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## 3.12 HAZARDOUS MATERIALS

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### Introduction

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This section provides an analysis of the potential for the Projects to expose persons or the environment to hazardous materials. Potential environmental impacts can be associated with the potential disturbance of contaminated soils or groundwater, if present in the Project Area, as well as risk of spills from increased future use, disposal, and transport of hazardous materials and hazardous wastes associated with project construction or operation. Specific topics presented in this section include the types of hazardous materials that would be handled and hazardous wastes that would be generated, known on-site contamination from historic uses, the regulatory setting applicable to such activities, and applicable health and safety policies and procedures. The information in this section was extracted from Phase I and II Environmental Site Assessments (~~ESA~~[ESAs](#)) prepared for properties within the Project Area, an Environmental Data Resources, Inc. (EDR) report, application ~~material~~[materials](#) provided by the Project sponsors, and information provided from regulatory agencies.

Issues/~~comments~~ identified in ~~response~~-letters [responding](#) to the Notice of Preparation (NOP) and [in written and oral comments received](#) during the Planning Commission and City Council scoping meetings for the Projects were considered in preparing this analysis. Comments relevant to hazardous materials included comments from the Department of Toxic Substances Control (DTSC) and the Santa Clara Valley Water District (SCVWD). SCVWD identified several historic fuel leak sites associated with underground storage tanks in the Project Area and requested that these sites be evaluated. On July 1, 2004, SCVWD transferred the fuel leak Local Oversight Program (LOP) to the Santa Clara County (County) Department of Environmental Health (DEH). The County DEH has been supervising completion of steps toward site closure.<sup>1,2</sup> [\[NOTE: In other chapters, one footnote has been used with multiple citations.\]](#) A discussion of fuel leak sites is included in the Existing Conditions discussion below. DTSC requested that the properties' historic uses be described, and, based upon that information, sampling be conducted to determine whether effects associated with remediation activities will need to be addressed in the EIR. Phase I and Phase II ESAs have been submitted for certain properties within the Project Area, which include the results of sampling, monitoring, and testing. DTSC also requested that if remediation would be performed, the EIR include a discussion of potential air and health impacts associated with excavation activities, and risk of upset should there be an accident at the site. These concerns are addressed within this section. Section 3.5, Air Quality, provides further discussions of air quality issues associated with construction activity on the project sites, and Section 3.11, Hydrology, provides further discussions of water quality issues associated with the potential for groundwater contamination.

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<sup>1</sup> Santa Clara Valley Water District. Letter Regarding Oversight Program Case Transfer: Stanford University Medical Center, 211 Quarry Road, Unincorporated 94304, SCVWDID-06S3W03H02. January 28, 2005.

## Existing Conditions

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Public health concerns addressed in this section and associated with the Projects generally fall into four categories:

- **Hazardous Materials.** Hazardous materials include hazardous non-radioactive chemicals and products that may be harmful if improperly released to the environment or improperly handled by people. These include a broad spectrum of products, including pesticides, petroleum fuel products, paints and other coatings, and common household materials such as cleansers and other cleaning products. Hazardous materials also include radioactive, biohazardous, and medical materials. A more detailed definition of hazardous materials is provided under Classification of Hazardous Materials, below.
- **Hazardous Waste.** Hazardous wastes are produced when hazardous materials are used or discarded, and may be produced by manufacturing or other processes. A more detailed definition of hazardous waste is provided under Classification of Hazardous Materials below.
- **Contaminated Soil and Groundwater.** Contaminated soil and groundwater usually results from land uses that previously released hazardous materials or hazardous wastes into the soil, groundwater, or sewer systems. Leaking underground storage tanks (~~UST~~~~USTs~~) and sumps are common causes of such contaminated conditions, as are historic industrial activities that routinely spilled or disposed of hazardous materials or hazardous wastes into the soil or groundwater. Current and historical sources of soil and groundwater contamination in the Project Area are described later in this section.
- **Hazardous Building Components.** The SUMC Project would involve building demolition and handling of hazardous building components. [The Shopping Center Project includes demolition of one parking garage; however, demolition of this structure is not expected to release or expose hazardous building components.](#) Examples of hazardous building components include asbestos-containing materials (~~ACM~~~~ACMs~~), asbestos-containing building materials (~~ACBM~~~~ACBMs~~), electric transformers containing polychlorinated biphenyls (~~PCB~~~~PCBs~~), USTs and aboveground storage tanks (~~AST~~~~ASTs~~), and lead-based paint. Applicable federal, ~~state~~~~State~~, and local legal requirements exist that relate to the safe maintenance and removal of these materials and are discussed later in this section.

**Classification of Hazardous Materials.** The term “hazardous material” is defined in different ways for different regulatory programs. For purposes of this EIR, the definition of “hazardous material” is the same as that in California Health and Safety Code Section 25501:

“...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.”

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<sup>2</sup> Santa Clara County DEH. Letter Regarding Fuel Leak Investigation at Stanford University Medical Center, 211 Quarry Road, Palo Alto, Case No. 11-079, SCVWDID #06S3W03H02f.

Hazardous materials can be categorized as hazardous, non-radioactive chemical materials; radioactive materials; and biohazardous materials. For hazardous, non-radioactive chemical materials, the above definition is typically adequate. Radioactive and biohazardous materials are further defined as follows:

- *Radioactive materials* contain atoms with unstable nuclei that spontaneously emit ionizing radiation to increase their stability.
- *Biohazardous materials* include materials containing certain infectious agents (e.g., microorganisms, bacteria, molds, parasites, viruses, etc.) that normally cause or significantly contribute to increased human mortality or organisms capable of being communicated by invading and multiplying in body tissues.

Types of hazardous materials found in medical facilities include chemotherapy reagents and other pharmaceuticals; chemicals used to sterilize equipment; formaldehyde for specimen preservation; and solvents, oxidizers, corrosives, and stains used in clinical laboratories. Radioactive materials generally contain radioactive atoms; however, x-ray equipment (which does not involve any radioactive substances) is also regulated as radioactive material. Facilities maintenance activities, which occur at ~~both~~ the SUMC Sites and Shopping Center Site, require various common hazardous materials, including cleaners (which may include solvents and corrosives, in addition to soaps and detergents); paints; pesticides and herbicides; fuels (e.g., diesel); and oils and lubricants.

“Hazardous waste” is a subset of hazardous materials. For the purposes of this EIR, the definition of hazardous waste is essentially the same as that in California Health and Safety Code Section ~~25517,25117~~, and in California Code of Regulations (CCR), Title 22 Section ~~66261.2~~66261.3:

“Hazardous wastes are wastes that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.” [NOTE: Quotation marks are not appropriate, since the text is not a quote.]

Hazardous wastes can generally be grouped into three categories, including hazardous chemical waste, radioactive waste, and medical waste. These three categories are further defined below:

- *Hazardous chemical wastes* are generally residuals of hazardous chemicals applied to various uses. Hazardous chemical waste can include residuals from mercury, photography liquids, photography solids, flammable liquids, aerosols, and laboratory solvents and chemicals.
- *Radioactive wastes* are radioactive materials that are discarded (including wastes in storage) or abandoned.
- *Medical waste* includes both biohazardous wastes (byproducts of biohazardous materials) and sharps (devices capable of cutting or piercing, such as hypodermic needles, razor blades, and broken glass) resulting from the diagnosis, treatment, or immunization of human beings, or research pertaining to these activities.

## Project Area

**Existing Use and Storage of Hazardous Materials.** Slight amounts of commercial hazardous materials are used for daily operations throughout the ~~Project Site~~Projects' Area, including the use of paints, solvents, metals, fuels, oils, and pesticides. In most circumstances, the potential risks posed by hazardous materials use and storage are primarily local and, therefore, limited to the immediate vicinity of such use. ~~Overall, the facilities in the Project Area use relatively small quantities of hazardous materials in the daily operations and do not pose threats to the surrounding area.~~[NOTE: It is confusing to say in this paragraph that overall quantities are small and then say they are large in the next paragraph.] However, there are several buildings located within the Project Area that were constructed before 1953 and thus may contain asbestos.

Hazardous materials in larger quantities have been and are currently handled and stored at the SUMC Sites. These materials include flammable gas and liquids, non-flammable and non-toxic gas, oxidizers, and corrosive and toxic materials. If handled and stored incorrectly, these chemicals, radioactive materials, and biohazardous materials can pose both physical and health risks. The potential hazards due to the existing use and storage of hazardous materials at the SUMC Sites are discussed in further detail below.

**Historic Uses and Storage of Hazardous Materials.** Phase I and Phase II ESAs were performed on several portions of the Project Area, and an EDR database search was conducted to further understand site conditions in the vicinity of the Projects as they relate to historic hazardous materials use and storage. All Phase I ESAs were conducted in general accordance with the processes described in the American Society for Testing and Materials (ASTM) E1527-00 standard, entitled *Standards Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM guidelines).

