4.8 HAZARDOUS MATERIALS

The environmental and regulatory settings for hazardous materials for both the construction and operation phases are included in this section. The BEP Alternative and SVRTP Alternative would involve construction within an urbanized area, where hazardous materials would be a concern due to past land uses and undocumented releases. Hazardous materials sources or waste sites within the SVRTC are discussed, along with a summary of data sources consulted and tests preformed.

4.8.1 METHODOLOGY

To evaluate the presence or potential presence of hazardous materials in the study area, qualitative assessments of known or potentially contaminated sites were performed in 2003, 2005, and 2008 (Earth Tech, 2003 and Iris Environmental, 2008). These assessments primarily consisted of a review of regulatory agency databases. Federal, state, and local regulatory agency databases were reviewed to identify sites near the study area having potential or known hazardous materials releases into soil and groundwater. The databases reviewed include:

- United States Environmental Protection Agency (USEPA) National Priorities List (NPL) – This list contains the names of sites that are in the NPL (Superfund) Program for priority cleanup.
- USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List – The CERCLIS List contains data on potentially hazardous waste sites that have been reported to USEPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).
- USEPA CERCLIS – No Further Remedial Action Planned (CERCLIS-NFRAP) List – This list contains data on sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration.
- USEPA Superfund Consent Decrees (CONSENT) List – This list contains major legal settlements that establish responsibility and standards for cleanup at NPL Superfund sites.
- USEPA Record of Decision (ROD) List – ROD documents mandate a permanent remedy at an NPL site and contain technical and health information.
- USEPA Liens (NPL Liens) List – This is a list of sites prepared by USEPA to file lien against the real property owner in order to recover remedial action expenditures.

- USEPA Toxic Chemical Release Inventory System (TRIS) – TRIS identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities.
- USEPA Toxic Substances Control Act (TSCA) List – This list identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory List.
- Emergency Response Notification System (ERNS) – ERNS records and stores information on reported releases of oil and hazardous substances. The source of this database is USEPA.
- Polychlorinated Biphenyl (PCB) Activity Database System (PADS) – PADS identifies generators, transporters, commercial stores, and/or brokers, and disposers of PCBs who are required to notify USEPA of such activities.
- Resource Conservation and Recovery Act (RCRA) Corrective Action Activity (CORRACTS) List – The CORRACTS database is a list of handlers with RCRA corrective action activity.
- RCRA Treatment, Storage, and Disposal (TSD) List – This list contains selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by RCRA.
- RCRA Small Quantity and Large Quantity Generator (SQG and LQG) Lists – These lists contain selected information on sites that generate hazardous waste as defined under RCRA.
- RCRA Administrative Action Tracking System (RAATS) – The RAATS List contains records based on enforcement actions issued under RCRA pertaining to major violators, and includes administrative and civil actions brought by USEPA.
- USDOT Hazardous Materials Incident Report System (HMIRS) – HMIRS contains hazardous materials spill incidents reported to the USDOT.
- Nuclear Regulatory Commission Materials Licensing Tracking System (MLTS) – This is a list of sites which possess or use radioactive materials.
- California Department of Toxic Substances Control (DTSC) Cal-Sites List – This database contains known and potential hazardous substance sites.
- Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions (SMBRP) List - This list includes sites cleaned up under DTSC oversight, and land use restrictions that are active. Some sites have multiple land use restrictions.

- Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction (HWMP) List - The DTSC Hazardous Waste Management Program (HWMP) is a list of current or former hazardous waste facilities that have recorded land use restrictions at the local county recorder's office. These restrictions are based on the presence of hazardous substances that remain on site after a facility (or part of a facility) has been closed or cleaned up.

- Voluntary Cleanup Program (VCP) – This list contains properties that have DTSC voluntary cleanup program agreements.

- EnviroStor – This is a DTSC managed database identifying sites that have known contamination or sites for which there may be reason to investigate further. It also identifies facilities that are authorized to treat, store, dispose, or transfer hazardous waste.

- Hazardous Waste Information System (HAZNET) – This database contains information on facilities that ship hazardous wastes by obtaining data from hazardous waste manifests received each year by the DTSC.

- California EPA/Office of Emergency Information 'CORTESE' Hazardous Waste and Substances – This database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic materials identified through the abandoned site assessment program, Underground Storage Tanks (UST) sites with a reportable release, and all solid waste disposal facilities from which there is known contaminant migration.

