



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IX
75 Hawthorne Street
San Francisco, CA 94105

ACTION MEMORANDUM

DATE: February 18, 2015

SUBJ: Request for a Time-Critical Removal Action at the Triple Site
Sunnyvale, Santa Clara County, California

FROM: Melanie Morash, Remedial Project Manager
California Cleanup Sites Section I

THRU: Caleb Shaffer, Chief
California Cleanup Sites Section I

TO: John Lyons, Assistant Director
Superfund Division

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action described herein to investigate, and if necessary, to mitigate threats posed to human health and the environment by the presence of trichloroethene (TCE), located at the Triple Site (the Site) in Sunnyvale, Santa Clara County, California. The proposed removal of hazardous substances will be undertaken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415. Any action taken pursuant to this Action Memorandum will be predicated on the need to take immediate action to protect human health and the environment, based upon site sampling results.

II. SITE CONDITIONS AND BACKGROUND

SITE NAME: Triple Site
CERCLIS ID#: CAD070466479
SITE ID#: A974
CATEGORY: Time-Critical
SITE LOCATION: Sunnyvale, California
NPL STATUS: Not on the NPL

A. Site Description

1. Physical Location

The Site includes three chlorinated solvent groundwater sites in Sunnyvale – the Advanced Micro Devices 901/902 Thompson Place Superfund Site (AMD 901/902 Site) located at 901/902 Thompson Place, the Philips (formerly Signetics) Site (Philips Site) located at 811 East Arques Avenue, 440 North Wolfe Road, and facilities along Stewart Drive, and the TRW Microwave Superfund Site (TRW Site) located at 825 Stewart Drive (together, the source sites). The primary contaminant of concern (COC) at the Site is trichloroethene (TCE), however other TCE breakdown products and related volatile organic compounds (VOCs) are present at elevated levels in the groundwater (see below).

The Site to which this Action Memorandum applies also includes the Offsite Operable Unit (OOU), which includes the area of the neighborhood outside the source sites' property boundaries, which has been impacted by commingled TCE-containing groundwater from the three source sites. The OOU area includes the neighborhood around Duane/San Miguel Avenue to just past Highway 101 to the north, and between the Sunnyvale East Drainage Channel on the west and Santa Paula Avenue on the east. Concentrations of TCE in the shallow groundwater in the OOU are elevated above the EPA Maximum Contaminant Level (MCL) of 5 micrograms per liter ($\mu\text{g/L}$).¹ The Site is depicted in the attached map.

2. Site Characteristics

Land use in the vicinity of the Triple Site is comprised of a mixture of residential and light commercial properties, including four neighborhood schools and their associated open playing fields. These four schools, as well as over 900 households, are located within the OOU; collectively, this area is informally referred to as the Duane/San Miguel Avenue neighborhood.

According to the EPA Environmental Justice mapping tool, the Site is located in an environmental justice area. Residents in the area are predominantly Asian and Hispanic, with a significant population that don't speak English as a first language. According to the 2010 census, 2,552 people (916 households) live within the OOU, 82% of which (2,090 individuals) belong to a minority group.

The three source sites contributed to the commingled TCE plume in the OOU, due to historical semiconductor and other electronics manufacturing operations from the early years of Silicon Valley (dating back to the 1960s). Groundwater contamination from the

¹ U.S. EPA Maximum Contaminant Level (MCL) for trichloroethene (TCE) in drinking water of 5 micrograms per liter ($\mu\text{g/L}$) or parts per billion (ppb), available at <http://water.epa.gov/drink/contaminants/> accessed Feb 2015.

AMD 901/902 and TRW Sites resulted from localized spills and leaking underground storage tanks and piping, including releases from spent solvent tanks and equipment associated with acid neutralization systems. As regards the Philips Site, Philips Semiconductors, Inc. (Philips; formerly Signetics), operated a semiconductor manufacturing facility at the 811 East Arques Avenue property beginning in 1964. The manufacturing processes employed utilized various organic solvents (including TCE), acids, corrosives, and metals.