Several facilities located ~~at~~in the Project Area were listed as generators of hazardous materials. Within the Project Area, there are: potential leakages of petroleum from former supply lines; potential of chemical contamination in soil and/or groundwater near, beneath, and around historical site features; potential for mercury and lead to ~~leak~~have leaked into the soil and groundwater; and asbestos-containing materials. In addition, the Project Area contains a total of six USTs, two of which are closed cases (the ~~Mobil~~Mobile Gas Station and the Chevron Gas Station). ~~However,~~Regarding the four USTs at the Hoover Pavilion Site, two are still open ~~eases~~with cases with the Santa Clara County DEH. The remaining two had PAFD oversight for closure but the regulatory closure status is not known.

**Fuel Leak Sites.** USTs are known to have been used in a variety of settings for the purpose of storing petroleum hydrocarbons and waste oils within the Project Area. Pursuant to SCVWD Ordinance 83-2, Section 6.1,<sup>3</sup> the SCVWD implements its statutory role in protecting the water supply by prohibiting the pollution of its water supplies, whether in surface streams, reservoirs, or conduits of any kind, or of groundwater, by any direct or indirect means.

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<sup>3</sup> Santa Clara Valley Water District, NOP Stanford University Medical Center Facilities Renewal and Replacement Project, and Simon Properties-Stanford Shopping Center Expansion, September 28, 2007.

The County DEH addresses the protection of water resources through the ~~LOP~~Local Oversight Program (LOP) [**NOTE: We suggest repeating this definition because it is not a common one, and was not used extensively in earlier text.**]. The LOP addresses the protection of the County's water resources, specifically groundwater basins (i.e., Leaking Underground Storage Tank [LUST] cleanup program). Formerly managed by the SCVWD, the LOP was transferred to the Santa Clara County DEH on July 2004. For the purposes of this CEQA review and in response to the NOP comments received from the SCVWD, additional data maintained by the Santa Clara County DEH ~~was~~were reviewed to further assess the status of reported fuel leaks in the vicinity of the Project Area.<sup>4</sup> These LUSTs are identified and described in more detail below in the SUMC and Shopping Center Sites discussions and in the Applicable Plans and Regulations subsection.

## SUMC Sites

**Existing Use and Storage of Hazardous Materials.** Hazardous materials have been and are currently handled and stored at the SUMC Sites. The section below describes the existing uses and storage of hazardous materials at the SUMC Sites.

The SUMC has a Hazardous Material Business plan on file with the Palo Alto Fire Department (PAFD), and the plan would meet applicable regulations prior to demotion and redevelopment of relevant facilities. The current types and amounts of hazardous chemicals existing at the ~~SUMC Sites (including the Main SUMC Site and Hoover Pavilion Site)~~ are shown in Table 3.12-1. This table provides a summary of the ~~October 2008~~ listing of on-site hazardous chemicals from the SUMC Project application.<sup>5</sup> As shown in the table, facilities at the SUMC Sites currently handle hazardous materials including flammable gas and liquids, non-flammable and non-toxic gas, oxidizers, and corrosive and toxic materials. In addition to the materials described in the table, facilities maintenance activities require various common hazardous materials, including cleaners (which may include solvents and corrosives, in addition to soaps and detergents); paints; pesticides and herbicides; fuels (e.g., diesel); and oils and lubricants.

The hazards posed by chemicals, radioactive materials, and biohazardous materials vary. Some chemicals can pose physical hazards (e.g., chemical burns) or health hazards (e.g., poisoning), including potential acute or chronic illnesses. Acute illness is known as an illness with an abrupt onset and short course, whereas a chronic illness is a long standing illness ~~for which there is no cure.~~<sup>6</sup> <sup>6</sup> The properties and health effects of different chemicals are unique to each chemical and depend on the extent to which an individual is exposed. Exposure to biohazardous materials can cause a range of illnesses, depending on the infectious agent encountered. Some infections can result in short-term discomfort (e.g., mild symptoms that can easily be treated or go away by themselves), while others can result in serious ~~acute~~ effects (e.g., dangerous disruptions of life functions). ~~Some chronic diseases may or may not be curable or treatable. Some diseases may be communicable.~~—In all of the above cases, the risks posed by the

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<sup>4</sup> Santa Clara County LUSTOP website: <http://lustop.sccgov.org/>, accessed November 29, 2007.

<sup>5</sup> SUMC, SUMC Project Submittal Application Supplement #1, written correspondence to the City of Palo Alto, September 2007.

<sup>6</sup> Medical Dictionary. Webster New World. Acute and Chronic Illness, definition. <http://www.medterms.com/script/main/art.asp?articlekey=2731>. Accessed November 28, 2008.

<sup>5</sup> Workshare Professional comparison of [interwovenSite://IMANDMS/ACTIVE/72857646/1](http://interwovenSite://IMANDMS/ACTIVE/72857646/1) and [interwovenSite://IMANDMS/ACTIVE/72857647/1](http://interwovenSite://IMANDMS/ACTIVE/72857647/1). Performed on 2/26/2009.

hazardous materials depend on the potential for exposure. [NOTE: The table did not include the existing SoM inventory. See Table 7-1a in the SUMC application.]

**Table 3.12-1  
Existing Amounts of Hazardous Chemicals at the SUMC Sites**

Type of Material	Examples	Existing Amount On-site		
		Solids (pounds)	Liquids (gallons)	Gases (cubic feet)
<del>Flammable Gas</del> <u>Explosive, Mass Explosion</u>	Spray paint and other aerosols, acetylene, propane	<del>102</del> <u>0.28</u>	<del>48</del> <u>=</u>	<del>4,907</del> <u>=</u>
<u>Explosive, Minor blast</u>	<u>[NOTE: Please provide examples.]</u>	<u>0.02</u>	<u>=</u>	<u>=</u>
<u>Flammable Gas</u>	<u>Spray paint and other aerosols, acetylene, propane</u>	<u>102</u>	<u>48</u>	<u>6,211</u>
Non-Flammable, Non-Toxic Gas	----- <u>[NOTE: Please provide examples]</u>	3,058	<del>3,575</del> <u>5.1</u> <u>10</u>	<del>43,069</del> <u>169</u> <u>431</u>
Flammable Liquids	Gasoline, isopropanol, acetone, ether, other solvents	20	<del>8,203</del> <u>8.9</u> <u>91</u>	10,102
<u>Flammable Solid</u>	<u>Lead acid batteries, cycloexylamine - formula 48, chloromethoyisothiazolin</u>	<u>169</u>	<u>0.06</u>	<u>=</u>
<u>Spontaneously Combustible</u>	<u>Zep formula 300, Freon 12 and 22, glutaraldehyde</u>	<u>5.56</u>	<u>0.03</u>	<u>=</u>
<u>Water Reactive Flammable</u>	<u>[NOTE: please fill in examples here and hereafter in this column]</u>	<u>3.74</u>	<u>0.05</u>	<u>=</u>
Oxidizers	Liquid oxygen, oxygen	<del>2</del> <u>147</u>	<del>36</del> <u>164</u>	--
<u>Organic Peroxide</u>		<u>1.07</u>	<u>30.16</u>	<u>=</u>
<u>Radioactive</u>		<u>0.87</u>	<u>=</u>	<u>=</u>
Corrosive Materials	Lead acid batteries, cycloexylamine - formula 48, chloromethoyisothiazolin	<del>183</del> <u>375</u>	<del>636</del> <u>749</u>	--
Toxic Materials (solid or liquid)	Zep formula 300, Freon 12 and 22, glutaraldehyde	<del>109</del> <u>726</u>	<del>166</del> <u>242</u>	--
<u>Other Miscellaneous Hazards</u>		<u>5,176</u>	<u>527</u>	<u>=</u>
<u>Moderately Toxic</u>		<u>=</u>	<u>2.00</u>	<u>=</u>
<u>Slightly Toxic</u>		<u>=</u>	<u>31</u>	<u>=</u>
<u>Flammable</u>		<u>=</u>	<u>31</u>	<u>=</u>
<u>Combustible</u>		<u>136</u>	<u>218</u>	<u>=</u>
<u>Suspect Carcinogen/Mutagen</u>		<u>=</u>	<u>33</u>	<u>=</u>

<u>Halogenated Solvent</u>	==	<u>2.00</u>	==
<u>Skin Irritant</u>	==	<u>121</u>	==
<u>Hepotoxin</u>	==	<u>2.00</u>	==
<u>Nephrotoxin</u>	==	<u>2.00</u>	==
<u>Neurotoxin</u>	==	<u>2.00</u>	==
<u>Lung Irritant</u>	==	<u>121</u>	==
<u>Eye Irritant</u>	==	<u>121</u>	==
<u>California Prop. 65 Carcinogen</u>	==	<u>2.00</u>	==

Source: SUMC, 2007.