- State Water Resources Control Board (SWRCB) Proposition 65 List – These records contain facility notifications about releases that could impact drinking water and thereby expose the public to a potential health risk.

- SWRCB Leaking Underground Storage Tank (LUST) List – This database contains an inventory of reported leaking UST incidents.

- Registered Aboveground Storage Tank (AST) and Underground Storage Tank (UST) Lists – These data come from the SWRCB's Hazardous Substance Storage Container Database.

- Regional Water Quality Control Board (RWQCB) Spills, Leaks, Investigation and Cleanup Cost Recovery (CA SLIC) List – This database includes information about spills, leaks, and cleanup sites.

- List of Permitted Solid Waste Landfills or Transfer Stations (SWLF) – These records contain an inventory of solid waste disposal facilities and landfills.

- Solid Waste Information System (SWIS) – this database contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

- Facility Index System (FINDS) – FINDS contains both facility information and "pointers" to other federal sources of information that contain more detail.

- California Hazardous Material Incident Report (CHMIRS) – This database system contains information on reported hazardous material incidents, i.e., accidental releases or spills.

From those release sites found within ¼-mile of the BEP Alternative and SVRTP Alternative (referred to as the study area in this section), additional regulatory agency documents were reviewed to identify sites having either known contamination extending beneath the proposed alternatives or a high potential for affecting soil or groundwater beneath the alternatives. Information on these release sites was obtained primarily from the "Geotracker" (SWRCB) database and the case status reports prepared by SCVWD available on the agency website.

In addition to the qualitative assessment, a quantitative assessment of physical samples and chemical analysis along 9.9 miles representing the total BEP Alternative alignment and a portion of the SVRTP Alternative alignment was conducted. The testing was conducted to determine the presence of hazardous materials typical of railways in the UPRR ROW from the planned Warm Springs Station to the east tunnel portal. This assessment included the collection and chemical analysis of 179 soil or railroad ballast[1] samples from 44 locations along the 9.9 miles of the proposed BART alignment. Ten groundwater samples, consisting of two samples from wells and eight grab samples from boreholes, were collected and analyzed along this segment. Aquifer water quality testing in two locations, one adjacent to the planned underpass at Kato Road and one adjacent to the planned retained cut at Hostetter Road, were conducted. Finally, existing aquifer testing data just north of Montague Expressway was evaluated. The results are discussed in Section 4.8.3.

It should be noted that additional sampling and analysis will be conducted during subsequent engineering phases to determine the potential effects of contamination on both construction and operation as discussed in Section 5.8, Hazardous Materials.

[1] Ballast is the trackbed, often made up of small angular rocks such as gravel, upon which railroad ties are laid. Ballast serves to facilitate drainage, create and even surface, and hold the tracks in place as a train passes by.

4.8.2 DESCRIPTION OF POTENTIAL CONTAMINANTS

Aerially Deposited Lead

Up until the 1990s, lead-based additives in gasoline were expelled from engine exhausts onto the adjacent road shoulders and medians. Consequently, lead was aerially deposited as a particulate. With the heavy traffic historically present in an urbanized area such as San Jose, elevated concentrations of lead are likely to be found in near-surface soil where roadways cross or are adjacent to the study area.

Lead exposure can affect the nervous system, cause small increases in blood pressure, particularly in middle-aged and older people, and can cause anemia (Agency for Toxic Substances and Disease Registry, 2007). Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production. The USEPA has determined that lead is a probable human carcinogen.

Volatile Organic Compounds

Volatility refers to the speed at which a chemical element or chemical compound evaporates. Volatile Organic Compounds (VOCs) are chemicals that evaporate easily at room temperature. The term “organic” indicates that the compounds contain carbon.

Volatile organic compounds could occur in groundwater in heavily urbanized areas. The migration of contaminant plumes from unidentified sources, which may or may not be directly adjacent to the study area, may result in groundwater containing relatively low levels of VOCs from gasoline and gasoline constituents, MTBE, and chlorinated solvents such as PCE and TCE.

VOCs are emitted as gases from certain solids or liquids (USEPA, 2007). The extent and nature of the health effects from VOCs will depend on many factors including level of exposure and length of time exposed. When people are exposed to VOCs in enclosed poorly ventilated spaces over long periods of time, health effects can occur. Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the possible immediate symptoms. VOCs may cause damage to liver, kidney, and central nervous system. Some VOCs are known to cause cancer in humans.

