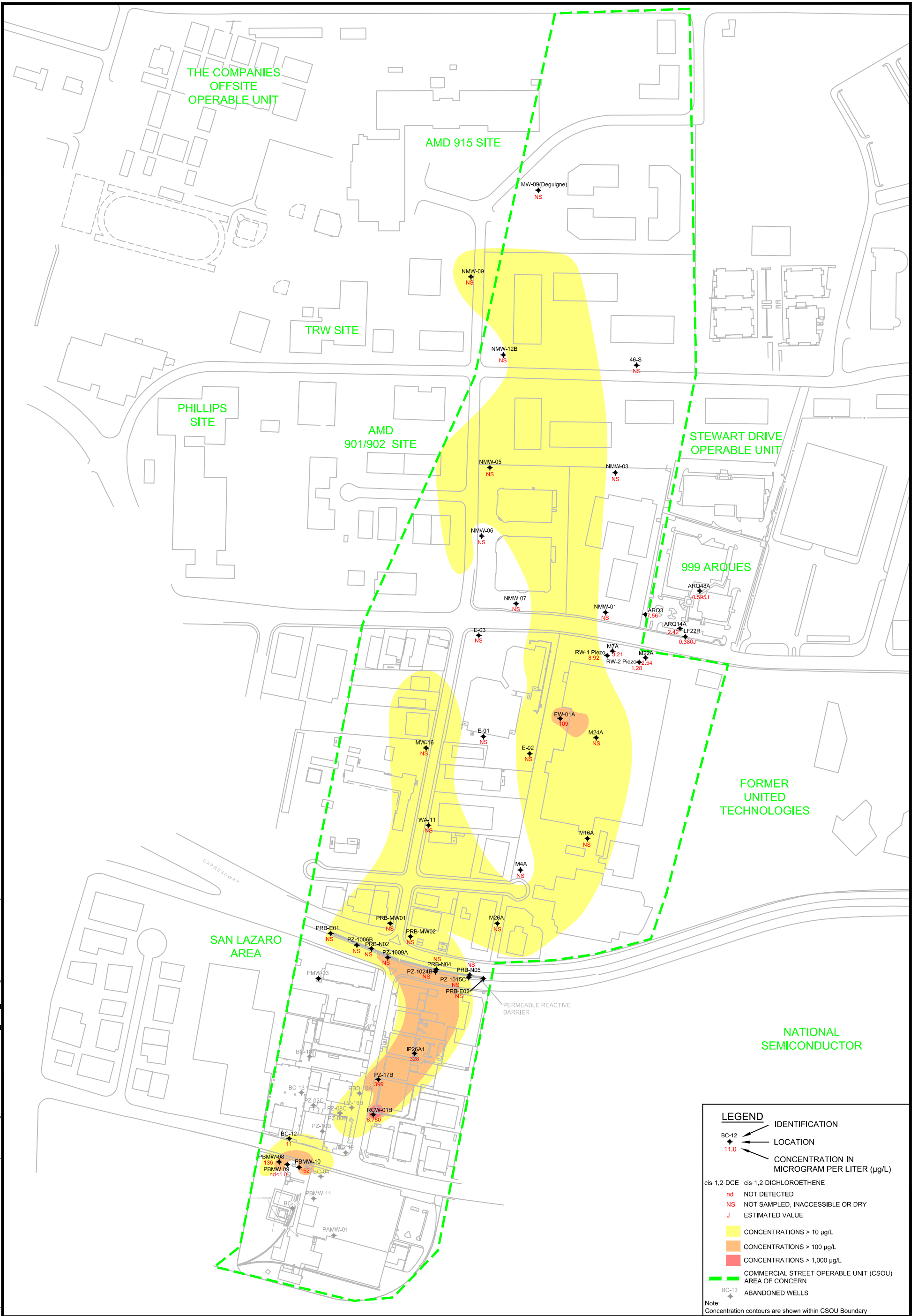
PROJECT NO. 93-22007940	DATE May, 2023	DR.BY: MR	APP. BY: BF
----------------------------	-------------------	--------------	----------------

**TCE IN GROUNDWATER WELLS  
 A1-ZONE  
 QUARTERS 1 AND 2, 2022**

0 400 800  
 HORIZONTAL SCALE IN FEET

**FIGURE  
 2-11**

I:\Client\Mohawk\NCH-001\Reports\NCH001-0314093-22007940 5 Year report\2023\Fig\_2-13-Cis-1,2-DCE in GW\_Zone\_A1.dwg Modified 5/3/2023 by Mike.Randall



**LEGEND**

- IDENTIFICATION
- LOCATION
- CONCENTRATION IN MICROGRAM PER LITER (µg/L)

cis-1,2-DCE    cis-1,2-DICHLOROETHENE

- nd NOT DETECTED
- NS NOT SAMPLED, INACCESSIBLE OR DRY
- J ESTIMATED VALUE

- CONCENTRATIONS > 10 µg/L
- CONCENTRATIONS > 100 µg/L
- CONCENTRATIONS > 1,000 µg/L

- COMMERCIAL STREET OPERABLE UNIT (CSOU) AREA OF CONCERN
- ABANDONED WELLS

Note: Concentration contours are shown within CSOU Boundary

**3480 BUSKIRK AVENUE, SUITE 210  
PLEASANT HILL, CA 94523**

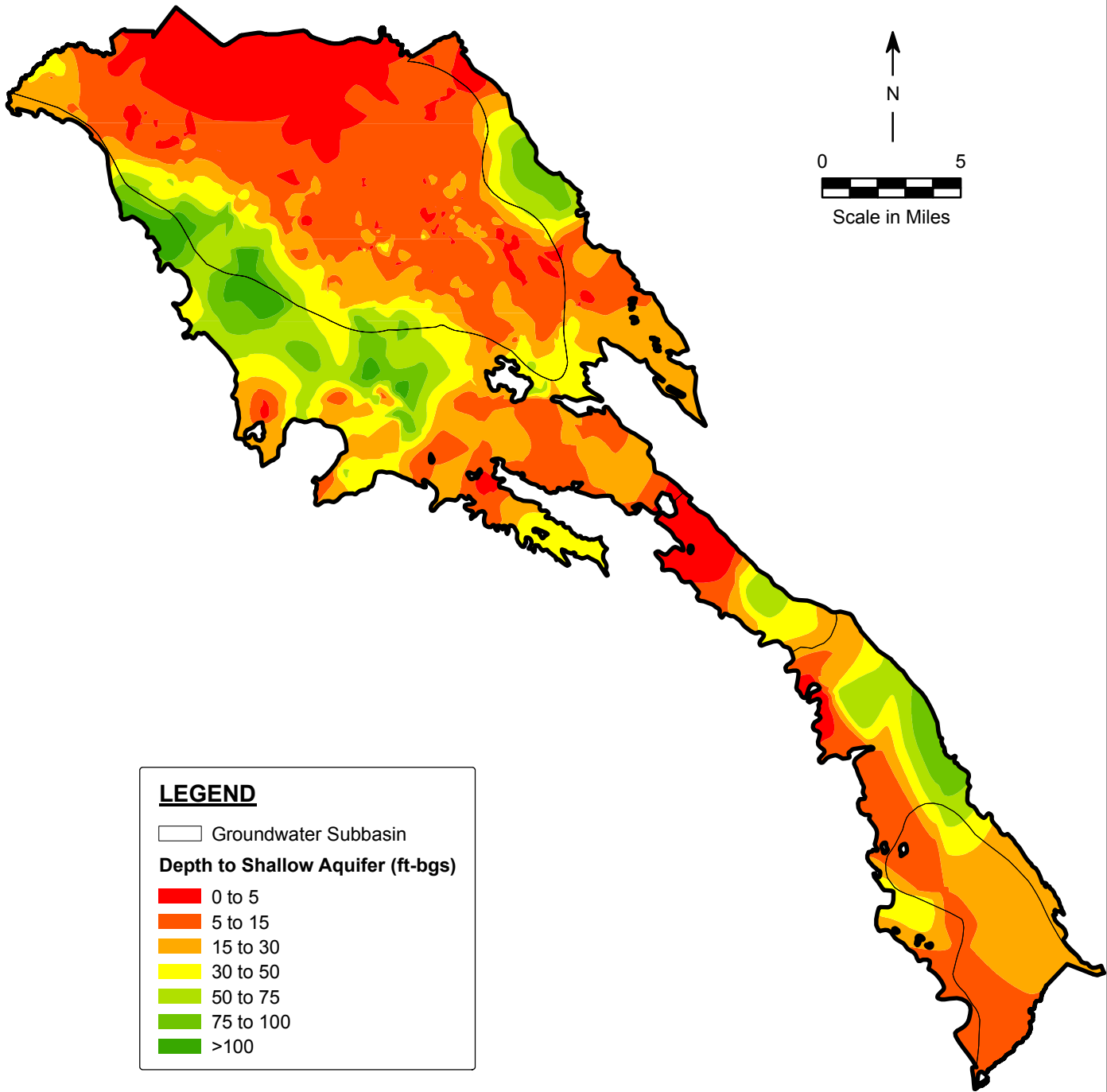
<b>FORMER MOHAWK LABORATORIES SUNNYVALE, CALIFORNIA</b>			
PROJECT NO. 93-22007940	DATE May, 2023	DR. BY: MR	APP. BY: BF