Notes:

- Some chemicals fall into more than one category; therefore, the columns presented here cannot be added to derive actual totals.
- This table provides a reasonable rough estimate of the materials that would be located at the SUMC; however, due to the continuing advancements in technology, the list of needed chemicals and quantities may change in the time between this estimate and the opening of the SUMC Project.
- This table provides a summarized version of that provided in the ~~September 2007~~ listing of on-site hazardous materials from the SUMC project application.

During the course of patient care and facility maintenance operations at the SUMC Sites, the SUMC ~~applicants~~ operations require use of various materials, some of which pose potential hazards. For example, clinical laboratories use potentially hazardous chemicals to analyze patient blood and urine samples. Radioactive materials are used to treat certain kinds of cancer. Various patient diagnosis and treatment activities involve potentially biohazardous materials (infectious agents). Hazardous materials use often results in byproducts that must be handled and disposed of as hazardous wastes.

The hospitals and clinics at the SUMC Sites also administer radiopharmaceutical materials (radioactive material) to patients for both diagnostics and therapeutic purposes.<sup>7</sup> Table 3.12-2 lists the existing radioactive material at the SUMC Sites. Most materials are administered in the Nuclear Medicine Department at the Main SUMC Site and patients are free to leave the facility after they have been given the treatment. Certain therapy procedures require that a patient be housed on-site for a few days before being allowed to leave either hospital facility (SHC or LPCH). In all cases, the half-lives<sup>8</sup> of the radiopharmaceuticals are relatively short. No radioactive waste is generated since the radiopharmaceutical materials are allowed to decay for ten half-lives and then disposed as non-

<sup>7</sup> SUMC, SUMC Project Submittal Application Supplement #1, written correspondence to the City of Palo Alto, September 2007.

radioactive. This disposal method is specified in Stanford's Radioactive Material License with the State of California (State). [NOTE: Please include School of Medicine inventory provided by the SUMC Project sponsors Palter in December 2008.]

**Table 3.12-2**  
**Existing Radioactive Material at SUMC Sites** [NOTE: We have added the updated information provided to PBSJ in December 2008. It is not in the same form as the rest of the table, so we are providing the information without integrating it into the table]

Isotope	Monthly Average (mCi) <sup>a</sup>	Half Life (hours)
F-18	4,704.0	1.83
I-123	111.9	13.2
Tc99m	21,058.0	6
In-111	68.7	67.37
Tl-201	15.3	73.1
I-131	438.8	192.96
Ga-67	0.3	78.26
P-32	0.2	342.77
Y-90	16.0	3.19

Source: SUMC, ~~2007~~2008.

Note:

a. ~~Mega~~millicurie (mCi): A unit of radioactivity equivalent to ~~1 million~~0.001 curies.

Isotope	Approved Level (mCi)	Current Annual Usage (mCi)	Half-life
<u>C-14</u>	<u>40.00</u>	<u>0.33</u>	<u>5,730 years</u>
<u>H-3</u>	<u>722.00</u>	<u>17.54</u>	<u>12.3 years</u>
<u>I-125</u>	<u>36.00</u>	<u>29.53</u>	<u>60.1 days</u>
<u>P-32</u>	<u>189.00</u>	<u>115.32</u>	<u>14.3 days</u>
<u>S-35</u>	<u>378.00</u>	<u>16.38</u>	<u>87.4 days</u>
<u>U-238</u>	<u>0.30</u>	<u>0.01</u>	<u>4.5E9 years</u>
<u>Cr-51</u>	<u>10.00</u>	<u>0.00</u>	<u>27.7 days</u>
<u>I-131</u>	<u>0.01</u>	<u>0.00</u>	<u>8.01 days</u>
<u>P-33</u>	<u>18.00</u>	<u>0.00</u>	<u>25.4 days</u>
<u>Tc99m</u>	<u>1.00</u>	<u>0.00</u>	<u>6 hours</u>

[NOTE: Additionally, the Project Application includes six isotopes used in the Nuclear Medicine dept. to calibrate instruments, represented in the following chart:

Isotope	mCi on Hand	Typical Use
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<sup>8</sup> The radioactive half-life for a given radioisotope is the time for half the radioactive nuclei in any sample to undergo radioactive decay. After two half-lives, there would be one fourth the original sample, after three half-lives one eighth the original sample, and so forth.

<a href="#">Gd-153</a>	<a href="#">less than 200</a>	<a href="#">PET Scanner attenuation sources</a>
<a href="#">Ge-68</a>	<a href="#">less than 100</a>	<a href="#">PET Scanner attenuation sources</a>
<a href="#">Co-57</a>	<a href="#">less than 100</a>	<a href="#">Dose Calibrator Check Sources and SPECT Camera Flood Sources</a>
<a href="#">Cs-137</a>	<a href="#">less than 1</a>	<a href="#">Dose Calibrator Check Sources</a>
<a href="#">Eu-152</a>	<a href="#">less than 1</a>	<a href="#">Dose Calibrator Check Sources</a>
<a href="#">Ba-133</a>	<a href="#">less than 1</a>	<a href="#">Dose Calibrator Check Sources</a>

701 Welch Road. On June 7, 2006, a Phase I ESA was prepared by Aquifer Sciences, Inc. for the 701 Welch Road site to determine current environmental conditions at that site.<sup>9</sup> Based on aerial photographs reviewed for that report, as of 1939, the site appeared to be part of a large farm or pasture lands. This condition remained unchanged until ~~1961,1957-61,~~ when the existing buildings were constructed. The existing buildings consist of three office buildings (Building A, B, and C) and a small storage building (Building D). ~~The office buildings, which have been used primarily as medical offices, were constructed in the late 1950s and early 1960s.~~ The buildings have been renovated several times since their original construction, including the addition of an elevator tower in 2001.<sup>10</sup> The buildings are surrounded by asphalt-paved parking, landscaping, and related improvements. Access to Building B was not permitted to perform the Phase I investigation.

The Phase I ESA [for 701 Welch Road](#) made the following recommendations:

- Inspection of Building B, the Addiction Research Foundation, should be performed to better understand the small-quantity generator status of this facility. A small quantity generator is any facility that generates less than 100 kilograms of hazardous waste per month.
- Based on the age of the buildings, it is possible that asbestos-containing materials could be present. Prior to demolition, an asbestos survey should be conducted.

An addendum Report to the Phase I ESA was completed by Aquifer Sciences, Inc. on August 14, 2006 to further document current environmental conditions at 701 Welch Road.<sup>11</sup> At the time of the inspection on June 28, 2006, access was allowed to perform environmental inspection at Building B.

The Addendum Report concluded that there were several [low risk](#) environmental concerns regarding the use, handling, and disposal of chemicals at Building B. The Addendum Report also recommended that [additional research and inquiry be performed to better understand or resolve the concerns. If the additional information is not available then](#) a Phase II ESA be performed, which could possibly include sampling and analysis of soil, groundwater, wastewater, and residues on surfaces such as laboratories countertops, fume hoods, sinks, sumps, floors, and drain lines.

<sup>9</sup> Aquifer Sciences, Inc., *Phase I Environmental Assessment*, 701 Welch Road, Palo Alto, California, June 7, 2006.

<sup>10</sup> Based on further research conducted by Annette Walton, Stanford Environmental Manager, an elevator tower was installed in 2001 to meet ADA requirements and that no elevator existed prior to this information.

<sup>11</sup> Aquifer Sciences, Inc.. Addendum Report to Phase I Environmental Assessment, Building B, 701 Welch Road, Palo Alto, California, August 14, 2006.

703 Welch Road. On June 1, 2006, a Phase I ESA was performed by Aquifer Sciences, Inc. for the 703 Welch Road site to determine current environmental conditions at that site.<sup>12</sup> The Phase I ESA included a review of aerial photographs which revealed that, as of 1939, the site appeared to be part of a large farm or pasture lands. A 1965 aerial photograph showed the current building that occupies the site.

The site currently contains an office building, which was constructed in ~~the late 1950s~~1958 that has been used primarily over the years as dental offices. The building has been renovated several times since the original construction, including a second-floor addition built in ~~1961-1963~~. [NOTE: Dates are from Cultural Resources report under Tab 10 of the SUMC Application.] In 1993, a new hydraulic-lift elevator and equipment room were installed. The building is surrounded by asphalt-paved parking areas, landscaping, and related improvements.

Dentists typically use metals in the preparation of amalgam. To prevent these chemicals from being discharged into wastewater, amalgam separators are required. The building contains four amalgam separators in four basement areas to filter out the metals from the dentists' offices. ~~Wastewater~~Historically, ~~wastewater~~ from each separator ~~is~~was conveyed to a sump that, in turn, ~~discharges~~discharged the wastewater onto either the landscaping or pavement at four locations outside the building.