Pesticides

Historical land use in Fremont, Milpitas, and the northern part of San Jose was predominantly agricultural, mainly orchards. Such use suggests that soil along the SVRTC may be affected with pesticides. Spraying of pesticides typically results in localized areas with relatively low concentrations in near-surface soil.

The health effects of pesticides depend on the type and amount of pesticide that a person is exposed to. Some pesticides can be carcinogens (USEPA, 2006). Overtime pesticides in the soil can break down, leach into the groundwater, turn into a gaseous state, bind with the soil, runoff into the surface water, or become absorbed in plants or microorganisms. Pesticide residues in the soil become a hazard to human health when levels become high enough. This is most likely to happen indoors in poorly ventilated areas.

Polychlorinated Biphenyls

PCBs are a group of synthetic organic chemicals that were manufactured in the U.S. from 1929 to 1977. The USEPA classifies PCBs as persistent, bioaccumulative, and toxic compounds that are likely human carcinogens, endocrine disruptors, and immune system disruptors. Throughout the 20th century, PCBs were used in hundreds of manufacturing and industrial applications and were most commonly found within electrical equipment. There is potential for PCBs to be found in soil along the SVRTC due to railroad operations and/or electrical transformers and substations associated with commercial and industrial activities, particularly in the urbanized areas of San Jose.

Arsenic

Arsenic occurs naturally in soil and minerals and it therefore may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching. Industrial uses of arsenic include copper or lead smelting, wood treating, or pesticide application. Exposure can occur from ingesting small amounts present water, breathing air containing arsenic or living in areas with unusually high natural levels of arsenic in rock, or working in a job that involves arsenic production or use.

Exposure to lower levels of inorganic arsenic can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet (Agency for Toxic Substances and Disease Registry, 2007). Exposure to higher than average levels of arsenic occurs mostly in the workplace, near hazardous waste sites, or in areas with high natural levels. Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs. At high levels, inorganic arsenic can cause death.

Metals

Cadmium

Exposure to cadmium happens mostly in the workplace where cadmium products are made (battery manufacturing, metal soldering, or welding). The general population can be exposed from drinking contaminated water. People can also be exposed by breathing contaminated air near the burning of fossil fuels or municipal waste. Breathing high levels of cadmium severely damages the lungs and can cause death (Agency for Toxic Substances and Disease Registry, 2007). Eating food or drinking water with very high levels severely irritates the stomach, leading to vomiting and

diarrhea. Long-term exposure to lower levels of cadmium in air, food, or water leads to a buildup of cadmium in the kidneys and possible kidney disease. Other long-term effects are lung damage and fragile bones. The Department of Health and Human Services (DHHS) has determined that cadmium and cadmium compounds may reasonably be anticipated to be carcinogens.

Selenium

Selenium dust can enter the air from burning coal and oil which will eventually settle over the land and water. Selenium also enters water from rocks and soil, and from agricultural and industrial waste. Some selenium compounds will dissolve in water, and some will settle to the bottom as particles. Insoluble forms of selenium will remain in soil, but soluble forms are very mobile and may enter surface water from soils.

Selenium is a trace mineral needed in small amounts for good health. The general population is exposed to very low levels of selenium in air, food, and water. Exposure to much higher levels can result in neurological effects and brittle hair and deformed nails (Agency for Toxic Substances and Disease Registry, 2007). People working in or living near industries where selenium is produced, processed, or converted into commercial products may be exposed to higher levels of selenium in the air. People living in the vicinity of hazardous waste sites or coal burning plants may also be exposed to higher levels of selenium. Occupational inhalation exposure to selenium vapors may cause dizziness, fatigue, irritation of mucous membranes, and respiratory effects.

Copper

Copper is a metal that occurs naturally in the environment, and also in plants and animals. Low levels of copper are essential for maintaining good health. High levels can cause harmful effects such as irritation of the nose, mouth and eyes, vomiting, diarrhea, stomach cramps, nausea (Agency for Toxic Substances and Disease Registry, 2007). Very-high doses of copper can cause damage to your liver and kidneys, and can even cause death. Humans may be exposed to copper from breathing air, drinking water, eating foods, or having skin contact with copper, particulates attached to copper, or copper-containing compounds.

Zinc

Zinc is a naturally occurring element. Low levels of zinc are essential for maintaining good health and small amounts of zinc are present in food and water. Exposure to high levels of zinc can be harmful and can cause stomach cramps, anemia, and changes in cholesterol levels (Agency for Toxic Substances and Disease Registry, 2007). Inhaling large amounts of zinc (as dusts or fumes) can cause a specific short-term disease called metal fume fever. These effects occur mostly from eating food, drinking water, or breathing workplace air that is contaminated.