**CIS-1,2-DCE IN GROUNDWATER WELLS  
A1-ZONE  
QUARTERS 1 AND 2, 2022**

0                      400                      800  
HORIZONTAL SCALE IN FEET

**FIGURE  
2-13**

**Large-Scale Groundwater Contours**  
**Across Sunnyvale and Santa Clara County**



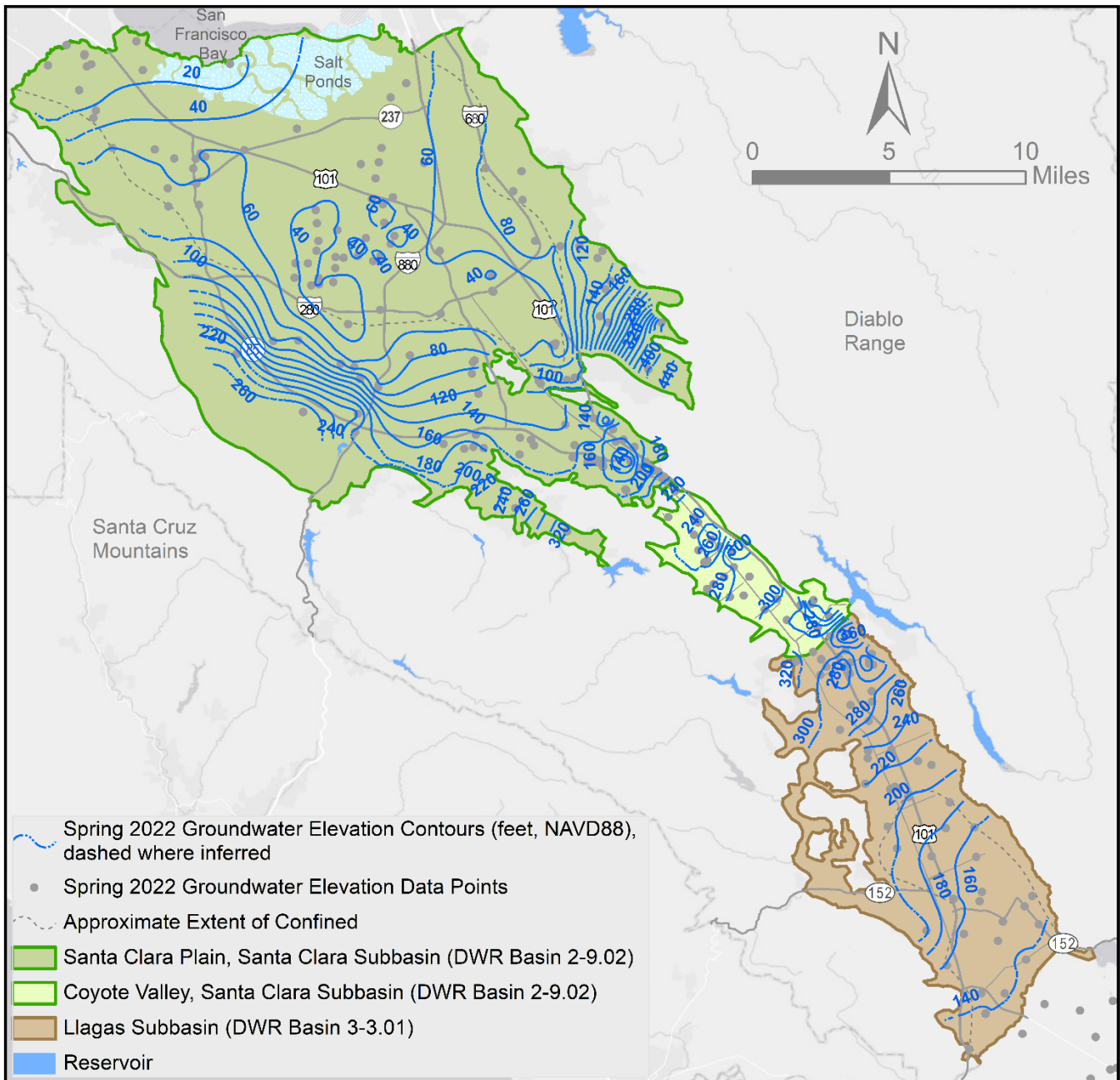
ft-bgs = feet below ground surface

July 2010
TODD ENGINEERS and KENNEDY/JENKS CONSULTANTS

**Figure 5-1**  
**Depth to**  
**Shallow Aquifer**

# 2022 Annual Groundwater Report

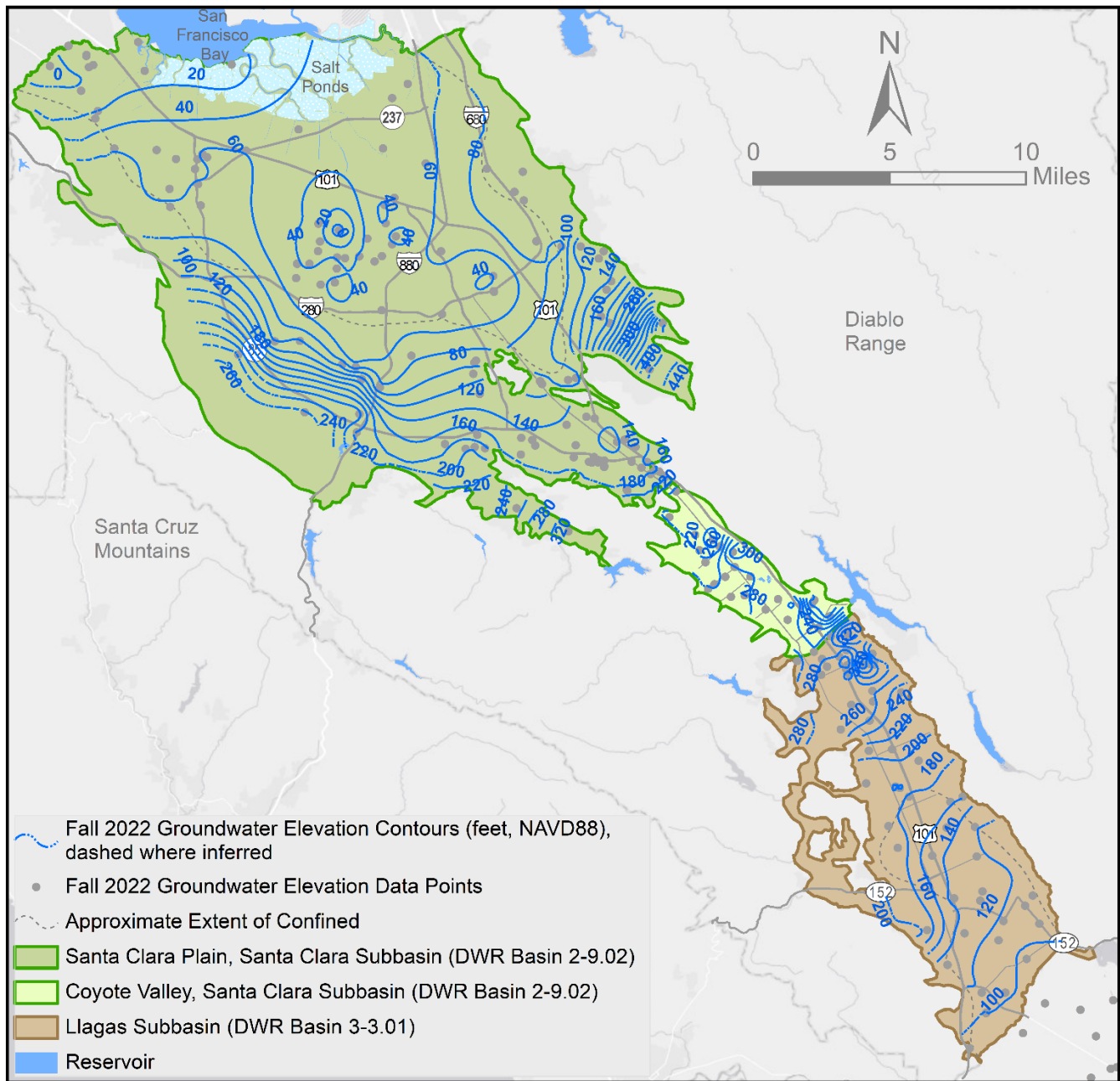
Figure 15. Spring 2022 Groundwater Elevation Contours in the Principal Aquifers





# 2022 Annual Groundwater Report

Figure 16. Fall 2022 Groundwater Elevation Contours in the Principal Aquifers



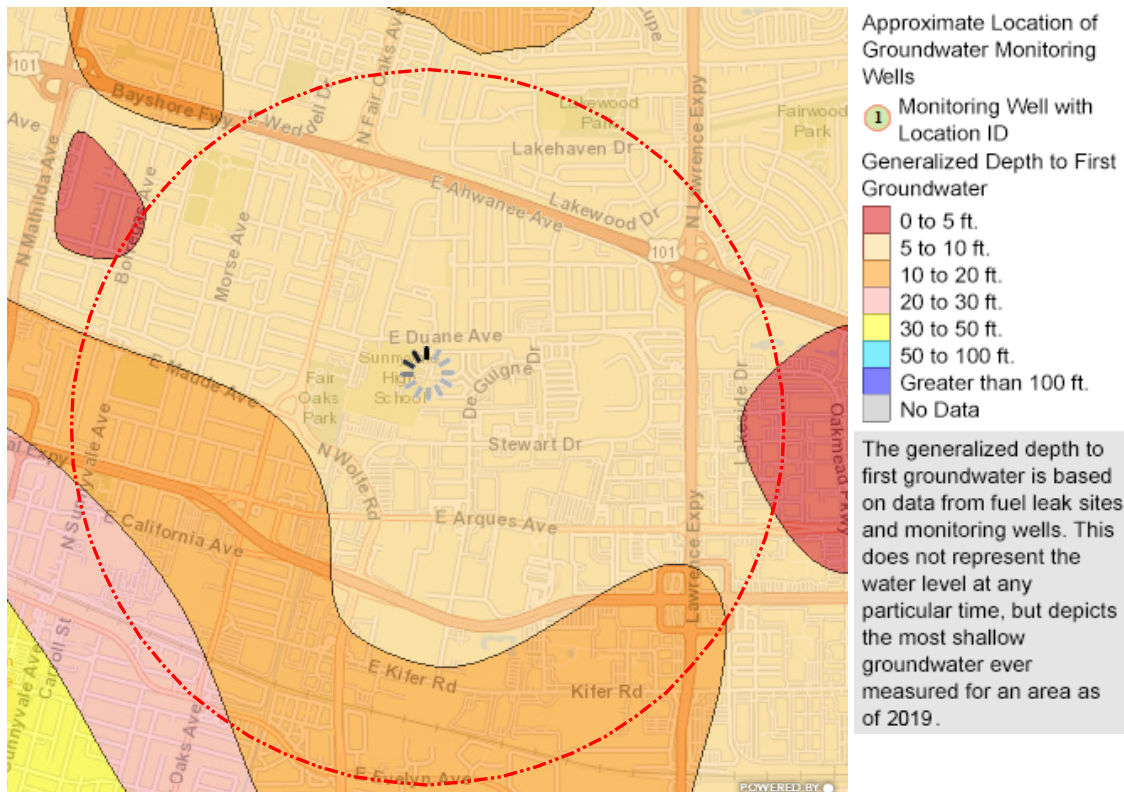
Date of Request: March 8, 2024

Subject: Request for generalized depth-to-groundwater at the site location

There are no groundwater elevation monitoring wells within 1 mile(s) of properties located around 825 Stewart Dr, Sunnyvale, California, 94085.