The Phase I ESA made the following recommendations:

- A more thorough inspection should be made of each of the four amalgam separators.
- Water samples should be taken from each of the four sumps and analyzed for amalgam constituents mercury, silver, tin, copper, and zinc.
- Based on the age of the building, it is possible that asbestos ~~containing~~ materials are present at the site. Prior to any demolition activities, ~~an~~ asbestos survey should be prepared.
- Prior to building demolition, the sink piping (P-traps) and other surfaces should be tested for the presence of metals and other chemicals. If chemicals are detected, proper cleaning and/or disposal of piping, equipment, and other materials may be necessary.
- When the building is demolished, the soil beneath the elevator shaft should be inspected. If there is any sign of a hydraulic fluid release, a soil sample should be collected for laboratory analysis. The soil sample should be analyzed for PCBs. If PCBs or hydraulic fluid is present in the soil sample, the extent of the release should be defined. Soil containing PCBs or hydraulic fluid should be excavated and transported to a regulated landfill for disposal.

A Phase II Soil and Wastewater Quality Evaluation was ~~conducted~~published for the 703 Welch Road site (also completed by Aquifer Sciences, Inc.) on July 19, 2006.<sup>13</sup> The Phase II was conducted on June 2, 2006 and a comprehensive investigation completed on June 24, 2006. The objective of this assessment was to evaluate the sediment and soil quality in the vicinity of four basement areas where wastewater

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<sup>12</sup> Aquifer Sciences, Inc., *Phase I Environmental Assessment*, 703 Welch Road, Palo Alto, California, June 1, 2006.

<sup>13</sup> Aquifer Sciences, Inc., *Phase II Soil and Wastewater Quality Evaluation*, 703 Welch Road, Palo Alto, California, July 19, 2006.

from amalgam separator systems has been discharged outside the buildings and onto the lawns, the landscaping, or pavement; and to collect ~~waste water~~wastewater from each separator to determine water quality.

On June 2, 2006, shallow soil and sediment samples were collected at four discharge points outside the building in proximity to the amalgam separator discharge points and one sample from an unaffected area to represent background conditions. Four ~~waste water~~wastewater samples were also analyzed.

The surface samples were identified as S1 and S4 and collected at grade; the soil samples were designated S2 and S3 and collected at 1 foot below ground surface (bgs). The background sample was designated as S5. The water samples were collected from the separator system and identified as VW1 through VW4. All the soil and sediment samples were analyzed for amalgam constituents ~~;~~ which include copper, mercury, silver, tin, and zinc by EPA method 6020A. The four wastewater samples were also analyzed for the amalgam constituents by EPA Method E~~200.8~~200.8.

Soil samples were also compared to residential and commercial Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board (RWQCB) for soils. In addition, the soil samples were compared to the Total Threshold Limit Concentration (TTLC) values and Soluble Threshold Limit Concentration (STLC) values established by the State to provide concentration limits for the classification of hazardous substances. As a rule-of-thumb, samples that contain metals at concentrations exceeding the numerical value of 10 times the STLC should be analyzed for soluble concentrations. The results of the initial investigation are provided below:

- Copper concentrations in the soil samples ranged from 44 milligrams per kilogram (mg/kg) to 350 mg/kg; only one sample (S3) exceeded the commercial/industrial ESL for copper (230 mg/kg). None of the samples contained copper at concentrations exceeding the TTLC value of 2,500 mg/kg, but sample S3 did exceed 10 times the STLC value of 250 milligrams per liter (mg/L).
- Mercury concentrations in the soil samples ranged from 18 mg/kg to 1,500 mg/kg; all samples exceeded the commercial/industrial ESL for mercury (10 mg/kg). The background sample (S5) contained mercury at 18 mg/kg and sample S2 contained mercury at 19 mg/kg; the remaining samples were elevated compared to the background concentration. Samples S1, S3, and S4 contained mercury at concentrations exceeding the TTLC value of 20 mg/kg, and all samples exceeded 10 times the STLC value of 2.0 mg/L.
- Silver concentrations in the soil samples ranged from 4.7 mg/kg to 1,100 mg/kg; three samples (S1, S2 and S4) exceeded the commercial/industrial ESL for silver (40 mg/kg). The background sample (S5) contained silver at 4.7 mg/kg and sample S2 contained mercury at 14 mg/kg; the remaining samples were elevated compared to the background concentration. Sample S1 contained silver at a concentration exceeding the TTLC value of 500 mg/kg, and three samples (S1, S3, and S4) exceeded 10 times the STLC value of 50 mg/L.
- Tin concentrations in the soil samples ranged from 4.7 mg/kg to 370 mg/kg. There is no commercial/industrial ESL for tin. The background sample (S5) contained tin at 4.7 mg/kg and

tin was not detected in sample S2; the remaining samples were elevated compared to the background concentration. No TTLC or STLC values have been established for tin.

- Zinc concentrations in the soil samples ranged from 160 mg/kg to 810 mg/kg; three samples (S1, S3 and S4) exceeded the commercial/industrial ESL for zinc (600 mg/kg). The background sample (S5) contained zinc at 160 mg/kg and sample S2 contained zinc at 250 mg/kg; the remaining samples were elevated compared to the background concentration. None of the samples contained zinc at concentrations exceeding the TTLC value of 5,000 mg/kg or the STLC value of 2,500 mg/L.

Wastewater samples were also compared to ESLs established by the San Francisco Bay RWQCB for groundwater. The results of the initial investigation are provided below:

- Copper concentrations in the ~~waste water~~wastewater samples ranged from 450 micrograms per liter ( $\mu\text{g/L}$ ) to 2,500  $\mu\text{g/L}$ ; all samples exceeded the ESL for copper in groundwater (3.1  $\mu\text{g/L}$ ).
- Mercury concentrations in the ~~waste water~~wastewater samples ranged from 14  $\mu\text{g/L}$  to 1,400  $\mu\text{g/L}$ ; all samples exceeded the ESL for mercury in groundwater (0.012  $\mu\text{g/L}$ ).
- Silver concentrations in the ~~waste water~~wastewater samples ranged from 12  $\mu\text{g/L}$  to 1,100  $\mu\text{g/L}$ ; all samples exceeded the ESL for silver in groundwater (0.19  $\mu\text{g/L}$ ).
- Tin concentrations in the ~~waste water~~wastewater samples ranged from 23  $\mu\text{g/L}$  to 1,200  $\mu\text{g/L}$ . There is no ESL for tin in groundwater.
- Zinc concentrations in the ~~waste water~~wastewater samples ranged from 390  $\mu\text{g/L}$  to 3,000  $\mu\text{g/L}$ ; all samples exceeded the ESL for zinc in groundwater (81  $\mu\text{g/L}$ ).

On June 24, 2006, Aquifer Sciences, Inc. performed a comprehensive sampling program to investigate the lateral and vertical extent of the metals found in shallow soil in the vicinity of the four basement areas on June 2, 2006. A total of 22 boring locations were selected and drilled to a depth ranging from 9 to 20 feet bgs. In all, 73 soil samples were collected for laboratory analysis. Groundwater was not encountered in any of the borings. The samples were analyzed for mercury, silver, and pH levels.

This follow-up investigation revealed that while elevated concentrations of metals were detected in shallow soil and sediment samples collected in the immediate vicinity of the wastewater discharge points, the area impacted was limited in lateral and vertical extent. Based on the analytical data, the areas impacted were limited in lateral extent to those areas immediately to the hose ends (a 4- to 9-square-foot area around each waste water discharge point). The analytical results show that the vertical impact to soil from each wastewater discharge point is limited in depth of the upper 2 feet outside the four basement areas. No significant metals concentrations were detected in soil samples collected adjacent to the floor sumps, with the exception of one sample (VS2-5), collected at a depth of 5 feet below the basement. It contained mercury at a concentration of 14 mg/kg, which exceeds the commercial/industrial ESL of 10 mg/kg.

The Phase II Soil and Wastewater Quality Evaluation made the following recommendations:

- Discontinue the practice of discharging wastewater from the amalgam separators to the landscaping or pavement.
- Reroute any water collecting in the floor sumps into the sanitary sewer system.
- If the building is demolished, inspect the sanitary sewer line for signs of leakage at joints and bends. If the sanitary sewer line is in poor condition or leakage has occurred, collect samples of the surrounding soil. Analyze the samples for mercury, silver, and pH levels to evaluate whether disposal of wastewater from the dental offices has impacted soil quality.

A Lead Survey and Evaluation was conducted for 703 Welch Road in June 2005.<sup>14</sup> The purpose of this screening survey was to detect the presence of lead-based paint (LBP)<sup>15</sup> or lead-containing paint (LCP)<sup>16</sup> on major building components throughout the site. One sample tested positive for LBP found on the exterior railing components. Nine samples tested positive for LCP. The report authors recommended more comprehensive lead inspection prior to significant disturbance of painted surfaces.