Once zinc reaches the soil, depending on the type of soil, some zinc compounds can move into the groundwater and into lakes, streams, and rivers. Most of the zinc in soil stays bound to soil particles and does not dissolve in water.

Total Petroleum Hydrocarbons

Total petroleum hydrocarbons (TPH) is a term used to describe a large family of several hundred chemical compounds that originally come from crude oil (Agency for Toxic Substances and Disease Registry, 2007). Crude oil is used to make petroleum products. TPH is a mixture of chemicals, but they are all made mainly from hydrogen and carbon, called hydrocarbons.

TPH may enter the environment through accidents (spills or leaks), from industrial releases, or as byproducts from commercial or private uses (Agency for Toxic Substances and Disease Registry, 2007). In water, some TPH compounds float on the water and form surface films, while others sink to the bottom sediments. Bacteria and microorganisms in the water may break down some TPH compounds while those in the soil may stay there for a long time.

Everyone is exposed to TPH from many sources especially breathing air at gasoline stations, using chemicals at home or work, or using certain pesticides (Agency for Toxic Substances and Disease Registry, 2007). Exposure can occur from drinking water contaminated with TPH, working in occupations that use petroleum products, living in an area near a spill or leak of petroleum products or touching soil contaminated with TPH.

Health effects vary based on the amount of exposure and the type of TPH compound present (Agency for Toxic Substances and Disease Registry, 2007). Some TPH compounds can affect the central nervous system. TPH compounds can cause effects on the blood, immune system, lungs, skin, and eyes. The International Agency for Research on Cancer (IARC) has determined that one TPH compound (benzene) is carcinogenic to humans. IARC has determined that other TPH compounds (benzo[a]pyrene and gasoline) are probably and possibly carcinogenic to humans.

Methyl Tert-Butly Ether

Methyl tert-butyl ether (MTBE), a VOC, is a flammable liquid which is used as an additive in unleaded gasoline. MTBE may be broken down quickly in the air by sunlight and quickly evaporates from open containers and surface water, so it is commonly found as a vapor in the air. Small amounts of MTBE may dissolve in water and get into groundwater where it can remain for a long time. MTBE may stick to particles in water, which will cause it to eventually settle to the bottom sediment.

People may come in contact with MTBE in the environment by breathing exhaust fumes while driving a car, breathing air near highways or in cities, drinking, swimming, or showering in water that has been contaminated with MTBE. There are no data on the

effects in people of drinking MTBE. Breathing MTBE may cause nausea, nose and throat irritation, dizziness, and mental confusion (Agency for Toxic Substances and Disease Registry, 2007).

4.8.3 CONTAMINANTS IDENTIFIED IN THE CORRIDOR

The following describes existing conditions in the area of proposed alignment, stations, and associated facilities in each city. The No Build Alternative is not discussed since this alternative would not result in the construction or operation of any structures.

Release Sites

Based on review of the various federal, state, and local databases 228 sites were identified, within ¼-mile of the proposed alignment, as having contaminant releases that are present or potentially present in subsurface soils and/or groundwater (Earth Tech, 2003 and Iris Environmental, 2008). These hazardous materials locations could affect the site of the BEP and SVRTP alternatives if hazardous materials were released from these locations into the soil or groundwater. It is important to note that releases of hazardous materials have not been recorded from all of the several hundred identified hazardous material locations.

From the 231 release sites found within ¼-mile of the alignment, database search and regulatory document review identified 21 sites having either known contamination extending beneath the SVRTC or a high potential for contamination affecting soil or groundwater beneath the SVRTC. Of these 21 sites, 11 sites have the potential to affect the BART alignment as identified in Table 4.8-1. The remaining 10 sites have received regulatory closures (or the monitoring programs for the sites have been completed). These sites are summarized in Table 4.8-2. Case closure does not ensure that the BART alignment would not be affected by residual contaminants from these sites.