*Please note that these data are regional and general in nature. The Santa Clara Valley Water District (District) does not guarantee that the groundwater data presented accurately reflects conditions at any particular site or time nor does it guarantee the accuracy of any geographically presented data. The District makes no guarantees or warranty, expressed or implied, as to the accuracy, timeliness, completeness, or adequacy of this data for any use or particular purpose. In consideration of the District making this information available, any user of the data accepts it as is and assumes responsibility for its use. The User agrees to defend, indemnify, and hold the District harmless from and against all damage, loss, or liability arising from any use of the data. Groundwater data may vary greatly from site to site. A site-specific investigation may be necessary to determine site-specific conditions.*

## Approximate location of groundwater elevation monitoring wells within a 1 mile radius around 825 Stewart Dr, Sunnyvale, California, 94085



Groundwater Elevations Monitoring Wells within 1 mile:





**LEGEND:**

- MONITORING WELL
- ▲ EXTRACTION WELL
- △ PIEZOMETER
- APPROXIMATE OPERABLE UNIT BOUNDARIES
- COLOR INDICATES WELL OWNER/SITE:
- PHILIPS SEMICONDUCTORS (FORMERLY SIGNETICS)
- AMD 901/902 SITE
- TRW MICROWAVE SITE
- AMD 915 SITE
- THE COMPANIES OFFSITE OPERABLE UNIT
- 42.12 GROUNDWATER ELEVATION IN FEET (FT. MSL, NAVD88)
- 33\* GROUNDWATER ELEVATION NOT USED IN CONTOURING
- NM DENOTES WELL NOT MEASURED GROUNDWATER ELEVATION CONTOUR IN FEET MSL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION

**REFERENCES:**

1. MONITORING WELL REPORT FOR LOCUS TECHNOLOGIES AT THE OOU AND ARQUES WELL SITES IN SUNNYVALE, CALIFORNIA DATED DECEMBER 20, 2018 AND PROVIDED BY CROSS LAND SURVEYING, INC.
2. LINWORK FROM SANTA CLARA COUNTY INFORMATION SERVICES DEPARTMENT AND THE ASSESSORS OFFICE, COUNTYWIDE GIS MAP DATA AVAILABLE TO COUNTY DEPARTMENT, ITS PARTNERS AND THE PUBLIC AND THE CITY OF SUNNYVALE, CALIFORNIA GIS DATA, COPYRIGHT 2018.
3. SATELLITE IMAGERY U.S.G.S. EARTH EXPLORER™. THE ORTHOIMAGERY WAS EVALUATED BY THE U.S.G.S. AND MEETS THE NATIONAL MAP ACCURACY STANDARDS (95% CONFIDENCE). REPORT DATE JULY 24, 2015, COPYRIGHT 2018.
4. AMD 915 AND AMD 901/902 SITE CONTOURS ARE BASED ON PUBLISHED 2018 ANNUAL GROUNDWATER MONITORING REPORTS BY OTHERS.

**'B1' AQUIFER  
GROUNDWATER ELEVATION CONTOURS  
OCTOBER 2018  
811 EAST ARQUES AVENUE SITE  
AND OFFSITE OPERABLE UNIT  
SUNNYVALE, CALIFORNIA**

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
11	JAN 18	ADDED WELLS FROM SURVEY 56-S, 57-S, 56-D, 57-D, 56-DD, 57-DD	NUL	NUL	JWH
17	JAN 17	ADDED WELLS FROM SURVEY & SEALED WELLS/PIEZOMETERS: PZ010A, PZ012B1M, PZ012B2, PZ012B3, S068A, S068A, S068B1, S068B1	AJK	NUL	JWH
26	JAN 07	ADDED WELLS 157A AND S157B1.	VZC	MMG	JWH
20	JAN 03	DELETED SEALED WELLS S042A AND S042B1.	JWH	JWH	JEB
		REMOVED SEALED WELLS S085A, S086A, S091A, G-3, A-6, G-1, G-5, M-1, S065A, S070A, S087A, AND S089A.			

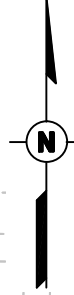
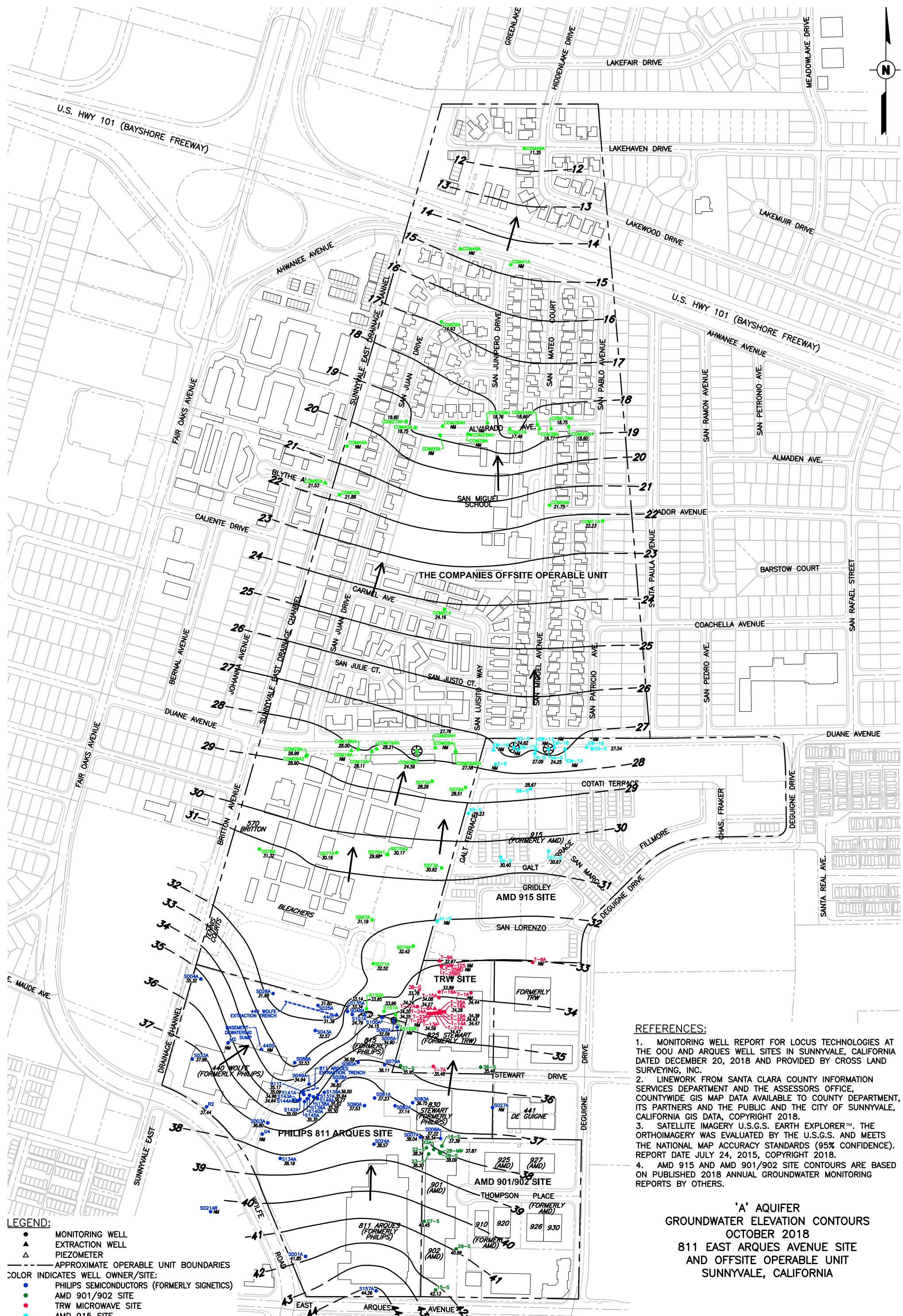


0 400 800  
SCALE IN FEET

DRAWING NO. **27-006-E284**

**FIGURE 4**





**REFERENCES:**

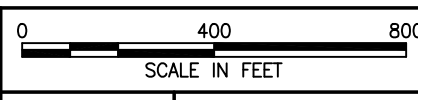
1. MONITORING WELL REPORT FOR LOCUS TECHNOLOGIES AT THE OOU AND ARQUES WELL SITES IN SUNNYVALE, CALIFORNIA DATED DECEMBER 20, 2018 AND PROVIDED BY CROSS LAND SURVEYING, INC.
2. LINWORK FROM SANTA CLARA COUNTY INFORMATION SERVICES DEPARTMENT AND THE ASSESSORS OFFICE, COUNTYWIDE GIS MAP DATA AVAILABLE TO COUNTY DEPARTMENT, ITS PARTNERS AND THE PUBLIC AND THE CITY OF SUNNYVALE, CALIFORNIA GIS DATA, COPYRIGHT 2018.
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'A' AQUIFER  
 GROUNDWATER ELEVATION CONTOURS  
 OCTOBER 2018  
 811 EAST ARQUES AVENUE SITE  
 AND OFFSITE OPERABLE UNIT  
 SUNNYVALE, CALIFORNIA