A Limited Asbestos Survey and Evaluation was conducted for 703 Welch Road by ProTech Consulting and Engineering in May 2006<sup>17</sup> to locate ACM and ACBM within the building. ACMs were discovered in wall and ceiling sheetrock, joint tape and compound, acoustical ceiling plaster and spray, sheetrock surfacing texture, and duct tape. The report recommended that any ACM that could be impacted during repairs, renovation, or demolition be removed prior to those destructive activities.

*1101 Welch Road.* A Phase I ESA was conducted by Geomatrix for 1101 Welch Road in February 1996.<sup>18</sup> Stanford University has owned the property at 1101 Welch Road since 1885. The property was leased to Medical Plaza, Inc. from 1957 to 1982, and Medical Plaza, Inc. built the medical buildings in the late 1950s. In 1982 the lease was reassigned to Medical Plaza Associates, [and has subsequently been reassigned to SHC](#). The property contains three single-story buildings: Building A, Building B, and Building C. The area around the buildings is paved with asphalt and the landscaping is mature. The general uses of the buildings along with hazardous ~~contents~~[materials used in the buildings](#) are described as follows:

- Building A: Contains a blood laboratory; no x-ray rooms or chemicals were present.
- Building B: Contains two blood laboratories, an x-ray room, and a dark room, as well as supporting offices. Offices contained paint, grout, wall finish, and paint-related chemicals. The dark room contained x-ray developing chemicals, photo processing chemicals, and silver

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<sup>14</sup> Protech Consulting and Engineering, *Lead Survey and Evaluation*, 703 Welch Road, Palo Alto, California, July 21, 2005.

<sup>15</sup> Lead-based paint (LBP) contains a concentration of 1 milligram of lead per square centimeter (mg/cm<sup>2</sup>) or greater.

<sup>16</sup> Lead-containing paint (LCP) contains a concentration of less than 1 milligram per square centimeter (mg/cm<sup>2</sup>) of lead.

<sup>17</sup> Protech Consulting and Engineering, *Limited Asbestos Survey and Evaluation*, 703 Welch Road, Palo Alto, California, May 23, 2006.

<sup>18</sup> Geomatrix Consultants, *Phase I Environmental Site Assessment*, 1101 Welch Road, Palo Alto, California, February 1996.

repositories. A “Visible Laser Radiation Machine” was located in one office as well as liquid nitrogen, a cylinder of oxygen, and dermatology medication.

- Building C: Contains several offices with x-ray rooms and darkrooms. The dark rooms contained photo processing chemicals and byproducts containing silver. This building also contains a pharmacy.

The 1101 Welch Road site also contains a transformer vault area including a heating equipment room, a cooling equipment room, and a power switch room. The vault area includes a locked biohazardous waste storage locker and the power switchboard room. The cooling system area includes a chemical storage area without secondary containment. It was noted in the Phase I ESA that the storm drain in this area should be sealed in order to prevent release of chemicals into the storm or sanitary sewer.

Several of the current and former x-ray rooms and dark rooms in the offices of the buildings were tested for the presence of lead in the walls and paint. Lead was detected in all of the areas tested, probably due to LBP. However, it is also possible that the walls are lead lined. No asbestos surveys or tests were conducted.

The Phase I ESA recommended the following:

- If painted walls are to be disturbed through construction renovation or maintenance activities, the Occupational Safety and Health Administration (OSHA) and Cal/OSHA worker safety protocol should be followed.
- All chemical waste stored on the property should be disposed of off-site.
- The chemicals stored in the cooling areas of Building C should be stored in a secondary containment area.
- The floor drain in the cooling equipment area of Building C should be sealed.
- Given that no hazardous waste spills or accidents have been reported and no underground storage tanks exist, a Phase II analysis is not recommended for this site.

**Hoover Pavilion Site.** On September 2007, a limited Phase I ESA was conducted by Geomatrix for the Hoover Pavilion Site, located at 211 and 215 Quarry Road.<sup>19</sup> The Phase I ESA<sup>20</sup> included a site reconnaissance, review of historical photographs and topographic maps, selected agency file review, review of regulatory databases, interviews of local government officials regarding the current regulatory status of the site, and interviews of personnel currently associated with the site.

According to the Phase I ESA, the aerial photographs and topographic maps indicate that the site appears to have been undeveloped, agricultural land until the late 1930s; on-site buildings first appear in

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<sup>19</sup> Geomatrix, Phase I Environmental Site Assessment, Hoover Pavilion, September 2007.

<sup>20</sup> *The SUMC ~~applicants~~Project sponsors* elected to not conduct the ESA according to ASTM E1527-05, which is updated relative to ASTM E1527-00 to include provisions of U.S.EPA All Appropriate Inquires (AAI) Final Rule (40 CFR 312), which took effect November 1, 2006. AAI is the prevailing standard for providing liability protection as an innocent landowner, a bona fide prospective purchaser, or a contiguous property owner under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

photographs and maps in 1939. The surrounding land uses appear to have been generally commercial and residential since the 1940s, with the exception of Stanford University, which appears in photographs and maps as early as 1899.

Historical uses and operations ~~of~~<sup>at</sup> the Hoover Pavilion Site include medical services, welding, spray-painting, printing/mimeography, and automobile body repairs and maintenance. The welding shop ceased operations and was dismantled in 1995 in accordance with PAFD procedures; the printing/mimeography operations ceased in the mid-1980s; and spray painting of miscellaneous items still occurs on an intermittent basis. As a result of these historical uses, the Phase I ESA identified ~~five~~<sup>[NOTE: Number does not match count of items listed here. Please reconcile.]</sup> site features that could impact environmental conditions at the site: two 2,200-gallon USTs (~~fuel oil, then~~ diesel); one 750-gallon UST (primarily diesel); one 350-gallon UST (waste oil); a boiler room with sump; and three oil-filtered transformers. The two 2,200-gallon USTs were emptied and closed in-place with neat cement/~~sand~~ slurry under a permit with the PAFD. The 750-gallon UST (which was installed in the 1960s under a permit with the PAFD) was removed in 1996, and the 350-gallon waste oil UST was emptied and closed in-place in 1987. According to interviews conducted as part of the Phase I ESA report, the boiler room and sump were closed in 2000, and the three oil-filled transformers were removed and replaced with dry ~~u~~-type transformers in the mid-1990s.

*Underground Storage Tanks.* In 1940, two 2,200-gallon USTs were installed adjacent to what is now the south wing of the Hoover Pavilion (please refer to Figure 3.12-1). The tanks were known to contain both diesel fuel and fuel oil from the time of installation. In 1986, petroleum hydrocarbons were detected in the soil during a subsurface investigation conducted to ascertain closure options for the two 2,200-gallon diesel tanks. Hydrocarbon migration was identified from the tanks into the surrounding soil and groundwater, revealing a hydrocarbon plume consisting of degraded diesel and some type of heavier fuel oil. The tanks were emptied in 1987 and closed in place (for structural reasons) under a permit with the PAFD in 1996.<sup>21</sup> [Product supply and return lines associated with the tanks, which extended from the USTs to a nearby boiler room and to a power substation to the west, were flushed and filled in place or capped in 1996.](#)

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<sup>21</sup> Aqua Terra Technologies, Underground Storage Tank Investigation, Hoover Pavilion, February 20, 1987.  
15 Workshare Professional comparison of  
interwovenSite://IMANDMS/ACTIVE/72857646/1 and  
interwovenSite://IMANDMS/ACTIVE/72857647/1. Performed on 2/26/2009.

Figure 3.12-1 Location of Underground Storage Tanks at Project Area

[\[Can't read numbers of Monitoring Wells or USTs. Where are 350-gallon waste oil tank?\]](#)

Soon after the tanks were emptied, Stanford Health Services began conducting quarterly hydrocarbon monitoring. The May 1995 Hydrocarbon Investigation for the Hoover Pavilion Site recommended “natural attenuation” to control the migration of hydrocarbons.<sup>22</sup> The First Quarter 2001 Groundwater Monitoring Report confirmed that the plume of dissolved-phase hydrocarbons was relatively stable.<sup>23</sup> Groundwater was analyzed for concentrations of total petroleum hydrocarbons as diesel (TPH-D), volatile organic compounds (VOCs), and oxygenates. Samples detected TPH-D at 432 µg/L from the source well, MW-6, which is explained as a result of its location next to the source (the UST) and natural seasonal fluctuations of water levels. Water levels were recorded to range between 41 and 53 feet bgs. VOCs were also detected as trichlorofluoromethane (Freon-11); however, these concentrations were well below the State Maximum Contaminants Levels (MCL) for Freon-11 in drinking water, and did not represent a threat to groundwater quality. No oxygenates were detected in any of the wells.