Chemicals of concern (COCs) for the OOU include 1,1-dichloroethane (1,1-DCA); 1,1-dichloroethene (1,1-DCE); cis-1,2-dichloroethene (cis-1,2-DCE); trans-1,2-dichloroethene (trans-1,2-DCE); Freon 113; 1,1,1-trichloroethane (1,1,1-TCA); TCE; tetrachloroethene (PCE); vinyl chloride; and chloroform. The depth to groundwater in the OOU ranges from 5-15 feet, with TCE concentrations in the OOU groundwater as high as 550 ug/L.

3. Site History

In August 2014, lead agency oversight responsibility for the Site was transferred from the State of California, Regional Water Quality Control Board, San Francisco Bay (Regional Board) to EPA Region 9. Prior to this transfer, the Regional Board was the lead agency overseeing the long-term cleanup activities at the Site. This was pursuant to the South Bay Multi-Site Cooperative Agreement and South Bay Ground Water Contamination Enforcement Agreement entered into by the Regional Board and EPA in May 1985.

Transfer of lead agency oversight responsibility occurred because EPA is in a better position to oversee the vapor intrusion evaluations necessary at the Site and amend the 1991 Record of Decision (ROD), see below, which did not address the vapor intrusion (VI) pathway.

4. Vapor Intrusion Remedial Investigation/Feasibility Study

A VI Remedial Investigation/Feasibility Study (RI/FS) is underway in the OOU to assess the groundwater-to-indoor air VI pathway, with TCE the primary focus of the evaluation. The purpose of the RI/FS is to evaluate whether the VI pathway is complete in any buildings within the OOU, to identify any actual or potential unacceptable exposures due to vapor intrusion, and finally to identify and implement appropriate mitigation activities, including time-critical removal actions, where warranted.

Outreach activities in December 2014 to affected residents in the Duane/San Miguel Avenue neighborhood included preparation and dissemination of letters and fact sheets to the school community and general public, coordination with the City of Sunnyvale and Sunnyvale Public School District for a public meeting, a mailer (including fact sheets and access request forms) to over one thousand tenants and property owners, a door-to-door

outreach effort to over 400 households, and ongoing follow-up activities to schedule testing with the school administrations and local residents.

The VI study area includes the 4 neighborhood schools and 414 households, inclusive of single-family residences, duplexes, and all ground-floor apartment units of multi-family complexes. Indoor air sampling began on January 22, 2015 and is currently ongoing, utilizing both passive diffusion samplers and evacuated canisters for schools (8-, 10-, 12-, 24-hour and 7-day samples) and passive diffusion samplers for residences (24-hour and 7-day samples).

5. Other State and Federal Investigations

VI investigations at the Site by Philips were initiated following a request from the Regional Board in March 2003. Soil gas sampling was conducted at two school campuses and in the nearby residential area where the highest groundwater VOC concentrations within the OOU are present. Since soil gas concentrations were elevated in certain areas, indoor air sampling was subsequently conducted at these two schools and annually thereafter at the school overlying the highest VOC concentrations to assess levels of VOCs in indoor air due to vapor intrusion.

On December 3, 2013 EPA Region 9 issued supplemental guidelines on VI evaluations and indoor air TCE short-term inhalation exposures for the Site and other NPL sites within the South San Francisco Bay area (“South Bay Sites”), recommending that vapor intrusion evaluations:

- (a) follow a “multiple-lines-of-evidence” approach as outlined in EPA’s 2013 Office of Solid Waste and Emergency Response (OSWER) *External Review Draft – Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from the Subsurface to Indoor Air*;
- (b) include multiple rounds of sampling, including winter heating season sampling and crawlspace sampling for residences;
- (c) include heating, ventilation, and air conditioning (HVAC) system “on” and “off” sampling at commercial-type buildings;
- (d) include source (“on-property”) building sampling; and
- (e) include all buildings overlying 5 µg/L TCE shallow-zone groundwater contamination (South Bay Sites TCE Groundwater Screening Level).