**LEGEND:**

- MONITORING WELL
- ▲ EXTRACTION WELL
- △ PIEZOMETER
- APPROXIMATE OPERABLE UNIT BOUNDARIES
- COLOR INDICATES WELL OWNER/SITE:
- PHILIPS SEMICONDUCTORS (FORMERLY SIGNETICS)
- AMD 901/902 SITE
- TRW MICROWAVE SITE
- AMD 915 SITE
- THE COMPANIES OFFSITE OPERABLE UNIT
- 44.26 GROUNDWATER ELEVATION IN FEET (FT. MSL, NAVD88)
- 33\* GROUNDWATER ELEVATION NOT USED IN CONTOURING
- NM DENOTES WELL NOT MEASURED
- 44 GROUNDWATER ELEVATION CONTOUR IN FEET MSL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
11	JAN 18	ADDED WELLS FROM SURVEY 56-S, 57-S, 56-D, 57-D, 56-DD, 57-DD	NJL	NJL	JWH
17	JAN 17	ADDED WELLS FROM SURVEY & SEALED WELLS/PIEZOMETERS: PZ010A, PZ012B1M, PZ012B2, PZ022B2, PZ012B3, S085A, S086A, S068B1, S068B1	AJK	NJL	JWH
26	JAN 07	ADDED WELLS 157A AND S157B1.	VZC	MMG	JWH
20	JAN 03	DELETED SEALED WELLS S042A AND S042B1.	JWH	JWH	JEB
		REMOVED SEALED WELLS S085A, S086A, S091A, G-3, A-6, G-1, G-5, M-1, S065A, S070A, S087A, AND S089A.	JWH	JWH	JEB




DRAWING NO. **27-006-E284**

**FIGURE 3**

**2023 US EPA TSCA**

**TCE Ban Proposal**

 An official website of the United States government



MENU

## Assessing and Managing Chemicals under TSCA

[CONTACT US <https://epa.gov/assessing-and-managing-chemicals-under-tsca/forms/assessing-and-managing-chemicals-under-tsca>](https://epa.gov/assessing-and-managing-chemicals-under-tsca/forms/assessing-and-managing-chemicals-under-tsca)

# Risk Management for Trichloroethylene (TCE)

Below is information on EPA actions to manage the unreasonable risk from trichloroethylene (TCE) and protect public health. TCE is a volatile organic compound used mostly in industrial and commercial processes. Consumer uses include cleaning and furniture care products, arts and crafts spray coatings, and automotive care products like brake cleaners, and other consumer products.

### On this page:

- [Managing Risks from TCE](#)
- [Opportunities for public and stakeholder engagement](#)

### On other pages:

- [Learn how EPA manages unreasonable risks from chemicals currently on the market <https://epa.gov/assessing-and-managing-chemicals-under-tsca/how-epa-evaluates-safety-existing-chemicals>](https://epa.gov/assessing-and-managing-chemicals-under-tsca/how-epa-evaluates-safety-existing-chemicals).
- [View a list of all chemicals undergoing risk evaluation, including docket numbers and agency points of contact <https://epa.gov/assessing-and-managing-chemicals-under-tsca/chemicals-undergoing-risk-evaluation-under-tsca>](https://epa.gov/assessing-and-managing-chemicals-under-tsca/chemicals-undergoing-risk-evaluation-under-tsca).

## Additional Information

### Staff contact for TCE:

Gabriela Rossner  
 Email: [rossner.gabriela@epa.gov](mailto:rossner.gabriela@epa.gov)  
 Phone: 202-565-2426

### Public dockets for TCE:

[EPA-HQ-OPPT-2020-0642](https://www.regulations.gov/docket/epa-hq-oppt-2020-0642) [↗](#)  
 <<https://www.regulations.gov/docket/epa-hq-oppt-2020-0642>>; [EPA-HQ-OPPT-2016-0737](https://www.regulations.gov/docket/epa-hq-oppt-2016-0737) [↗](#)  
 <<https://www.regulations.gov/docket/epa-hq-oppt-2016-0737>>; [EPA-HQ-OPPT-2019-0500](https://www.regulations.gov/docket/epa-hq-oppt-2019-0500) [↗](#)  
 <<https://www.regulations.gov/docket/epa-hq-oppt-2019-0500>>

## Managing Risks from TCE

In October 2023, EPA proposed to ban the manufacture (including import), processing, and distribution in commerce of TCE for all uses, with longer compliance timeframes and workplace controls (including an exposure limit [↗](https://www.regulations.gov/document/epa-hq-oppt-2020-0642-0025) <<https://www.regulations.gov/document/epa-hq-oppt-2020-0642-0025>>) for some processing and industrial and commercial uses until the prohibitions come into effect. The rule would protect consumers, workers, occupational non-users and bystanders from the harmful health effects of TCE.

Read the proposed rule. [↗](https://www.govinfo.gov/content/pkg/fr-2023-10-31/pdf/2023-23010.pdf) <<https://www.govinfo.gov/content/pkg/fr-2023-10-31/pdf/2023-23010.pdf>>

EPA's proposed risk management rule would rapidly phase down manufacturing, processing, distribution, and use of TCE for all uses, most of which would be fully phased out in one year. For uses where a longer timeframe is necessary, EPA is proposing robust worker protections. For example, there are currently no alternatives to TCE use as a process solvent for battery separator manufacturing. For this use, which is critical to the economy and infrastructure, EPA is proposing a 10-year TSCA

section 6(g) exemption from the prohibition to allow for continued battery separator manufacturing and sufficient time to investigate and adopt alternative solvents. During the time-limited exemption, companies would have to abide by a workplace chemical protection plan.

EPA is also proposing other phaseouts and exemptions, including a 10-year phaseout timeframe for use of TCE by Federal agencies in making rocket booster nozzles, and an additional time-limited exemption for critical or essential degreasing on Department of Defense vessels. Additional time-limited exemptions would support ongoing cleanup activities of past TCE contamination, such as disposal of TCE and its use in laboratories for essential activities. These longer phasedowns and exemptions would also require a workplace chemical protection plan in the interim, and, in some cases, requirements that alternatives be tested.

The proposed risk management rule is based on EPA's November 2020 TSCA section 6 risk evaluation, as amended by the January 2023 final revised risk determination for TCE.

In the final revised risk determination, EPA determined that TCE presents an unreasonable risk of injury to human health under its conditions of use.

- Learn more about the unreasonable risks determined in the final risk evaluation. <<https://epa.gov/assessing-and-managing-chemicals-under-tsca/final-risk-evaluation-trichloroethylene#findings>>

## Opportunities for Public and Stakeholder Engagement

EPA will accept public comments on the proposed rule for TCE for 45 days following publication in the Federal Register via docket EPA-HQ-OPPT-2020-0642 at [www.regulations.gov](http://www.regulations.gov). To submit a comment, first navigate to the docket in [regulations.gov](http://www.regulations.gov). Then click "Browse Documents" to view the proposed risk management rule. Click on the "Comment" button to submit your comment.

EPA hosted a webinar on November 14, 2023 about the proposed risk management rule. View the materials from the webinar. <<https://epa.gov/assessing-and-managing-chemicals-under-tsca/materials-november-2023-webinar-proposed-regulation>>

- View a list of all public and stakeholder engagement opportunities related to risk management. <<https://epa.gov/assessing-and-managing-chemicals-under-tsca/current-chemical-risk-management-activities>>
- You can reach out to the EPA point of contact for this chemical, listed at the top, right of this page, for more information or to schedule a one-on-one meeting.
- You can also stay informed by signing for our email alerts <<https://epa.gov/chemicals-under-tsca>> or checking public docket EPA-HQ-OPPT-2020-0642 at [www.regulations.gov](http://www.regulations.gov).

## Past Meetings, Webinars, and Other Engagement Opportunities

EPA held environmental justice consultations regarding the development of risk management actions for TCE on June 16, 2021, and July 6, 2021. These consultation sessions provided an overview of the TSCA risk management requirements, the findings from the final risk evaluations, the tools available to manage the unreasonable risks from TCE, and an opportunity for input on environmental justice concerns. The environmental justice consultation period ended August 20, 2021. View materials from the consultation sessions. <<https://epa.gov/assessing-and-managing-chemicals-under-tsca/materials-june-and-july-2021-environmental-justice>>

On December 15, 2020, EPA held a webinar to educate stakeholders on the risk management process under the Toxic Substances Control Act (TSCA) and the findings in the 2020 risk evaluation for TCE. View the materials for the webinar <<https://epa.gov/assessing-and-managing-chemicals-under-tsca/materials-december-2020-trichloroethylene-tce-risk>>.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

**SUBJECT:** Second Existing Chemical Exposure Limit (ECEL) (Developmental Toxicity) for Occupational Use of Trichloroethylene

**FROM:** Keith Jacobs  
Team Lead, Risk Assessment Branch 5, Existing Chemicals Risk Assessment Division

**THRU:** Sheila Healy, Ph.D  
Chief, Risk Assessment Branch 5, Existing Chemicals Risk Assessment Division

Jeff Morris  
Director, Existing Chemicals Risk Assessment Division

**TO:** Joel Wolf  
Chief, Risk Management Branch 1, Existing Chemicals Risk Management Division

**DATE:** March 31, 2022

On February 22, 2021, EPA developed an 8-hour existing chemical exposure limit (ECEL) for trichloroethylene based on the immunotoxicity endpoint (4.0 ppb (0.021 mg/m<sup>3</sup>)) characterized in the November 2020 TSCA Risk Evaluation for Trichloroethylene. In addition, EPA has developed an 8-hour ECEL for the most sensitive acute and chronic non-cancer health endpoint (developmental toxicity) in support of risk management efforts on trichloroethylene under TSCA section 6(a), 15 U.S.C. §2605. EPA calculated the ECEL to be 1.1 ppb (0.0059 mg/m<sup>3</sup>) for inhalation exposures to trichloroethylene as an 8-hour time-weighted average (TWA) and for use in workplace settings (see Appendix A) based on the acute non-cancer occupational human equivalent concentration (HEC99) for congenital heart defects.