A 750-gallon steel UST was installed in the 1960s on the Hoover Pavilion Site (see Figure 3.12-1), and was located adjacent to the loading dock behind the Hoover Pavilion Site. The tank was used as a diesel fuel storage tank for the emergency generator and the boiler room sump.<sup>24</sup> The tank remained in use as diesel fuel storage until 1996 when it, as well as most of its associated piping, was emptied and removed under a permit with the PAFD. Soil sampling was conducted after the tank was removed for TPH-D, benzene, toluene, ethyl benzene, and xylenes (collectively known as BTEX). TPH-D was detected (at concentrations ranging from 180 to 1,400 parts per million [ppm]); BTEX were not detected. The Phase I ESA states that it is likely that residual TPH-D remains in shallow soil beneath the old supply lines, which ran from the tank to the boiler sump and underneath the loading dock. No additional sampling was performed beneath the supply lines. The removal of this tank was overseen by the PAFD; however, no documentation was found at the PAFD that could confirm that a “No Further Action” certificate was submitted for this tank. ~~No documentation exists in any agency file indicating that a “No Further Action” certificate was submitted for either tank. Based on files reviewed at the PAFD, it is not known whether a closure request was submitted and approved for these two tanks.~~

A 350-gallon waste oil tank was installed on the southwest corner of the property at the Hoover Pavilion Site near what is now a storage shed. This tank was associated with a former auto repair shop. Soil sampling was conducted in 1986, which identified petroleum hydrocarbons at 100 ppm. The tank was emptied and closed in place in 1987. Further analysis was conducted in 1994 to assess the soil condition under the UST, and results indicated minimal residual concentrations of tetrachloroethene, TPH-D, chromium, nickel, and zinc. Case closure was requested for this tank in 1994; however, there is no record at SCVWD of the closure letter.<sup>25</sup>

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<sup>22</sup> Einarson Geoscience, Inc., *Hydrocarbon Investigation Report – Hoover Pavilion*, Stanford Health Services, May 1995.

<sup>23</sup> Conor Pacific, *First Quarter 2001 Groundwater Monitoring Results – Hoover Pavilion*, April 2001.

<sup>24</sup> Conor Pacific, *First Quarter 2001 Groundwater Monitoring Results – Hoover Pavilion*, April 2001.

<sup>25</sup> Personal communication between Carolina Morgan, of PBS&J and Mamerto Jorvina of Santa Clara County Department of Health and Services regarding case ID 06S3W03H02f – Stanford University Medical Center at Hoover Pavilion (211 Quarry Road, Palo Alto, CA), February 15, 2008.

*Conclusions and Findings for the Limited Hoover Pavilion Phase I ESA.* Based on the data reviewed, the Phase I ESA made the following conclusions:

- For the two 2,200-gallon USTs closed in place and leaking associated residual petroleum hydrocarbons remaining in subsurface media (soil and/or groundwater):
  - petroleum-impacted soils remain below ground surface in the vicinity of tanks;
  - free product likely is present in on-site monitoring wells;
  - while previous investigations have shown that impacts to subsurface media from these USTs is limited to within the Hoover Pavilion Site boundaries, the presence of free product in site wells leaves the site open from a regulatory perspective; and
  - besides passive free product removal, no other remedial actions have been implemented at the site.
- The adequacy and completeness of the regulatory closure for the 750-gallon diesel UST and the 350-gallon UST is not known.
  - While it is known that the 750-gallon diesel tank was removed under permit by the PAFD, no documentation was found in any agency files to indicate a “No Further Action” certificate was submitted for this tank.
  - Case closure was recommended by a previous consultant for the closed-in-place 350-gallon UST; however, based on files available at the PAFD, it is not known whether a closure request was submitted and approved. This tank should be removed during future redevelopment activities with PAFD oversight.
  - It is known that polynuclear aromatic hydrocarbons are commonly associated with waste oil; however, these have not been tested in the vicinity of the 350-gallon waste UST.
- Potential leakage of petroleum from the former supply lines has not been investigated.
- Potential of chemical contamination in soil and/or groundwater near and beneath and around ~~historical~~ site features, including:
  - The dry storage shed adjacent to the Paint Shop, located on the southern part of the site has historically functioned as an auto body repair shop. However, the extent of operations at this location is not known.
  - The sump motor associated with the ~~historical~~[former](#) boiler was fueled with diesel fuel from on-site USTs. It is possible that chemicals are present in soil near and beneath the former boiler sump motor.
  - Regarding the spray-painting operation, it is possible lead-based paints were used at some point, and consequently lead may have been expelled from the fume hood and deposited in the vicinity of the Paint Shop.

On March 12, 2008, the County DEH requested that quarterly monitoring of groundwater quality be reinstated so that the current levels of contamination in groundwater can be assessed. At this time, preliminary data has been submitted to the County DEH on groundwater testing for the two 2,200 gallon USTs located at 211 and 215 Quarry Road. As indicated by the County DEH, four groundwater samples were collected on August 18th and 19th, 2008, from four monitoring wells located within and in the immediate vicinity of the site (211 and 215 Quarry Road), two tanks. Groundwater samples from MW-4, MW-5, MW-6 and MW-7 were tested for diesel range organics. The results indicated maximum levels of diesel at 180 µg/l (ppb) in MW-6, which is far below the County's [NOTE: isn't it a San Francisco Bay RWQCB standard?] threshold of 1,000 µg/l [NOTE: isn't the threshold 220 µg/l?]. All other samples were below 50 µg/l. ~~The quarterly groundwater monitoring report is due to the County DEH by November 1, 2008. Further testing will be conducted to fully assess~~ Groundwater analysis also disclosed the presence of naphthalene at a concentration of 1 µg/l, well below the corresponding threshold of 24 µg/l. SHC has completed the well sampling and fully assessed, insofar as was feasible, the volatility of the diesel compounds and the biodegradation factors. At this time, this case remains open until further testing is conducted.<sup>26</sup>SHC also has conducted further soil vapor sampling. This analysis detected concentrations of VOCs that included styrene, dichloroethene (DCE), trichloroethene (TCA), tetrachloroethene (PCE), and Freon-11, which are not typically found in diesel fuel and likely are unrelated to the USTs. Still, concentrations of PCE were measured at 1.63 µg/l about 60 feet south of the two USTs, a concentration that exceeds the corresponding threshold of 0.41 µg/l.

~~**Fuel Leak Sites.** USTs are known to have been used in a variety of settings for the purpose of storing petroleum hydrocarbons and waste oils within the SUMC Sites. Pursuant to SCVWD Ordinance 83-2, Section 6.1,<sup>27</sup> the SCVWD implements its statutory role in protecting the water supply by prohibiting the pollution of its water supplies, whether in surface streams, reservoirs, or conduits of any kind, or of groundwater, by any direct or indirect means. The Hoover Pavilion Site is the only site within the SUMC Sites known to have USTs on-site (as explained above under "Hoover Pavilion Site"). A summary description is below.~~

~~*Stanford University Medical Center (Case # 06S3W03H02f - Open).* **This site is also known as the Hoover Pavilion Site, located at 211 Quarry Road. Four USTs have been reported in the Hoover Pavilion Site: two 2,200-gallon USTs (diesel); one 750-gallon UST (primarily diesel); and one 350-gallon UST (waste oil). Please refer to the "Hoover Pavilion Site" section for further description.**~~

A report containing the well sampling and soil vapor sampling results was prepared by AMC/Geomatrix and was submitted to the County DEH in December 2008. The report requests an agreement for site closure for the two 2,200 gallon USTs, with natural attenuation thought to be the best method for controlling the migration of hydrocarbons. Such an agreement is anticipated to be reached in early March, 2009.

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<sup>26</sup> ~~Personal communication between Carolina Morgan, of PBS&J and Mamerto Jorvina of Santa Clara County Department of Health and Services regarding case ID 06S3W03H02f - Stanford University Medical Center at Hoover Pavilion (211 Quarry Road, Palo Alto, CA), October 8, 2008.~~

<sup>27</sup> ~~Santa Clara Valley Water District, NOP Stanford University Medical Center Facilities Renewal and Replacement Project, and Simon Properties Stanford Shopping Center Expansion, September 28, 2007.~~

[\[NOTE: This seems to repeat the information provided above.\]](#)

[\[NOTE: Please cover asbestos at the Hoover Pavilion site.\]](#)

## Shopping Center Site

**Existing Use and Storage of Hazardous Materials.** The Shopping Center Site ~~property~~ consists of offices, restaurants, retail space, and other commercial uses. Overall, these types of facilities use relatively small quantities of hazardous materials in ~~the~~their daily operations. However, some buildings at the Shopping Center Site were constructed prior to 1953 and over the years additional structures have been added over the years. As such, asbestos may be present in some of the buildings at the Shopping Center Site. ~~The project applicant would be required~~If asbestos is present in the parking structure to be demolished as part of the Project (which is not expected), applicable law would require the Project sponsor to perform asbestos abatement during demolition.