On December 19, 2013 EPA Region 9 issued additional technical comments specific to VI evaluations at the Site.

On July 9, 2014, EPA Region 9 issued a technical assessment and recommendations regarding action levels, investigation approaches and response measures to address “inhalation exposures to trichloroethylene (TCE) in indoor air from the subsurface vapor intrusion pathway.”

In May 2014 Philips submitted a workplan for indoor air sampling at 3 schools located within the OOU. Following additional discussions with EPA and the transfer of lead agency oversight responsibility for the Site in August 2014, Philips submitted a revised workplan in January 2015 which added indoor air sampling at the fourth neighborhood school and all residences overlying 5 µg/L TCE shallow-zone groundwater contamination in the OOU. This VI evaluation is part of the RI/FS discussed above and is currently in progress.

6. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

Based on information available at this time, the principal hazardous substances or pollutants or contaminants that are being released or for which there is a threat of release include, but are not necessarily limited to, the list below.

<u>Hazardous Substances or Pollutants or Contaminants</u>	<u>Media</u>
VOCs, including TCE	Groundwater, indoor air, soil gas

Sampling results indicate TCE to be present in *groundwater* at levels which exceed the EPA Maximum Contaminant Level (MCL) for drinking water and the EPA Region 9 South Bay Sites TCE groundwater screening level of 5 µg/L. Additionally, sampling results indicate TCE to be present in *indoor air* at levels which exceed the EPA Regional Screening Levels (RSLs) of 0.48 and 2 micrograms per cubic meter (µg/m³) and the EPA Region 9 Interim TCE Indoor Air Residential Urgent Response Action Level of 6 µg/m³ and at levels in *soil gas* which exceed the EPA Vapor Intrusion Screening Levels (VISLs) of 4.8 and 21 µg/m³ (see below). **This data demonstrates that a completed pathway for vapor intrusion is occurring at the Site.**

Groundwater:

Hazardous Substances or Pollutants or Contaminants	Highest Concentration Observed in the OOU	EPA MCL & South Bay Sites TCE Groundwater Screening Level
TCE	550 µg/L	5 µg/L

Indoor Air:

Hazardous Substances or Pollutants or Contaminants	Highest Concentration Observed in the OOU	EPA Long-Term Screening Level ²	EPA Short-Term Screening Level (Accelerated – Response in Weeks) ³⁴	EPA Short-Term Screening Level (Urgent – Response in Days)
TCE	16 µg/m ³ [School Building]	0.48 µg/m ³	2 µg/m ³	6 µg/m ³

Soil Gas:

Hazardous Substances or Pollutants or Contaminants	Highest Concentration Observed in the OOU	EPA Long-Term Screening Level ⁵	EPA Short-Term Screening Level
TCE	13,000 µg/m ³	4.8 µg/m ³	21 µg/m ³

² EPA Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites, Carcinogenic Screening Level, Target Risk 1.0E-6 Excess Lifetime Cancer Risk, available at <http://www.epa.gov/region9/superfund/prg/> accessed Feb 2015.

³ EPA RSL for Chemical Contaminants at Superfund Sites, Noncarcinogenic Screening Level, Hazard Index=1, available at <http://www.epa.gov/region9/superfund/prg/> accessed Feb 2015.

⁴ EPA Region 9 Interim TCE Indoor Air Response Action Levels – Residential and Commercial TCE Inhalation Exposure from Vapor Intrusion, Accelerated and Urgent Response Action Levels, available at <http://www.epa.gov/region9/triplesite> accessed Feb 2015.

⁵ EPA Vapor Intrusion Screening Level (VISL) Calculator, Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration, available at <http://www.epa.gov/oswer/vaporintrusion/guidance.html> accessed Feb 2015.