EPA expects that at the acute non-cancer ECEL of 1.1 ppb (0.0059 mg/m<sup>3</sup>) a worker or occupational non-user (ONU) is also protected against congenital heart defects resulting from chronic occupational exposure. In addition, this ECEL protects against excess risk of cancer above the 1x10<sup>-4</sup> benchmark resulting from lifetime exposure if ambient exposures are kept below this ECEL.

The Occupational Safety and Health Administration (OSHA) set a permissible exposure limit (PEL) as both an 8-hour TWA and an acceptable ceiling concentration for trichloroethylene (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1000TABLEZ2>). However, as noted on OSHA's website, "OSHA recognizes that many of its permissible exposure limits (PELs) are outdated and inadequate for ensuring protection of worker health. Most of OSHA's PELs were issued shortly after adoption of the Occupational Safety and Health (OSH) Act in 1970 and have not been updated since that time." EPA's ECEL is a lower value and is based on newer information and analysis, from the 2020 [Risk Evaluation for Trichloroethylene](#).

Published NIOSH/OSHA/EPA methods were identified and the ECEL is within the limit of detection (LOD) of some of the methods identified in Appendix B.

## Appendix A: ECEL and Other Exposure Limit Calculations

This appendix presents the calculations used to estimate the ECEL and other exposure limits used for comparison. The resulting ECEL value was rounded. The values used in the equations are included in the Final Risk Evaluation for Trichloroethylene ([U.S. EPA, 2020](#)).

### Acute Non-Cancer ECEL

This 8-hour ECEL is the concentration that EPA calculated for (the acute non-cancer occupational human equivalent concentration (HEC99) for congenital heart defects) the concentration at which the acute MOE would equal the benchmark MOE for acute occupational exposures with the following equation:

$$EL_{acute} = \frac{HEC_{acute,occupational}}{Benchmark\ MOE_{acute}} * \frac{AT_{POD_{acute}}}{ED} = \frac{0.0037\ ppm}{10} * \frac{\frac{24h}{d}}{\frac{8h}{d}} = 0.0011\ ppm = 1.1\ ppb$$

$$ECEL \left( \frac{mg}{m^3} \right) = \frac{ECEL\ ppm * MW}{Molar\ Volume} = \frac{0.0011\ ppm * 131.39 \frac{g}{mol}}{24.45 \frac{L}{mol}} = 0.0059 \frac{mg}{m^3}$$

Where:

Molar Volume = 24.45 L/mol, the volume of a mole of gas at 1 atm and 25 °C  
 MW = Molecular weight of TCE (131.39 g/mole)

### Chronic Non-Cancer Exposure Limit

The chronic occupational exposure limit (EL<sub>chronic</sub>) was calculated as the concentration at which the chronic MOE would equal the benchmark MOE for chronic occupational exposures using the following equation:

$$ECEL_{inhal,occupational} = \frac{HEC_{chronic,occupational}}{Benchmark\ MOE_{chronic}} * \frac{AT_{POD\ chronic}}{ED * EF * WY} =$$

$$\frac{0.0037\ ppm}{10} * \frac{24h/d * 365d/y * 40\ y}{8h/d * 250d/y * 40\ y} = 0.0016\ ppm = 1.6\ ppb = 0.0086 \frac{mg}{m^3}$$

### Lifetime Cancer Exposure Limit

The EL<sub>cancer</sub> is the concentration at which the extra cancer risk is equivalent to the benchmark cancer risk of 1x10<sup>-4</sup>:

$$EL_{cancer} = \frac{Benchmark_{Cancer}}{IUR} * \frac{AT_{IUR}}{ED * EF * WY} = \frac{1 \times 10^{-4}}{2.2 \times 10^{-2}\ per\ ppm} * \frac{24h/d * 365d/y * 78y}{8h/d * 250d/y * 40y} =$$

$$0.039\ ppm = 0.21 \frac{mg}{m^3}$$

*Where:*

$AT_{PODacute}$	=	Averaging time for the POD/HEC used for evaluating non-cancer, acute occupational risk, based on study conditions and/or any HEC adjustments (24hrs/day)
$AT_{PODchronic}$	=	Averaging time for the POD/HEC used for evaluating non-cancer, chronic occupational risk, based on study conditions and/or HEC adjustments (24 hrs/day for 365 days/yr) and assuming the number of years matches the high-end working years (WY, 40 yrs) for a worker (RE Section 2.3.1.2.4 and Table 2-17).
$AT_{IUR}$	=	Averaging time for the cancer IUR, based on study conditions and any adjustments (24 hrs/day for 365 days/yr) and averaged over a lifetime (78 yrs) (RE Section 2.3.1.2.4 and Table 2-17)
Benchmark $MOE_{acute}$	=	Acute non-cancer benchmark margin of exposure, based on the total uncertainty factor (UF) of 10 (RE Table 3-13)
Benchmark $MOE_{chronic}$	=	Chronic non-cancer benchmark margin of exposure, based on the total uncertainty factor (UF) of 10 (RE Table 3-14)
Benchmark $_{Cancer}$	=	Benchmark for excess lifetime cancer risk ( $1 \times 10^{-4}$ )
ECEL	=	Existing chemical exposure limit ( $mg/m^3$ or ppm)
$EL_{chronic}$	=	Exposure limit based on congenital heart defects from chronic exposure
$EL_{cancer}$	=	Exposure limit based on excess cancer risk
ED	=	Exposure duration (8 hrs/day), (RE Table 2-17 and Appendix M)
EF	=	Exposure frequency (250 days/yr), (RE Table 2-17 and Appendix M)
$HEC_{acute\ or\ chronic,\ occupational}$	=	Human equivalent concentration for acute or chronic occupational exposure scenarios (RE Table 3-13 and 3-14)
IUR	=	Inhalation unit risk (per ppm) (RE Table 3-15)
WY	=	Working years per lifetime at the 95 <sup>th</sup> percentile (40 yrs) (RE Table 2-17)

*Unit conversion:*

1 ppm = 5.37  $mg/m^3$  (based on molecular weight of 131.39.8 g/mol for TCE and molar volume of 24.45 L/mol at 25°C and 1 atm pressure)

$$ECEL \left( \frac{mg}{m^3} \right) = \frac{ECEL\ ppm * MW}{Molar\ Volume}$$

**References**

U.S. Environmental Protection Agency. 2020. Risk Evaluation for Trichloroethylene (TCE) CASRN: 79-01-6. EPA-740-R1-8008. Office of Chemical Safety and Pollution Prevention. November 2020. Available at: EPA-HQ-OPPT-2019-0500-0113.

U.S. Environmental Protection Agency. 2002. A Review of the Reference Dose and Reference Concentration Processes. Final Report. EPA/630/P-02/002F. Prepared for the Risk Assessment Forum. December.

## Appendix B: Summary of Air Sampling Analytical Methods Identified

EPA conducted a search to identify relevant NIOSH/OSHA/EPA analytical methods used to monitor for the presence of trichloroethylene in air (see Table 1). The sources used for the search included the following:

- 1) NIOSH Manual of Analytical Methods (NMAM); 5<sup>th</sup> Edition
  - URL: <https://www.cdc.gov/niosh/nmam/default.html>
- 2) NIOSH NMAM 4<sup>th</sup> Edition
  - URL: <https://www.cdc.gov/niosh/docs/2003-154/default.html>
- 3) OSHA Index of Sampling and Analytical Methods
  - URL: <https://www.osha.gov/dts/sltc/methods/>
- 4) EPA Environmental Test Method and Monitoring Information
  - <https://www.epa.gov/emc/epa-websites-environmental-test-method-and-monitoring-information>

**Table 1: Limit of detection (LOD) summary for air sampling analytical methods identified.**

Air Sampling Analytical Methods	Year Published	LOD <sup>a</sup>	Notes	Source
NIOSH Method 8300 <a href="https://www.cdc.gov/niosh/docs/2014-151/pdfs/methods/3800.pdf">https://www.cdc.gov/niosh/docs/2014-151/pdfs/methods/3800.pdf</a>	2016	0.43 ppm	Method reports approximate LOD for an absorption length of 10 m.	NIOSH Manual of Analytical Methods (NMAM); 5 <sup>th</sup> Edition <a href="https://www.cdc.gov/niosh/nmam/default.html">https://www.cdc.gov/niosh/nmam/default.html</a>
NIOSH Method 1022, Issue 2 <a href="https://www.cdc.gov/niosh/docs/2003-154/pdfs/1022.pdf">https://www.cdc.gov/niosh/docs/2003-154/pdfs/1022.pdf</a>	1994	60 ppb	Method reports estimated LOD as 0.01 mg per sample, with a maximum sample of 30 L.	NIOSH NMAM 4 <sup>th</sup> Edition <a href="https://www.cdc.gov/niosh/docs/2003-154/default.html">https://www.cdc.gov/niosh/docs/2003-154/default.html</a>
NIOSH Method 3701, Issue 2 <a href="https://www.cdc.gov/niosh/docs/2003-154/pdfs/3701.pdf">https://www.cdc.gov/niosh/docs/2003-154/pdfs/3701.pdf</a>	1994	0.1 ppm	Method reports estimated LOD as 0.1 ppm for a 1 mL injection.	NIOSH NMAM 4 <sup>th</sup> Edition <a href="https://www.cdc.gov/niosh/docs/2003-154/default.html">https://www.cdc.gov/niosh/docs/2003-154/default.html</a>
OSHA Method 1001 <a href="https://www.osha.gov/dts/sltc/methods/mdt/mdt1001/1001.html">https://www.osha.gov/dts/sltc/methods/mdt/mdt1001/1001.html</a>	1999	3.7 or 18 ppb	Method reports LOD of overall procedure as 3.7 ppb for charcoal tubes and 18 ppb for SKC 575-002 Samplers.	OSHA Index of Sampling and Analytical Methods <a href="https://www.osha.gov/dts/sltc/methods/">https://www.osha.gov/dts/sltc/methods/</a>
EPA Method TO-14A <a href="https://www3.epa.gov/ttn/amtic/files/ambient/airtox/to-14ar.pdf">https://www3.epa.gov/ttn/amtic/files/ambient/airtox/to-14ar.pdf</a>	1999	14 ppb	Estimated LOD based on 1 microliter sample volume (Table B-1).	EPA Air Toxics – Monitoring Methods <a href="https://www3.epa.gov/ttn/amtic/airtox.html">https://www3.epa.gov/ttn/amtic/airtox.html</a>
EPA Method TO-15 <a href="https://www3.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf">https://www3.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf</a>	1999	≤0.5 ppb	To qualify under Compendium Method TO-15, the method detection limit must ≤0.5 ppbv. This method uses ppbv, but LODs for other methods listed here are also understood to be on a volume basis. For consistency, the LOD	EPA Air Toxics – Monitoring Methods <a href="https://www3.epa.gov/ttn/amtic/airtox.html">https://www3.epa.gov/ttn/amtic/airtox.html</a>