Table 4.8-1: Hazardous Materials Release Sites Undergoing Remediation[a]

Name/Address of Contaminated Site	Approx. Distance to Project	Reported Contamination	Status of Remediation Activities
BP / Mobile Site #1115, 46840 Warm Springs Boulevard, Fremont	1,000 feet	High levels of total petroleum hydrocarbons (TPH) and MTBE in groundwater.	Monitoring 2000.
Beacon Station #593, 47700 Warm Springs Boulevard, Fremont	1,000 feet	High levels of MTBE in groundwater.	Monitoring 1999.
Cap Concrete Bedford Property, currently Scott Creek Business Park, 48870 Kato Road, Fremont	Adjacent upgradient	Moderate chlorinated hydrocarbon and TPH levels in groundwater and soil.	Monitoring 2001.

Name/Address of Contaminated Site	Approx. Distance to Project	Reported Contamination	Status of Remediation Activities
Prudential Overall Supply, 1429 North Milpitas Boulevard, Milpitas	600 feet	High TPH levels and detectable chlorinated solvents in groundwater.	Uncertain.
North American Transformer, 1200 Piper Drive, Milpitas	500 feet, but plume under BEP Alternative and SVRTP Alternative	Moderate chlorinated solvent levels in groundwater extend under BEP Alternative and SVRTP Alternative	Quarterly groundwater monitoring.
Former Ford Automobile Assembly Plant, 447 Great Mall Drive, Milpitas	Crosses BART alignment between STA 337+00 and 348+00	Groundwater is impacted with residual petroleum hydrocarbons	Site Management Plan– Former Ford Automobile Assembly Plant (March 1997)
Jones Chemical, 985 Montague Expressway, Milpitas	2,000 feet, but plume under BEP Alternative and SVRTP Alternative	Moderate chlorinated solvent levels in groundwater extend under BEP Alternative and SVRTP Alternative.	Groundwater extraction and semiannual monitoring ongoing.
1608 Las Plumas Ave, San Jose	Within Las Plumas Yard Option (BEP Alternative Only)	TPH and VOCs in groundwater, PCE found in soil borings.	On-going quarterly groundwater monitoring
1590 Las Plumas Ave, San Jose	Within Las Plumas Option (BEP Alternative Only)	TPH, BTEX in groundwater	On-going quarterly groundwater monitoring
Caltrans, 651 Harrison Street, Santa Clara	400 feet upgradient	Moderate TPH levels in soil and groundwater	Residual contamination still exists at the site
Santa Clara University, 455 El Camino Real, Santa Clara	400 upgradient	Moderate TPH levels in soil and groundwater	Residual contamination exists in soil and groundwater

[a] This table lists only those sites with the potential to affect the project.

Source: Earth Tech, 2003 and Iris Environmental, 2008.

Table 4.8-2: Hazardous Materials Release Sites with Regulatory Closure[a]

Name/Address of Contaminated Site	Approx. Distance to Project	Reported Contamination	Status of Remediation Activities
Mission Corporate Center, 440-1055 Mission Court, Fremont	1,000 feet	Moderate levels of chlorinated solvents in groundwater.	Received regulatory closure in 1999. SVRTC could still be affected by residual contaminants that have migrated beneath the corridor.
Mission Pipeline Corporation Yard, 1265 North Milpitas Boulevard, Milpitas	Adjacent, upgradient	Oil and grease in soil and groundwater	After source removal, received regulatory closure in 1996. SVRTC could still be affected by residual contaminants from the Corporation Yard.
Food Machinery Corporation (FMC), 333 West Brokaw Road, San Jose	Within Newhall Yard and Shops Facility	Petroleum hydrocarbons, metals, VOCs in soil and groundwater. TCE plume that may be beneath the Newhall Yard and Shops Facility.	Environmental investigations and corrective actions ongoing since 1996 including groundwater extraction and monitoring under RWQCB oversight.
Dap Incorporated, 520 Marburg Way, San Jose	Adjacent, upgradient	Moderate TPH and chlorinated solvent levels in groundwater may extend to subway portal.	After source removal, TPH case closed in 1998. Chlorinated solvents case is apparently still open.
1601 Las Plumas Ave, San Jose	Within Las Plumas Yard Option (BEP Alternative Only)	Oil and grease contamination in soil and groundwater and contaminants associated with the rail spur site	A site assessment and proposed remediation action were conducted for the hazardous materials spill, no further action was required by the HazMat Division of the San Jose Fire Dept. For the rail spur site on this property, no futher action was required by the RWQCB in 1994.
Della Maggiore Stone, 87 North 30th Street, San Jose	Within the Alum Rock Station area	Gasoline and methyl tertiary-butyl ether (MTBE)	Uncertain. The property owner was directed to perform a site investigation and report the results to the Santa Clara Department of Environmental Health (SCCDEH) per an order from the Santa Clara Valley Water District (Fuel Leak No. 14-74, SCWD ID# 07S1E04K04f letter dated August 25, 2005).