7. NPL Status

EPA's 1991 Record of Decision (ROD) included four operable units: the AMD 901/902 Site, the TRW Site, the Philips Site, and the OOU. The AMD 901/902 and TRW Sites are listed on the National Priorities List (NPL), however the Philips Site is not currently on the NPL. EPA proposed its listing in 1989 but decided against it at that time because it was being regulated as a Resource Conservation and Recovery Act (RCRA) site. The Philips Site is now a closed RCRA facility and regulated as a Superfund Site. Plumes from the three sites and the OOU are comingled.

B. Other Actions to Date

1. Previous Actions

In 1984 and 1989 the Regional Board issued Cleanup and Abatement Orders, requiring Advanced Micro Devices (AMD), Signetics, and TRW Microwave to develop a joint plan to prevent the further migration of contaminants.

At the AMD 901/902 Site, underground acid neutralization system tanks and contaminated soil were removed and groundwater extraction and treatment was performed.

At the TRW Site, spent solvent underground tanks and associated equipment and contaminated soil were removed, following which soil vapor extraction (SVE) and groundwater extraction and treatment were conducted.

Subsequent to the shut-down of the AMD 901/902 and TRW Site groundwater extraction systems, implementation of in-situ bioremediation programs was initiated at these two sites (in 2000 at TRW and in 2002 at AMD 901/902) to accelerate the timeframe for cleanup of the groundwater.

Initial investigation at the Philips Site began in February 1982 with the detection of a leak in an underground waste solvent storage tank at the 811 East Arques Avenue property. The presence of contaminated soil was verified during the tank removal. Following additional investigation at this location and at the other Philips facilities (located at 440 North Wolfe Road, 815 and 830 East Arques Avenue and Stewart Drive) this waste solvent storage tank and a wastewater neutralization tank area (both at the 811 East Arques Avenue property) were identified as the principle source of contaminants from the Philips Site and impacting downgradient areas within the OOU.

Since 1986, Philips has operated a groundwater extraction, treatment and monitoring program to monitor and control the migration of TCE and other VOCs in the groundwater beneath the Site, including within the OOU.

2. Current Actions

Currently, a total of 29 groundwater extraction wells are operating within the OOU. Groundwater extracted from these sources is treated by a combination of ultraviolet (UV) oxidation and air stripping and discharged in accordance with state and federal requirements.

In-situ bioremediation work continues at the AMD 901/902 and TRW Sites, and additional former source area removal work is being conducted at the TRW Site, prior to the final build-out of the on-site building.

C. State and Local Authorities' Roles

1. State and Local Actions to Date

Until August 2014 when lead agency oversight responsibility for the Site was transferred to EPA Region 9, the Regional Board was the lead agency overseeing the long-term cleanup activities at the Site. EPA continues to coordinate with the Regional Board by providing VI technical expertise and assisting in indoor air sampling at 8 other State-lead South San Francisco Bay NPL sites.

EPA also coordinates closely with the City of Sunnyvale regarding the VI evaluation activities at the Site, and meets regularly with the City to keep officials apprised of Site progress and jointly plan ongoing community outreach activities.

2. Potential for Continued State/Local Response

EPA expects to continue its supportive relationship with the Regional Board on the South San Francisco Bay NPL sites, including coordinating with the Regional Board on VI evaluations and Five Year Reviews at nearby sites in Sunnyvale, including the Advanced Micro Devices 915 DeGuigne Drive Superfund Site, the National Semiconductor Superfund Site, the Monolithic Memories Superfund Site, and the Intersil/Siemens Superfund Site.

The City of Sunnyvale is expected to continue to coordinate with EPA on community outreach efforts.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site present a release, or potential threat of release, of a CERCLA hazardous substance threatening to public health, or welfare, or the environment based on the factors set forth in the NCP, 40 CFR § 300.415(b)(2). These factors include:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; [§300.415(b)(2)(i)];

TCE is currently considered to be carcinogenic to humans by EPA. Under the current toxicity assessment, the concentration of TCE in air that is associated with an excess lifetime cancer risk of 1×10^{-6} (1 in one million) is $0.48 \mu\text{g}/\text{m}^3$ for residential exposure.