Air Sampling Analytical Methods	Year Published	LOD <sup>a</sup>	Notes	Source
			for this method is listed as $\leq 0.5$ ppb.	
EPA Method TO-17	1999	$\leq 0.5$ ppb	To qualify under Compendium Method TO-17, the method detection limit must be $\leq 0.5$ ppb.	EPA Air Toxics – Monitoring Methods <a href="https://www3.epa.gov/ttn/amtic/airtox.html">https://www3.epa.gov/ttn/amtic/airtox.html</a>
<p><b>ppm = parts per million; ppb = parts per billion; ppt = parts per trillion</b>  <sup>a</sup> EPA has included all relevant NIOSH/OSHA/EPA methods that it identified, including those methods with an LOD above the ECEL.</p>				



# EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

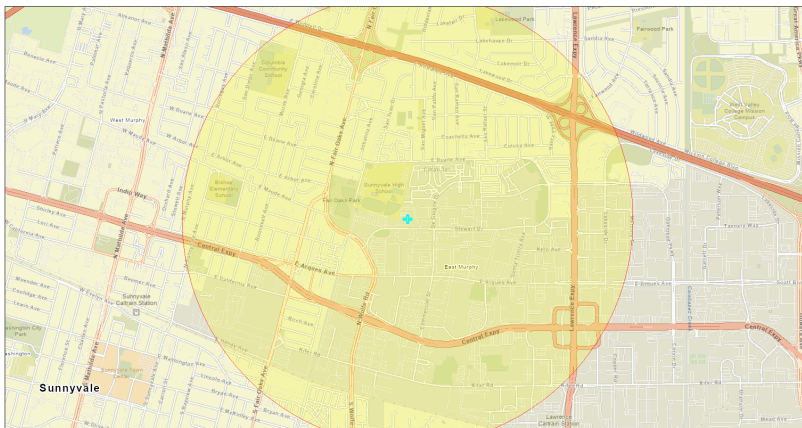
## Sunnyvale, CA

.5 miles Ring Centered at 37.384574,-122.009313

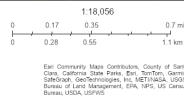
Population: 6,648

Area in square miles: 0.79

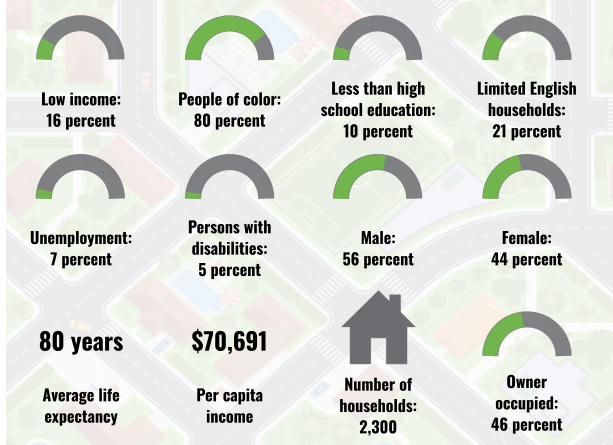
A3 Landscape



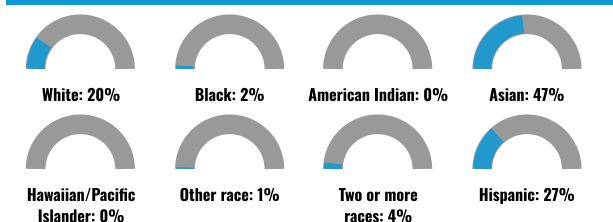
March 11, 2024  
Triple Site



### COMMUNITY INFORMATION



### BREAKDOWN BY RACE



### BREAKDOWN BY AGE



### LIMITED ENGLISH SPEAKING BREAKDOWN



### LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	45%
Spanish	22%
Russian, Polish, or Other Slavic	1%
Other Indo-European	7%
Korean	1%
Chinese (including Mandarin, Cantonese)	11%
Vietnamese	1%
Tagalog (including Filipino)	7%
Other Asian and Pacific Island	5%
Other and Unspecified	1%
Total Non-English	55%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

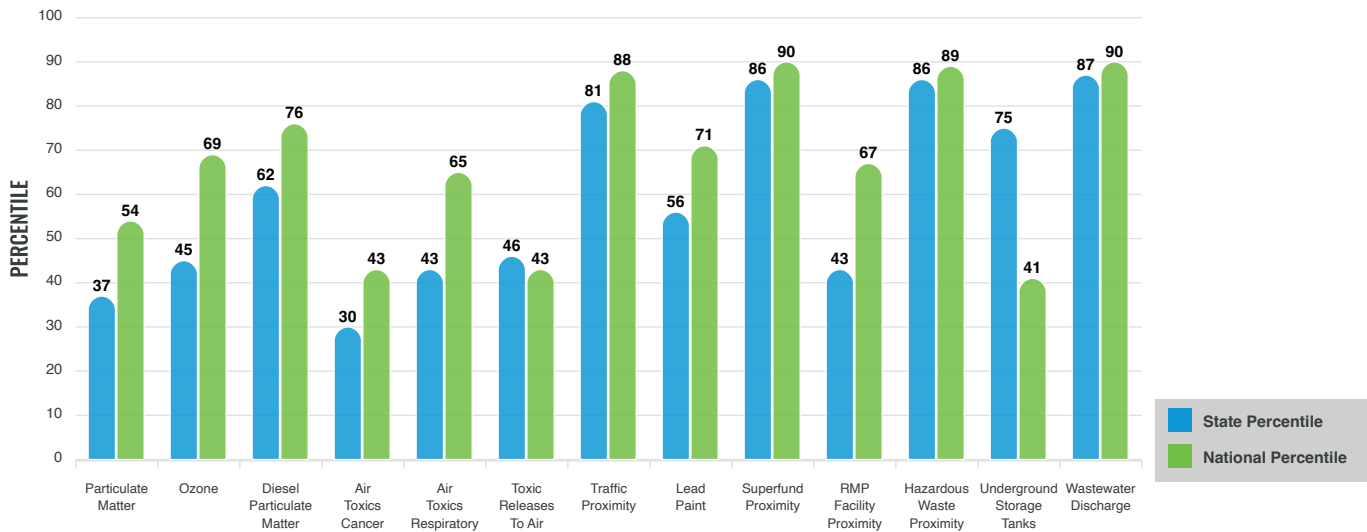
# Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

## EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

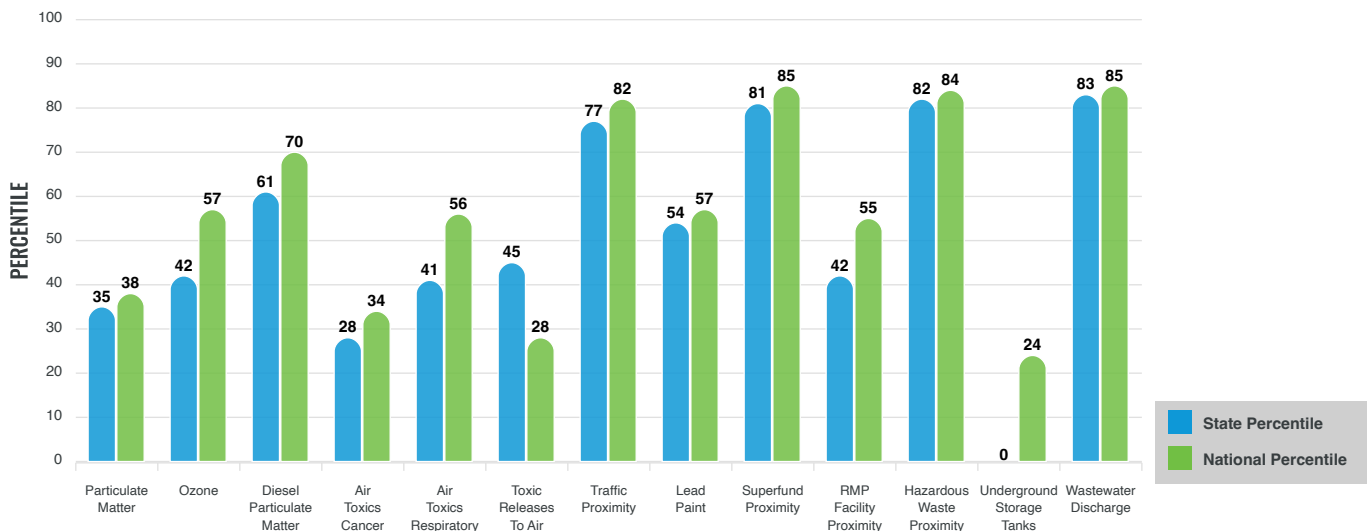
### EJ INDEXES FOR THE SELECTED LOCATION



## SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

### SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for .5 miles Ring Centered at 37.384574,-122.009313

# EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
<b>POLLUTION AND SOURCES</b>					
Particulate Matter (µg/m <sup>3</sup> )	7.36	8.65	25	8.08	28
Ozone (ppb)	60.6	65.9	33	61.6	45
Diesel Particulate Matter (µg/m <sup>3</sup> )	0.266	0.26	56	0.261	61
Air Toxics Cancer Risk* (lifetime risk per million)	20	27	3	25	5
Air Toxics Respiratory HI*	0.3	0.34	17	0.31	31
Toxic Releases to Air	72	780	36	4,600	20
Traffic Proximity (daily traffic count/distance to road)	1,100	510	87	210	96
Lead Paint (% Pre-1960 Housing)	0.24	0.31	50	0.3	52
Superfund Proximity (site count/km distance)	9.4	0.17	99	0.13	99
RMP Facility Proximity (facility count/km distance)	0.15	0.57	33	0.43	45
Hazardous Waste Proximity (facility count/km distance)	23	5.9	98	1.9	99
Underground Storage Tanks (count/km <sup>2</sup> )	0.3	1.5	74	3.9	35
Wastewater Discharge (toxicity-weighted concentration/m distance)	29	4	97	22	98
<b>SOCIOECONOMIC INDICATORS</b>					
Demographic Index	48%	45%	56	35%	72
Supplemental Demographic Index	14%	15%	54	14%	57
People of Color	80%	61%	67	39%	83
Low Income	16%	28%	34	31%	30
Unemployment Rate	7%	7%	61	6%	68
Limited English Speaking Households	20%	9%	87	5%	93
Less Than High School Education	10%	16%	47	12%	56
Under Age 5	10%	6%	86	6%	86
Over Age 64	6%	16%	16	17%	13
Low Life Expectancy	17%	18%	43	20%	26

\*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

**Sites reporting to EPA within defined area:**

Superfund .....	3
Hazardous Waste, Treatment, Storage, and Disposal Facilities .....	3
Water Dischargers .....	10
Air Pollution .....	0
Brownfields .....	0
Toxic Release Inventory .....	7

**Other community features within defined area:**

Schools .....	1
Hospitals .....	0
Places of Worship .....	1

**Other environmental data:**

Air Non-attainment .....	Yes
Impaired Waters .....	No

Selected location contains American Indian Reservation Lands* .....	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community .....	Yes
Selected location contains an EPA IRA disadvantaged community .....	Yes

Report for .5 miles Ring Centered at 37.384574,-122.009313



## EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS					
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	17%	18%	43	20%	26
Heart Disease	2.8	5.2	2	6.1	2
Asthma	7.6	9.5	5	10	2
Cancer	3.3	5.3	8	6.1	4
Persons with Disabilities	4.8%	10.9%	5	13.4%	4

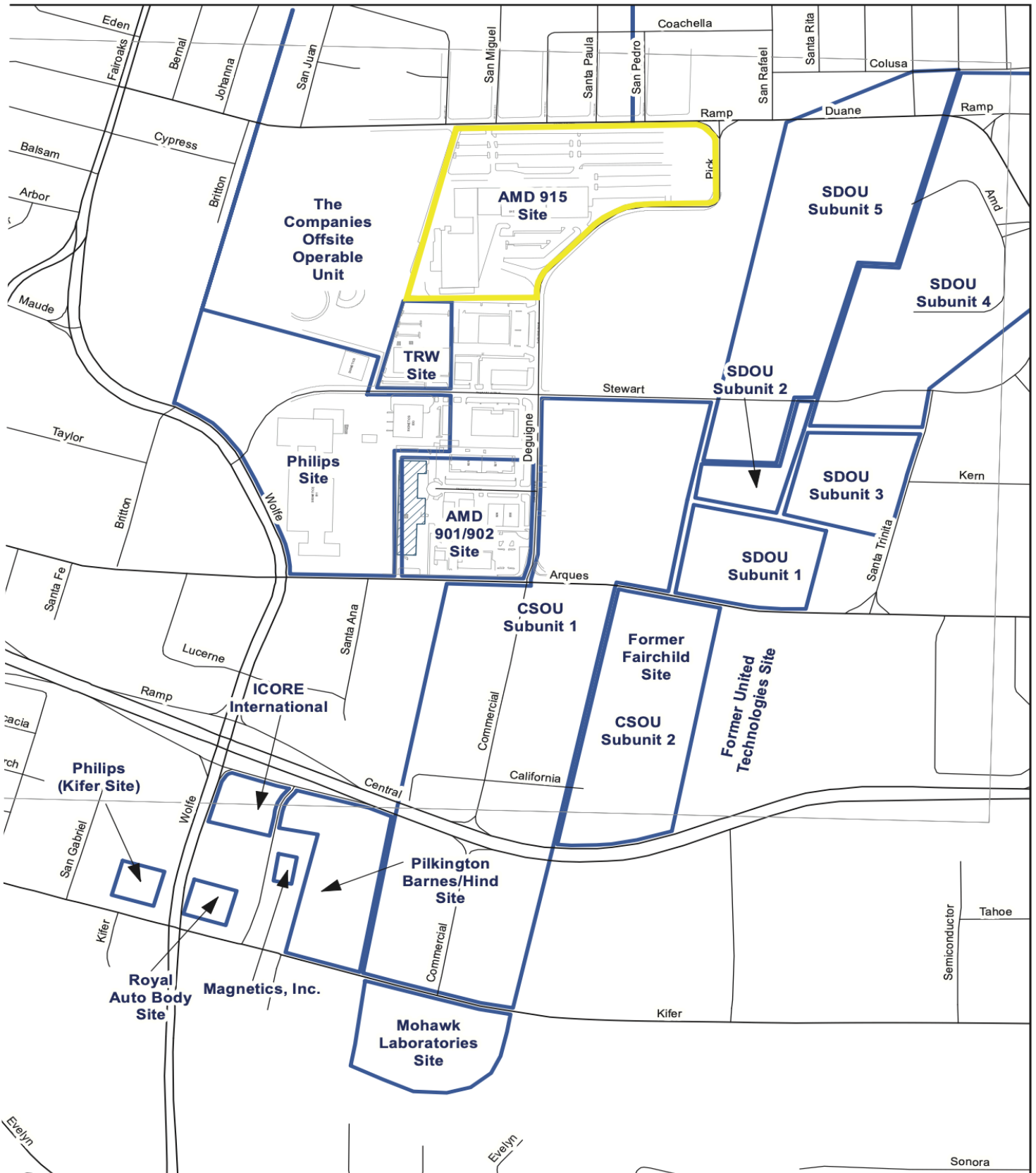
CLIMATE INDICATORS					
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	18%	13%	78	12%	83
Wildfire Risk	0%	30%	0	14%	0

CRITICAL SERVICE GAPS					
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	5%	10%	41	14%	29
Lack of Health Insurance	6%	7%	48	9%	41
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	No	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Report for .5 miles Ring Centered at 37.384574,-122.009313

# **Maps of Adjacent Plumes**

Overview of Regional Parties Site Boundaries:



CSOU = Commerical Street Operable Unit  
 SDOU = Stewart Drive Operable Unit

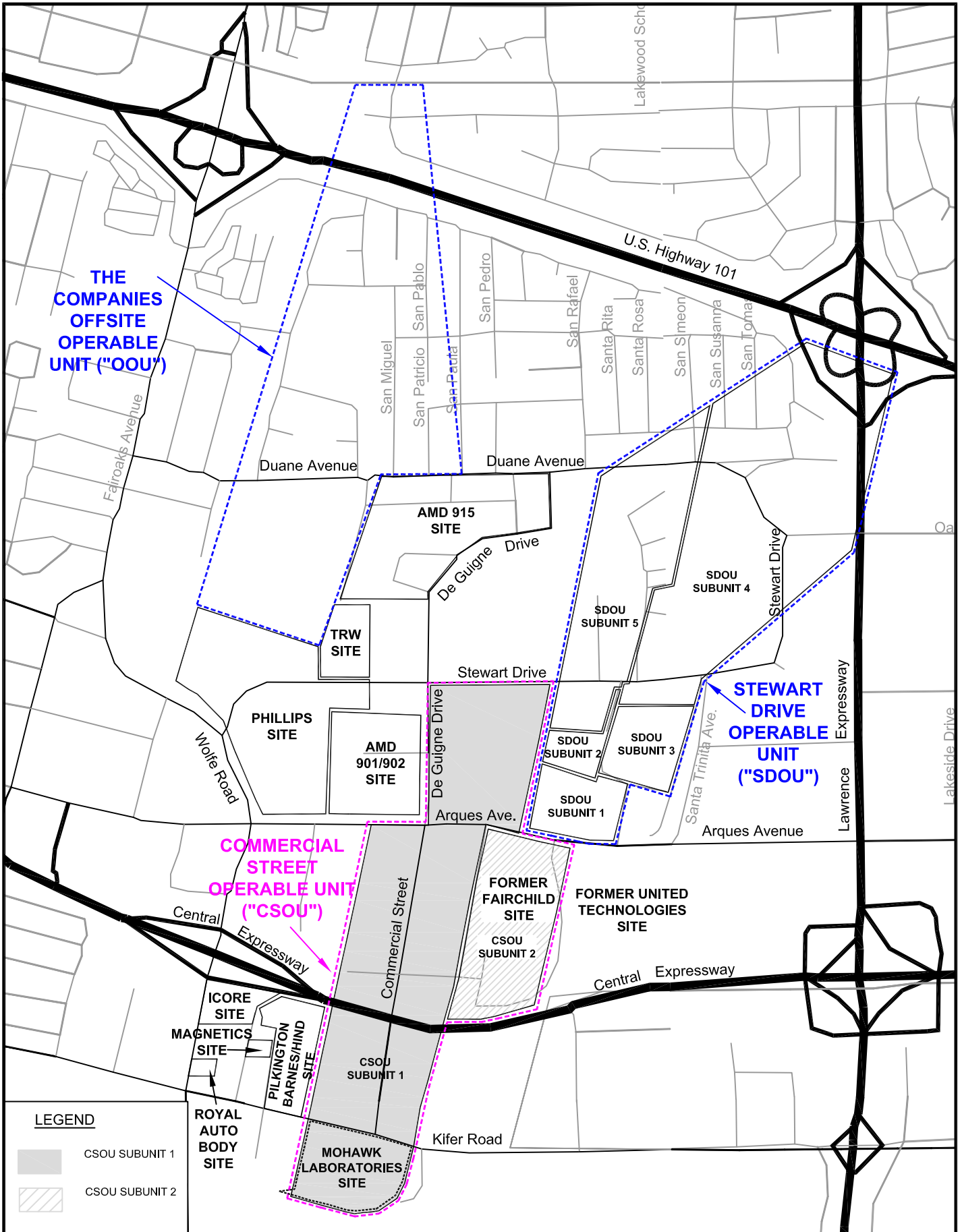


**HALEY & ALDRICH**

FORMER 901/902 THOMPSON PLACE  
 SUNNYVALE, CALIFORNIA

SITE VICINITY

S:\Clients G - M\Mohawk\NCH-001\Reports & Work Plans\Reports\2017 (10) 5-YR Status Report\Figures\Fig. 1-2-Commercial Street Operable Unit Site Plan.dwg, 10/2/2017 12:46:36 PM