Name/Address of Contaminated Site	Approx. Distance to Project	Reported Contamination	Status of Remediation Activities
Monarch Leasing, formerly San Jose Steel, 195 North 30th Street, San Jose	At the Alum Rock Station site	Moderate TPH levels.	After source removal, received regulatory closure in 1997. Since Monarch Leasing is located above the planned location of the Alum Rock Station, it is likely that moderate petroleum hydrocarbon levels will be encountered during cut and cover station construction at this location. It is also likely that contamination would be encountered during construction of the parking garage at this site.
Kosich Construction Company / San Jose Arena, 555 West Santa Clara Street, San Jose	Adjacent, down-gradient	TPH source removed for Arena project. TPH in soil and groundwater probably extends into SVRTC.	Received regulatory closure in 1997. Residual gasoline is believed to be present in soil and groundwater below West Santa Clara Street (Wahler, 1990).
Blue's Roofing Company, 1181 Campbell Avenue, San Jose	500 feet	Moderate levels of TPH and MTBE in groundwater.	Groundwater monitoring program completed in 2002. SVRTC could still be affected by the residual contaminants from the site.
Old Simas Service Station, 3290 The Alameda, Santa Clara	400 feet upgradient	Moderate TPH-G and BTEX[b] in soil and groundwater.	Groundwater monitoring program completed in 2000. SVRTC could still be affected by the residual contaminants from the site.

[a] This table lists only those sites with the potential to affect the project.

[b] BTEX is Benzene, Toluene, Ethylbenzene, and Xylenes.

Source: Earth Tech, 2003 and Iris Environmental 2008.

In addition to known sites listed on Tables 4.8-1 and 4.8-2, there are two sites with potential hazardous materials releases. In May 1985, an employee at a facility located at 1551 Las Plumas Ave in San Jose, made a report to the Hazardous Materials department. It was alleged that about 6,000 gallons of gear oil, alcohol, motor oil, paint, and paint stripper were dumped into a drain on the property over a five-day period. No additional information is available about this potential release. At 520 Marburg Way, the Santa Clara County Department of Environmental Health conducted an inspection of

Trans Pak in July 2002 following an anonymous call indicating the facility had been dumping waste oil and antifreeze on the ground and had buried caulking building material and silicone with soil under asphalt. An inspection did not produce evidence of this burial.

The list of sites presented in Tables 4.8-1 and 4.8-2 includes known potential sources of soil or groundwater contamination near the SVRTC. Since limited testing has been preformed to date, it is possible that additional sites not included in Tables 4.8-1 and 4.8-2 have affected the soil or groundwater near the proposed alignment.

Fuel Pipelines

Identified subsurface utilities along the UPRR ROW include a Kinder Morgan Energy (formerly Santa Fe Petroleum) pipeline and a Chevron Pipeline Company high-pressure pipeline. These pipelines carry highly flammable liquids and may be potential sources of previous or future fuel leaks.

Contaminants from Railroad Use

The 9.9 miles extending from Fremont to Berryessa, encompassing BEP Alternative alignment and the first 9.9 miles of the SVRTP Alternative Alignment, currently consists of a railroad ROW. Hazardous materials commonly associated with railroad operations include petroleum products such as fuels and oils, metals, pesticides and herbicides, wood preservatives on railroad ties, and solvents.

From the late 1950s or early 1960s until 1982 or 1983, it was common railroad practice in California to use imported copper smelting slag (slag is the waste left after the melting of ores and the separation of metal from them) for track maintenance. Use of such material may cause contamination of soil, surface waters, and groundwater from metals (primarily arsenic and lead). Arsenic, copper, lead, and zinc were found in surface soil at the UPRR Yard in Sacramento, California, from which the source was primarily attributed to ‘slag tack ballast’ (California Department of Health Services and Agency for Toxic Substances and Disease Registry, 1999). At a separate UPRR site in East Palo Alto, California, arsenic concentrations were found in soil along an approximate 1-mile former UPRR rail spur, although the source of the arsenic was not identified (SF RWQCB, 2001). Since a substantial portion of the BART alignment would be located in the UPRR corridor, which has been an active railroad corridor since the late 1800s, there is potential for similar contamination along the SVRTC.