According to EPA the non-cancer effects of concern for TCE exposure include effects on the liver, kidneys, immune system, central nervous system, male reproductive system, and developing fetus. Under a residential exposure scenario a non-cancer hazard index of 1 is equal to a TCE exposure concentration of $2 \mu\text{g}/\text{m}^3$.

Sampling data in the OOU indicated that vapor intrusion from TCE is occurring, and a completed pathway exists. EPA's Integrated Risk Information System (IRIS) 2011 toxicity assessment concluded that TCE exposure poses potential human health hazards for noncancer toxicity to multiple organs and systems and to the developing fetus, including fetal cardiac malformations. This and other findings in the IRIS assessment of TCE indicates that women in the first trimester of pregnancy are one of the most sensitive populations to TCE inhalation exposure. For fetal cardiac malformations, a specific developmental effect, the critical period for exposure is considered to be the approximate 3-week period in the first trimester of pregnancy during which the heart develops.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

The results of prior indoor air sampling indicate the presence of TCE at the soil air interface and the migration of TCE into indoor air (vapor intrusion). The current expanded indoor air initiative, which includes crawlspace sampling, will indicate whether unacceptable exposures due to vapor intrusion are occurring or may have the potential to occur in the future. Where actual or potential unacceptable exposures are detected, mitigation of this exposure pathway will be appropriate.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)];

The current indoor air evaluation includes multiple rounds of indoor air and preferential pathway sampling, including cold weather sampling events, to evaluate whether higher indoor-outdoor temperature differentials (during the winter heating season) amplify the “stack effect” and result in higher levels of VOCs in indoor air due to vapor intrusion.

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)];

The Regional Board recommended to EPA that site oversight be transferred from the Regional Board to EPA Region 9 because the State does not have the resources to oversee the expanded vapor intrusion investigation at the Site, to fully characterize the extent of vapor intrusion in the OOU, and to conduct and/or oversee mitigation activities, where appropriate.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed Action Description

EPA evaluates indoor air quality by comparing the concentrations of chemicals detected to levels determined by EPA to be protective of human health for long-term and short-term exposure. Within this study area, for cancer causing chemicals, EPA considers levels to be protective if they fall within the *range* of a 1 to 100 in a million increased lifetime cancer risk. The level that falls into the most protective end of the risk range – 1 in a million increased lifetime risk – is what is used as the *screening level* for any particular chemical.

EPA’s indoor air *long-term screening level* for TCE is 0.48 $\mu\text{g}/\text{m}^3$. EPA’s *short-term or non-cancer screening level* for TCE is 2.0 $\mu\text{g}/\text{m}^3$. Thus, for TCE, the Superfund protective risk range for residential exposure becomes 0.48 to 2 $\mu\text{g}/\text{m}^3$.

In general, exposures to media concentrations **below** the protective risk range are not considered to pose a significant or actionable risk; exposures to concentrations **within** the

protective risk range may merit additional consideration or investigation; and exposures to concentrations **above** the protective risk range would warrant implementation of removal mitigation actions on an expedited basis.

Early or interim response actions (mitigation measures) authorized by this Action Memorandum may include, as discussed further below, increasing building pressurization and/or ventilation, sealing potential conduits where vapors may be entering the building, treating indoor air (carbon filtration, air purifiers), and temporarily relocating occupants. Mitigation measures will be based upon site-specific conditions, which will determine the best approach.