**LEGEND**

- CSOU SUBUNIT 1
- CSOU SUBUNIT 2

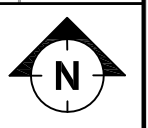
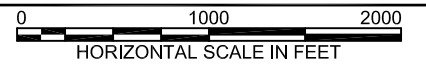


3478 BUSKIRK AVENUE, SUITE 100  
PLEASANT HILL, CA 94523

MOHAWK LABORATORIES  
SUNNYVALE, CALIFORNIA

PROJECT NO. 01-NCH-001	DATE 10/02/17	DR. BY: ZA	APP. BY: KD
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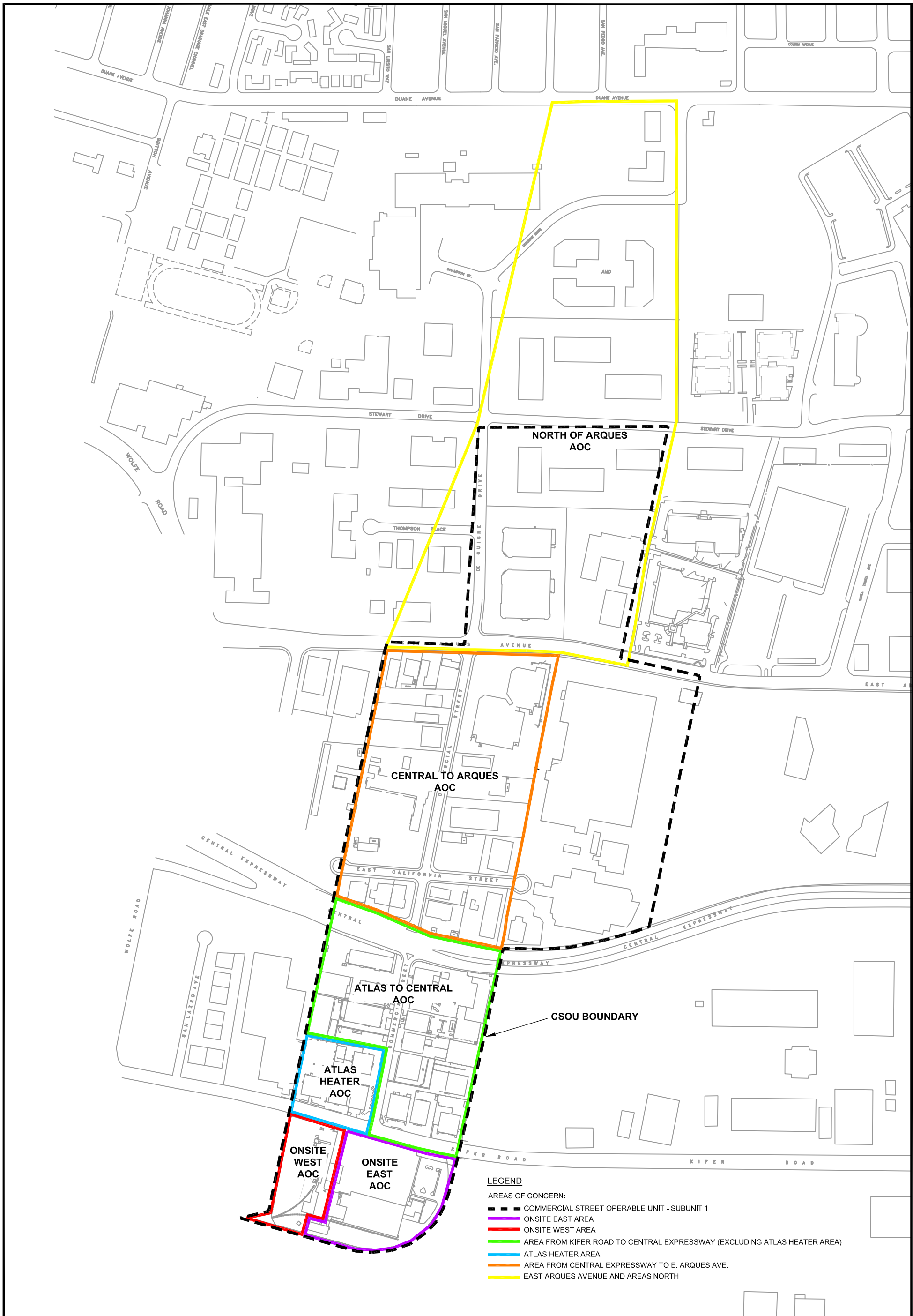
**COMMERCIAL STREET  
OPERABLE UNIT SITE PLAN**



**FIGURE  
1-2**



S:\Clients G - M\Mohawk\NCH-001\Reports & Work Plans\Reports\2017 (10) 5-YR Status Report\Figures\Fig.1-3- Areas of Concern Location Map.dwg, 10/4/2017 11:28:27 AM



- LEGEND**
- AREAS OF CONCERN:
- COMMERCIAL STREET OPERABLE UNIT - SUBUNIT 1
  - ONSITE EAST AREA
  - ONSITE WEST AREA
  - AREA FROM KIFER ROAD TO CENTRAL EXPRESSWAY (EXCLUDING ATLAS HEATER AREA)
  - ATLAS HEATER AREA
  - AREA FROM CENTRAL EXPRESSWAY TO E. ARQUES AVE.
  - EAST ARQUES AVENUE AND AREAS NORTH

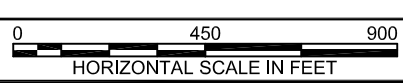


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PROJECT NO. 01-NCH-001	DATE 10/02/2017	DR. BY: ZA	APP. BY: KD
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**AREAS OF CONCERN  
LOCATION MAP**



**FIGURE  
1-3**

# **Data Gaps in CalEPA GAMA**

The King's Academy  
Tennis Courts

Fair Oaks Pk  
Sporting areas,  
water play  
& skate park

Fair Oaks Dog Park

Skateboard park

Plug and Play  
Tech Center

Flower Cottage  
Florist

Building 7

Avana Sunnyvale  
Apartments

Minute Key

Lowe's Home  
Improvement  
Home improvement store

Lowe's ProServices

Tong Sui Desserts &  
Drinks (Sunnyvale)

Sri Ananada Bhavan  
- Sunnyvale  
Indian • \$\$

5 Star School for Music

Wolf Campus

Apple Campus

Illumio

Trimble, Inc

FOX Corporate Housin

Analog Bits

NTT One Campus

Map Satellite

**DATA SUMMARY**

WELLS FOUND 5

WELLS ABOVE COMPARISON 5 (100%)

**LOCATIONS FOUND** (Total: 81)

- 1 WELL - HIGHLIGHT [ZOOM]
- 1 WELL - HIGHLIGHT [ZOOM]
- 1 WELL - HIGHLIGHT [ZOOM]
- 1 WELL - HIGHLIGHT [ZOOM]
- 1 WELL - HIGHLIGHT [ZOOM]

**Filters**

GIS Filter: Sunnyvale Fire Station 2

Select a GIS Layer

Chemical:

Any Chemical E Arques Ave

RESULTS TO SHOW:

All Results

TIMEFRAME:

Past 3 Years

Well Category: ADVANCED (DATASETS)

- Domestic
- Irrigation / Industrial
- Monitoring
- Municipal
- Water Supply, Other

Well Screen Interval: TOP to BOTTOM

Run My Query

# **Residential Zoning**



**From:** [Ryan Dyson](#)  
**To:** [Chelsey Payne](#)  
**Cc:** [Jenny Carloni](#)  
**Subject:** Future Opportunity Sites - Stewart and DeGuigne  
**Date:** Wednesday, March 8, 2023 2:58:48 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)

Hi Chelsey,

We were discussing some additional sites and wanted to see if we can add the parcels below as Future Opportunity sites. They are currently zoned for industrial, but their General Plan Designation is RMED so they can be developed as residential with density up to 24 du/acre. We plan to formally change the zoning to R-3 soon. The surrounding area has recently been developed with residential projects like 1 AMD and the Vale. All of these parcels are currently occupied with some kind of office space and it's unlikely that there will be any conversion to residential within the planning period, but we thought they'd be good to add. I filled out the data table based on what've included for the other future opportunity sites. Let me know if you have any questions on anything.

Site #	Assessor Parcel Number (APN)	Address	Size (Gross Acres)	Land Use	Zoning	Max Density	Max. Capacity	Realistic Density	Realistic Capacity	Existing Use/Site Conditions
<i>Future Opportunity Site</i>	20521007	835 Stewart Dr	0.7	RMED	MS	24	17	20.4	0	Office
	20521008	825 Stewart Dr	4.3	RMED	MS	24	103	20.4	0	Office
	20521009	455 De Guigne Dr	2.98	RMED	MS	24	72	20.4	0	Office
	20521010	845 Stewart Dr	1.1	RMED	MS	24	26	20.4	0	Restaurant and office
<i>Total</i>			9.08				218			
<i>Future Opportunity Site</i>	20521022	920 De Guigne Dr	10.33	RMED	MS	24	248	20.4	0	Office
	20521023	935 Stewart Dr	10.21	RMED	MS	24	245	20.4	0	Office/Manufacturing
<i>Total</i>			20.54				493			



Thanks,

Ryan Dyson

## **New Development Around Triple Site**