Additional sources of potential hazards to near surface soil and/or ballast from hazardous wastes that are likely to be found along the UPRR ROW due to former railroad practices include:

- The historical use of lead acid batteries as power sources for signals; and
- Leaking lubricants from trains, junction boxes, journal boxes, and wayside lubricators.

- The rail-truck tank car transfer facility near East Warren Avenue and the Milpitas and the UPRR Newhall Yards**.**

Results of testing for railroad-related chemicals such as metals and organic chemicals in soil, ballast, and groundwater are presented in the following discussion.

Metals in Soil and Ballast

Soil and ballast samples were analyzed for metals, with an emphasis on further characterizing arsenic and lead contamination as a primary concern. Findings were as follows:

- Shallow soil (less than 3 feet below the existing ballast) for the 9.9 miles of the alignment evidenced potential for total or extractable arsenic and lead levels that could result in classification of the soil as a California hazardous waste if disposal were required.

- Other metals such as cadmium, copper, selenium, and zinc were found at regulated levels between East Warren Avenue and Dixon Landing Road; however, these were at locations that already tended to exhibit elevated arsenic and/or lead levels.

Organic Chemicals in Soil and Ballast

Soil and ballast samples were analyzed for a broad suite of potential organic contaminants. Findings are as follows:

- Pesticides were found often in shallow soil (less than 3 feet below ground surface) at relatively low levels.

- Polychlorinated biphenyls (PCBs) were not detected in soil.

- Semi-volatile organic compounds (SVOCs) were detected once in soil at a low level.

- VOCs were found at one location near Hostetter Road at a depth of 5 feet below ground surface at relatively low levels.

- Petroleum hydrocarbons classified as motor oil were found often in shallow soil with levels reaching as high as 1,300 milligrams per kilogram. Petroleum hydrocarbons classified as gasoline or diesel were found infrequently in soil at relatively low levels.

Metals in Groundwater

Results of the testing for metal in groundwater are as follows:

- Arsenic and lead (either total or dissolved) were not detected in any of the samples.

- In general, other dissolved metals were either not detected or detected at low levels.

Organic Chemicals in Groundwater

Results of the testing for organic chemicals in groundwater are as follows:

- At several locations (Dixon Landing Road, Capitol Avenue, south of Hostetter Road, and Lundy Avenue/Sierra Road intersection), relatively low levels of VOCs (typically representing chemicals found as components of fuels) were detected. One detection of MTBE was found in groundwater near Dixon Landing Road.
- Gasoline-range and diesel-range petroleum hydrocarbons were found in groundwater near Lundy Avenue/Sierra Road and Capitol Avenue, respectively.
- Other organic chemicals such as PCBs, pesticides, and SVOCs were not detected in groundwater.

Superfund Sites

Based on the NPL database, one Superfund site was identified within two miles of the SVRTP Alternative*.* Lorentz Barrel and Drum Co., Inc., at 1515 South 10th Street in San Jose, is approximately 1.5 miles south of the SVRTP Alternative corridor. The site consists of the 6.72-acre former Lorentz Barrel & Drum facility, a limited amount of adjacent City of San Jose sidewalk property, and a shallow groundwater plume extending north of the site. Since 1981, several investigations revealed soil and groundwater contaminated with metals, VOCs, PCBs, and pesticides. Following the removal of drums, stored hazardous wastes, and highly contaminated soil, RODs were prepared in 1988 and 1993 to address groundwater remediation and removal of soil and debris (USEPA, 1988 and USEPA, 1993). In 1990, USEPA signed a consent decree requiring the design, construction, and operation of a shallow groundwater extraction and treatment system to address the VOC contamination of the groundwater beneath the site, as well as the plume that extended approximately 2,000 feet north. Based on this, the Lorentz Barrel & Drum site is not expected to affect this area of the alignment.

A second potential Superfund site was identified adjacent and upgradient from the Las Plumas Yard Option site. Based on CERCLIS-NFRAP listings, DAP Inc. at 530 Marburg Way was listed as NFRAP in September 1989, indicating that a possible Superfund case was opened for the facility; however it was not deemed appropriate by the USEPA. This does not indicate, however that no contamination or other release occurred at the site. No additional information is currently available regarding this listing.

Underground Storage Tanks Sites without Identified Releases

In addition to listed sites with known releases to soil and/or groundwater, there are at least 23 identified UST sites along the entire 16.1 miles of the proposed alignment that are not currently associated with known releases (Earth Tech, 2003 and Iris Environmental, 2008). Although no releases of hazardous wastes from these sites are documented, each of these UST sites represents a potential source for release of hazardous materials into soil and groundwater.