Mitigation measures in buildings with slab-on-grade foundations (for example, some school buildings and certain residential units) may include the following steps:

- a. Occupants of each residential unit will be offered relocation to a nearby hotel while mitigation systems are installed. This will allow work crews continuous access to residences thereby reducing the costs and the time required to install the mitigation systems.
- b. Household items will be moved to provide access for three to four sub-slab monitoring ports to be drilled through the concrete in the corners of each residence.
- c. One or more six inch diameter concrete cores will be advanced through the slab, near the middle of the residence, usually in a closet.
- d. Any sub-slab material that can be removed by hand through the six inch holes will be pulled out to optimize the extent of vacuum achieved at each hole.
- e. Four inch PVC pipe will be grouted into each hole and then plumbed to carry the pipe out the side of the building to an in-line Fantech 220 radon mitigation fan (or one similar), and to an exhaust riser well above the roof line.
- f. Soffits may be constructed to conceal the pipe runs behind painted and textured drywall.
- g. The fans will be energized on the existing electrical service to the residence, or, where necessary, new electrical service (for example, a sub-panel) will be provided.
- h. After installation of the systems, sub-slab pressure measurements will be obtained at the pressure monitoring ports in each residence to confirm the extent and

strength (minimum of 10 Pascal of vacuum at each point) of the vacuum field created by the system.

Mitigation measures in buildings with crawlspace foundations (for example, some school buildings and certain single-family residences and duplexes) may include the following steps:

- a. Occupants of each residential unit will be offered relocation to a nearby hotel while mitigation systems are installed. This will allow work crews continuous access to residences thereby reducing the costs and the time required to install the mitigation systems.
- b. Subject to the safety and adequacy of access, a suitable plastic membrane will be installed to cover the exposed soils under the residence.
- c. Four inch PVC pipe will be placed through the membrane, sealed to the membrane at the point of entrance through the membrane, and then plumbed to carry the pipe out the side of the building to an in-line Fantech 220 radon mitigation fan (or one similar) and to an exhaust riser well above the roof line.
- d. The fans will be energized on the existing electrical service to the residence, or, where necessary, new electrical service (for example, a sub-panel) will be provided.

Following mitigation system installation, confirmation indoor air sampling will be conducted to demonstrate the success of the mitigation system. Ambient (outdoor) air samples will also be collected and analyzed using the same methods as indoor air.

A building-specific Operations, Maintenance and Monitoring Plan (OM&M Plan) will be prepared and submitted to each occupant and property owner (where different) for their approval, which will include procedures for ongoing maintenance and periodic monitoring to confirm continued operation of the system.

Additionally, EPA will work with residents to repair response-related damage to floors and foundations disturbed by site activities (for example, by providing residents opportunities to choose flooring types and designs, such as carpeting, tile, wood, etc.).

2. Community Relations

EPA will continue to coordinate with the City of Sunnyvale and the school administrations on community outreach activities at the Site.

3. Contribution to Remedial Performance

The response actions proposed in this Action Memorandum are designed to mitigate the threats to human health and the environment posed by the Site. The actions taken at the Site would be consistent with the long-term remedy and would not impede any future responses or changes to the larger remedy to control the source and reduce the extent of the contamination.

4. Description of Alternative Technologies

Alternative technologies are not considered for the proposed response action.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines applicable requirements as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site.

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that, while not “applicable” to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Only substantive requirements of the environmental or facility siting laws can be ARARs. Administrative requirements, such as consultation with administrative agencies, securing of permits, reporting, and record keeping are not ARARs. This removal action will, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental, state environmental, or facility siting laws.

State of California ARARs

State of California’s San Francisco Bay Area Air Quality Management District
8-47-301 Emission Control Requirement, Specific Compounds

Any air stripping and soil vapor extraction operations which emit benzene, vinyl chloride, perchloroethylene, methylene chloride and/or trichloroethylene shall be vented to a control device which reduces emissions to the atmosphere by at least 90 percent by weight.