**Historic Uses and Storage of Hazardous Materials.** A search of available environmental records was conducted for the area of the Shopping Center Site and vicinity on October 24, 2007 by EDR.<sup>2826</sup> The database search included federal, State, and local regulatory databases to determine whether any known potentially contaminated sites were located within a 2-mile radius of the Shopping Center Site. The search results determined that 13 facilities within ~~the~~this 2-mile radius ~~(from the Shopping Center Site)~~ are listed in nine of the databases searched (~~it should be noted that~~ some facilities appear in more than one database). Below is a summary of the database search, which included federal, State, and local regulatory records. Table 3.12-3 summarizes all of the recorded sites listed within the Shopping Center Site.

*Federal Regulatory Records.* According to the EDR report, facilities within the Shopping Center Site are listed on two federal databases. The databases are described below; the facilities and their status are presented in Table 3.12-3.

- **RCRA-SQG:** The Resources Conservation and Recovery Act (RCRA) information database includes selective information on sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by the RCRA. Small quantity generators (SQG) generate between 100 kilograms (kg) and 1,000 kg of hazardous waste per month. Two facilities within the Shopping Center Site are identified underin this database.
- **FINDS:** Facility Index System/Facility Registry System (FINDS) is a database that lists sites that are listed under other databases and systems. Two facilities within the Shopping Center Site are identified underin this database.

*State Regulatory Records.* According to the EDR report, facilities within the Shopping Center Site are listed on six State databases. The databases are described below; the facilities and their status are presented in Table 3.12-3.

- **Cortese:** The “Cortese” database compiles information on public drinking water wells with detectable levels of contamination; sites selected for remediation; sites with known toxic

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<sup>2826</sup> Environmental Data Resources, Inc, Database Search Inquire # 2059906.1s, October 24, 2004.

material; LUST sites; and solid waste disposal facilities. The sites for the list are designated by the State Water Resources Control Board (SWRCB), the Integrated Waste Management Board, and DTSC. Three facilities within the Shopping Center Site are identified ~~on~~in this database.

- **LUST:** The LUST database contains an inventory of reported leaking underground storage tank incidents. Four facilities within the Shopping Center Site are identified ~~under~~in this database.
- **HazNet:** The Hazardous Waste Information System (HazNet) includes data extracted from copies of hazardous waste manifests received by DTSC. Seven facilities within the Shopping Center Site are identified ~~under~~in this database.

**Table 3.12-3  
Summary of Recorded Facilities Listed as Generators of Hazardous Materials in the  
Stanford Shopping Center Site**

Site Name* and Address	Status
City of Palo Alto 281 Quarry Road	The facility is listed under the City of Palo Alto (as owner) in the HazNet database for submitting a hazardous waste manifest, in which it declares it handles waste and mixed oil. No other information is provided.
BP Oil Company Facility Site #11214 Stanford University, Board of Trustees	The facility is listed as <u>“active-<del>under</del>” in the CA FID UST <a href="#">database</a></u> . No other information is provided. The facility is listed <u>under in the HazNet <a href="#">database</a></u> for submitting a hazardous waste manifest, in which it declares that it handles “empty” containers of 30 gallons or more. The type of waste is unspecified. Disposal is either from transformer oil/water from buried utility vault or disposal of waste oil from tanks.
Palo Alto Roasting Company 159 Stanford Shopping Center	The facility is listed <u>under in the EMI database</u> for releasing 43 tons of carbon monoxide per year in 2002, 2003, 2004, and 2005. Additionally, in 2004 and 2005, <del>it</del> <u>this facility</u> emitted 0.002 tons per year of NO <sub>x</sub> , 0.003 tons per year of particular matter and 0.00186 of PM <sub>10</sub> .
Kits/Ritz Camera #953 189 Stanford Shopping Center	The facility is <u>listed [NOTE: in the RCRA-SQG database?] as a SQG</u> . It <del>is</del> <u>also is listed [in the HazNet database?]</u> as submitting a hazardous waste manifest, in which it declares it handles photochemical and photoprocessing waste.
Stanford Shopping Center/ Emporium Capwell 180 El Camino Real	The facility is <u>listed [NOTE: in the RCRA-SQG database?] as a SQG</u> . It <del>is</del> <u>also is listed [in the HazNet database?]</u> as submitting a hazardous waste manifest in which it declares it handled asbestos-containing waste, liquids with polychlorinated biphenyls, waste and mixed oil, and other organic solids. Additionally, <u>the facility is listed in [NOTE: which database?] for its disposal</u> of light ballasts; some PCB and non-PCB containing materials, and hydraulic oils from tenant space. <del>The</del> <u>Finally, the</u> facility is <del>also</del> <u>listed under in [ NOTE: which database?] concerning</u> a reported leaking underground storage tank incident. The case was closed in 1993.
500 Sand Hill Road	The facility is listed <u>under in the HazNet <a href="#">database</a></u> for submitting a hazardous waste manifest, in which it declares it handles other inorganic solid waste. No other information is provided. This site is the former Old Children’s Hospital.
500 Stanford Shopping Center	The facility is listed <u>under in the HazNet <a href="#">database</a></u> for submitting a hazardous waste manifest, in which it declares it handles laboratory waste chemicals. No other information is provided.
Chevron Gas Station 480 Quarry Road	The facility is listed <u>under in the HazNet <a href="#">database</a></u> for submitting hazardous waste manifest, in which it declares it handles unspecified oil-containing waste. This site <del>is</del> <u>also is listed under in the LUST, Cortese and HIST LUST Santa Clara <a href="#">databases</a></u> for waste oil; <del>however, the</del> <u>The</u> case was closed in 1998.
Midas Mufler 215 El Camino Real	The facility is listed <u>under in the LUST <a href="#">database concerning</a></u> a reported leaking underground storage tank (LUST) incident. The case was closed in 1991.

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*Source:* EDR, 2007.

*Note:*

\* Name is the name of site as it is listed in the EDR Report.

- **EMI:** Emission Inventory Data (EMI) records include toxic and criteria pollutant emissions data collected by the [California](#) Air Resources Board ([ARB](#)[CARB](#)) and local pollution agencies. One facility within the Shopping Center Site is identified [underin](#) this database.
- **SWEEPS UST:** The Statewide Environmental Evaluation and Planning System (SWEEPS) database includes UST listings from the SWRCB (it is no longer maintained or updated). One facility within the Shopping Center Site is identified [underin](#) this database.
- **CA FID UST:** The California Facility Inventory Database (CA FID UST) is a database that maintains active and inactive UST locations. One facility within the Shopping Center Site is identified [underin](#) this database.

*Local Regulatory Records.* According to the EDR report, two facilities within the Shopping Center Site are listed [onin](#) one local regulatory database. The database is described below; the facilities and their status are presented in Table 3.12-3.

- **HIST LUST Santa Clara:** The Fuel Leak Activity Report of Santa Clara County is a listing of open and closed cases of USTs. This listing is currently maintained by the County DEH.

The remaining facilities ~~that, all of which~~ are outside of the Shopping Center Site ~~and, that the EDR report identified as being~~ listed [onin](#) federal, State, and/or local regulatory databases are not considered a concern based on the distance of each facility from the Shopping Center Site, groundwater flow, and their regulatory status. ~~All~~ [Further, all](#) sites listed [underon](#) the Cortese list have been granted closure and no longer pose a concern to the Shopping Center Site.

**Fuel Leak Sites.** In [and around](#) the Shopping Center Site, USTs are known to have been used in a variety of settings for the purpose of storing petroleum hydrocarbons and waste oils. According to the County DEH ~~LOPLocal Oversight Program~~, there is one site within the Shopping Center Site [that is](#) known to have contained USTs. This site is [the former location of](#) the Chevron Gas Station, located at 480 Quarry Road. Immediately across the street from the Shopping Center Site, south of Quarry Road and east of Arboretum Road, as depicted in Figure 2-19 of Chapter 2, Project Description, ~~used to be~~ [was](#) another site known to have contained USTs. ~~The~~ [That](#) site, known as the Mobile Gas Station, was located on 375 Arboretum Road. Both the Chevron Gas Station and the Mobile Gas Station sites are explained below.

*Chevron Gas Station (Case # 06S3W03H03f - Closed).* The former Chevron Gas Station site is located at 480 Quarry Road (within the Shopping Center Site) at ~~Vineyard~~ [\[NOTE: This appears to be at Arboretum Road \(according to Figure 3.12-11\]](#) Road and Quarry Road. One 550-gallon waste oil UST and related piping were removed from the site in May 1997. The reported leak is a result of a possible release from corrosion at the bottom of the tank. Soil testing was conducted and tested for petroleum hydrocarbons, BTEX, oil and grease, and heavy metals. The soil tests resulted in non-detects for all contaminants. Approximately 11 to 15 cubic yards of soil were removed from the tank excavations at the site. The soil was transported to ~~an appropriate~~ landfill in Livermore and no further remediation ~~has been conducted at the site~~ [was determined to be necessary](#). The case was closed in July 1998.<sup>2927</sup>

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<sup>2927</sup> Chevron USA Product Co., Fuel Leak Site Closure – Chevron No. 9-9000, July 15, 1998.