Large Quantity and Small Quantity Hazardous Waste Generators

From a search of the RCRA Facilities List, there are at least 44 LQGs and 257 SQGs of hazardous waste identified within ¼-mile of the 16.1 mile alignment. It should be noted that inclusion on the RCRA generator lists is not necessarily indicative of environmental impacts to soil or groundwater. If they are both generators and releasers, they are included in the 231 sites identified within ¼-mile of the proposed 16.1 mile alignment.

Listed Hazardous Materials Sites

The database search identified over 870 HAZNET sites near the 16.1 miles of the BART alignment. Inclusion on the HAZNET list is not necessarily indicative of environmental impacts to soil or groundwater since releases may not have occurred.

4.8.4 REGULATORY CONSIDERATIONS

The use, storage, and disposal of hazardous materials, including the management of contaminated soils and groundwater, are regulated by local, state, and federal laws. A description of agency involvement in management of hazardous materials is provided and a description of legal agreements and negotiations is discussed.

Federal Laws and Regulations

Resource Conservation and Recovery Act of 1976

RCRA establishes a comprehensive program for identifying and managing hazardous waste, including reporting and record-keeping requirements for generators, a manifest system for transporters of hazardous waste shipments, and standards for treatment and disposal facilities. The 1984 and 1986 amendments include additional reporting requirements, restriction of landfill disposal, and a program regulating underground storage tanks. RCRA regulates active facilities and does not address abandoned or historical sites.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

CERCLA provides a federal “Superfund” to clean up uncontrolled or abandoned sites contaminated by releases of hazardous substances, as well as accidents, spills, and other releases of pollutants and contaminants into the environment. CERCLA, as amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA), authorizes USEPA to order the parties responsible for a release to take action to remediate the contaminated site or to conduct remediation itself and recover the costs from responsible parties.

State Laws and Regulations

California Department of Toxic Substances Control

DTSC regulates hazardous materials under the authority of RCRA and the California Health and Safety Code. California legislation pertaining to the management of hazardous waste, codified in Title 22 of the California Code of Regulations (CCR), is equivalent to, and in some cases more stringent than corresponding federal laws and regulations. DTSC is responsible for the enforcement and implementation of hazardous waste laws and regulations.

Regional Water Quality Control Board, San Francisco Bay Region

The SVRTC is within the jurisdiction of the RWQCB, which is authorized by the Porter-Cologne Water Quality Control Act to implement water quality protection laws, including some federal water protection laws specified in CCR Title 26, Division 23, Subchapter 16. (See Section 4.15, Water Resources, for a discussion of the Porter-Cologne Water Quality Control Act.) When the quality of groundwater or surface waters of the state are threatened, the RWQCB has the authority to require investigations and remedial actions. The RWQCB provides oversight in cases that require permits, investigation, and/or remediation. Extraction of contaminated groundwater or dewatering and subsequent discharge into the storm drain system or waters of the state require a permit from RWQCB, whereas discharge into the sanitary sewer requires a permit from the local publicly owned treatment works.

Negotiations and Agreements

Negotiations between VTA and other parties (including the Union Pacific Railroad (UPRR), Department of Toxic Substances Control, and RWQCB) have clarified: 1) the requirements related to contaminated soil and ballast during construction; and 2) the responsible party liable for clean-up of contaminated sites.

The negotiations included the development of a Contaminant Management Plan, with sections on sampling, reuse, transportation, disposal, stockpiling, and air monitoring during construction (see Section 6.3.9 of Chapter 6, Construction). The plan also includes a site-specific risk assessment for soil and ballast reuse and “reuse standards” below which soil and ballast can be reused. The Regional Water Quality Control Board approved the Plan in a letter dated October 21, 2008. This letter is included in Appendix H. A discussion of the Contaminant Management Plan related to the reuse of soil and ballast is provided in Section 5.8, Hazardous Materials. A discussion of the plan applicable to the construction phase only is provided in Section 6.3.9 of the Chapter 6, Construction. This plan is available from VTA upon request.

VTA purchased much of the UPRR railroad right-of-way (ROW) in December 2002 for part of the proposed BART alignment. Under the purchase agreement between the two parties, VTA is identified as the primary responsible party for sites along the former UPRR corridor that require clean-up as a result of the actions of UPRR or its predecessors. However, VTA and UPRR would share clean-up costs in accordance with a cost reimbursement agreement.