Federal ARARs – Action-Specific:

40 CFR Part 262

Standards Applicable to Generators of Hazardous Waste

40 CFR Part 264

Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

Hazardous Waste Regulations – RCRA Subtitle C

6. Other Requirements

Comprehensive Environmental Response, Compensation & Liability Act (CERCLA)
42 U.S.C. 9621(d)(3), CERCLA Off-Site Disposal Rule, 40 CFR 300.440,
OSWER Directive 9347.3-BFS

CERCLA waste transferred off-site may only be placed in a facility that operates in compliance with the Resource Conservation and Recovery Act (RCRA). The facility to which excavated soil and any other hazardous wastes will be sent must be among the list of approved receiving facilities pursuant to RCRA.

U.S. Department of Transportation (DOT) Hazardous Material Transportation Rules
22 CCR 66262.20, 66262.22, and 66262.23; 22 CCR 66262.30 through 262.33

Off-site transportation of hazardous materials will be governed by U.S. DOT regulations. The substantive provisions of the regulations apply to management of hazardous materials onsite.

29 CFR Parts 1910, 1926, and 1904
OSHA Health and Safety Regulations

7. Project Schedule

Indoor air sampling began in January 2015 and is currently ongoing, pending the access request process with affected residents and property owners.

The duration of any necessary vapor intrusion mitigation removal activities is not expected to exceed six months from the time they begin, weather permitting.

B. Estimated Costs

The basis for costs are direct experience at other sites in Region 9, using existing contracts in place.

COST CATEGORY		CEILING
<i>REGIONAL REMOVAL ALLOWANCE COSTS⁶:</i>		
ERRS ⁷ Cleanup Contractor		\$500,000
Interagency Agreement		\$0
<i>OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE:</i>		
START ⁸ Contractor		\$900,000
Extramural Subtotal		\$1,400,000
Extramural Contingency	20%	\$280,000
TOTAL, REMOVAL ACTION CEILING		\$1,680,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of hazardous substances documented on-site, and the potential exposure pathways to on-site and visiting populations described above, actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response actions selected in this memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues with the Site identified at this time.

⁶ This cost will be driven by the selected option(s). Should longer term options need to be implemented, additional funding may be required.

⁷ ERRS = Emergency and Rapid Response Services

⁸ START = Superfund Technical Assessment and Response Team

VIII. ENFORCEMENT ... For Internal Distribution Only

The Enforcement Strategy is included in a separate Enforcement Memo.

The total EPA costs for this removal action based on full-time accounting practices that will be eligible for cost recovery are estimated to be \$ 1,680,000 (extramural costs) + \$ 50,000 (EPA intramural costs) = \$ 1,730,000 X 1.33 (regional indirect rate) = \$ 2,300,900⁹.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Triple Site in Sunnyvale, Santa Clara County, California. The proposed response action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. The removal project ceiling of \$ 1,680,000 is being requested at this time to allow EPA to implement the selected actions.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action due to the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants [§300.415(b)(2)(i)];

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)]; and

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)].

⁹ Direct Costs include direct extramural costs [\$ 1,680,000] and direct intramural costs [\$ 50,000]. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site specific costs [33% x \$ 1,730,000], consistent with the full accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

Because conditions at the Site meet the NCP criteria for a time-critical removal, I recommend that you approve the removal action proposed in this memorandum.

APPROVAL: 
John Lyons, Acting Assistant Director
Superfund Division

DATE: 2/18/15

DISAPPROVAL: _____
John Lyons, Assistant Director
Superfund Division

DATE: _____

Attachment:

Site Map



Legend

- Property Targeted for Indoor Air Sampling
- Approximate Offsite Operable Unit Boundary
- Approximate 5 µg/L Isocentration Contour TCE in "A" Aquifer Groundwater
- Parcel Outline and Associated Street Number(s)

U.S. Environmental Protection Agency
 Region 9
 (Pacific Southwest Office)

DRAFT
PARCEL MAP
THE COMPANIES OFFSITE OPERABLE UNIT
TRIPLE SITE
SUNNYVALE, CALIFORNIA