~~Mobil~~ Mobile Gas Station (Case # 06S3W03H01f - Closed). The site of the former Mobile Gas Station is located at 375 Arboretum Road, (immediately across the street from the Shopping Center Site) at Arboretum Road and Quarry Road. Seven USTs were reported at this site: one 550-gallon waste oil UST; two 8,000-gallon steel gasoline USTs; one 6,600-gallon steel gasoline UST; and three 10,000-gallon double-walled fiberglass unleaded gasoline USTs.<sup>3028</sup>

The 550-gallon waste oil UST was removed in April 1986; two 8,000-gallon tanks and one 6,000-gallon tank were removed in October 1987; and three 10,000-gallon USTs were removed in January 1994. After the gasoline tank removal in 1987, the excavated soil was disposed of at a Class III landfill. The excavated soil from the removal of the fiberglass tank was transported to Redwood Landfill in the City of Novato. The excavations were backfilled and compacted with clean engineered fill.

Soil testing was conducted to assess any fuel and/or waste oil leaks. The sampling concluded that only a small amount of petroleum hydrocarbons was released from the waste oil tank. In addition, only a trace amount of petroleum hydrocarbons was present in the former gasoline tank excavation. The Underground Storage Tank Case Closure Report concluded that the contaminations did not appear to pose a significant threat to groundwater because the contaminant levels were very low, and the depth to groundwater at the site is deep. Groundwater monitoring was conducted and no remediation was ~~performed~~required. The case was closed in November 1994.

## **Applicable Plans and Regulations**

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Hazardous materials handling and hazardous waste management are subject to laws and regulations at all levels of government as summarized below. The County Office of Emergency Services (OES)<sup>3129</sup> and the PAFD implement and enforce federal, State, and local laws regarding hazardous materials management and emergency planning.<sup>3230</sup> The County DEH is the Certified Unified Program Agency (CUPA) for the County of Santa Clara and the City of Palo Alto. The County DEH administers the Hazardous Waste Generator/Tiered Permitting Program (California Health and Safety Code Chapter 6.5), and the Risk Management Program (California Health and Safety Code Chapter 6.95).<sup>3331</sup> The PAFD administers the California Fire Code (with local amendments), the Hazardous Materials Storage Ordinance, and the Toxic Gas Ordinance.<sup>3432</sup> As a CUPA Participating Agency, the PAFD also administers the following State programs: the Hazardous Materials Business Plans (California Health and Safety Code Chapter 6.95), the Underground Storage Tank Program (California Health and Safety Code Chapter 6.7), and the Aboveground Petroleum Storage Tank Program (California Health and Safety Code Chapter 6.67).<sup>3533</sup>

The County DEH protects the health of the community through the enforcement of environmental standards. The Hazardous Materials Compliance Division regulates the disposal and storage of hazardous

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<sup>3028</sup> Mobil Oil Corporation, Underground Storage Tank Case Closure Report, November 9, 2004.

<sup>3129</sup> The Santa Clara County Office of Emergency Services website, <http://www.sccgov.org/portal/site/oes/>, accessed November 26, 2007.

<sup>3230</sup> Palo Alto Fire Department, <http://www.pafd.org/depts/fir/default.asp>, accessed November 26, 2007.

<sup>3331</sup> UNIDOCs Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

<sup>3432</sup> UNIDOCs Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

<sup>3533</sup> UNIDOCs Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

materials both above and below ground.<sup>3634</sup> The California Office of Statewide Health Planning and Development (OSHPD), the Palo Alto Building Division (PABD), and the PAFD implement and enforce State laws regarding building and fire safety.<sup>3735</sup> Cal/OSHA and OSHA implement and enforce State and federal laws regarding worker safety. DTSC implements and enforces federal and State laws regarding hazardous waste handling. The Radiologic Health Branch of the California Department of Health Services (CDHS) implements and enforces State and federal laws regarding radioactive materials management. The CDHS Medical Waste Management Program and County Department of Environmental Protection implement and enforce State laws regarding medical waste handling.<sup>3836</sup> The U.S. Department of Transportation (DOT), the U.S. Postal Service (USPS), the U.S. Environmental Protection Agency (EPA), the California Highway Patrol (CHP), the California Department of Transportation (Caltrans), and the DTSC implement and enforce State and federal laws regarding hazardous materials transportation. Bay Area Air Quality Management District (BAAQMD), Cal/OSHA, and DTSC implement and enforce state and federal laws regarding hazardous building components. San Francisco Bay RWQCB oversees the groundwater protection program throughout the County.

**Hazardous Materials Management and Emergency Planning.** State and federal laws require that hazardous materials be properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, that appropriate measures are taken to prevent or to mitigate injury to human health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law, sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials and to facilitate an appropriate response to possible hazardous materials emergencies. Businesses, including hospitals, that use hazardous materials in quantities that exceed the state-established threshold quantities of 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet at standard temperature and pressure for compressed gases, are required by law to create a Hazardous Materials Business Plan (HMBP). The HMBP is then submitted to the PAFD.<sup>3937</sup>

In Santa Clara County, any amount of radioactive materials used or handled by a business requires an HMBP.<sup>4038</sup> The HMBP requires inventories of those materials to be provided to designated emergency response agencies, a diagram illustrating where the materials are stored on-site, an emergency response plan, and annual training for the employees' safe use of the materials and safety procedures in the event of a release or threatened release of a hazardous material. If the quantity or type of hazardous materials involved exceeds the thresholds for a 'short form', [an](#) HMBP addendum must also be prepared. A HMBP addendum must include a spill prevention plan, an emergency response plan, a description of equipment type and location, an employee training plan, and a closure plan. HMBPs and addendums available for existing uses in the Project Area are kept on file with the PAFD and the County Hazardous Materials Program. This information must be updated within 30 days of a substantial change in operations.<sup>4139</sup>

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<sup>3634</sup> The County of Santa Clara, <http://www.sccgov.org/>, accessed November 26, 2007.

<sup>3735</sup> Palo Alto Fire Department, <http://www.pafd.org/depts/pln/news/default.asp>, accessed November 26, 2007.

<sup>3836</sup> UNIDOCs Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

<sup>3937</sup> UNIDOCs Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

<sup>4038</sup> Palo Alto Fire Department website, [www.pafd.org/news/displaynews.asp?NewsID=604&TargetID=172](http://www.pafd.org/news/displaynews.asp?NewsID=604&TargetID=172), accessed November 26, 2007.

<sup>4139</sup> Shannon Ford, Palo Alto Fire Department, personal communication, November 26, 2007.

The SUMC Project could increase hazardous materials use and hazardous waste generation due to increased site activity and development, and the range and volume of hazardous materials ~~currently~~ on the site would change due to the expansion of the SUMC [Project operations](#). The SUMC has ~~an~~ HMBP on file with the PAFD. The requirement to prepare and maintain an HMBP ensures that the SUMC Project's use of hazardous materials would be within acceptable risk levels and, therefore, that the SUMC Project would not use or produce hazardous materials in a manner that poses substantial hazards to people or to the environment.

**Building and Fire Safety.** OSHPD enforces the 2007 California Building Code, 2003 Life Safety Code, and 2001 California Fire Code. The PABD and PAFD also enforce the California Building Code and California Fire Code, respectively. These laws specify management practices for flammable materials, including packaging and containment requirements. They also set forth appropriate construction standards (e.g., fire separations and fire suppression systems) depending on building occupancy classifications. The OSHPD, PABD, and PAFD also review proposed building design plans to ensure compliance with the Uniform Building Code and California Fire Code requirements. The new construction and expanded operations at the Project Area would be subject to these requirements.

**Worker Safety.** Occupational safety standards exist in federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA obligates many businesses to prepare injury and illness prevention plans and chemical hygiene plans. Cal/OSHA's Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers and employers are to make material safety data sheets available in the workplace and properly train workers in the use of hazardous materials.

OSHA's Bloodborne Pathogens Standard mandates the use of universal precautions in the handling of human blood and certain body fluids in the workplace. Each employer with employees who have potential occupational exposure to bloodborne pathogens must annually review and update their Exposure Control Plan. The Exposure Control Plan must implement precautions including providing hand washing facilities; forbidding bending, recapping, or removing contaminated needles or sharps; providing regulation of sharps disposal containers; forbidding the storage or consumption of food/drink, the application of cosmetics, or smoking in work areas where there is a likelihood of occupational exposure; prohibiting mouth suctioning of blood; transporting biohazardous materials according to regulation; provision of personal protective equipment at no cost to employees, including gloves, masks, eye protection, gowns, aprons, and other protective equipment; clean and sanitary maintenance of facilities; provision of the hepatitis B vaccine to employees with risk of occupational exposure; labeling of all containers holding regulated waste; and ensuring all employees participate in occupational exposure training. All of these safety standards and practices regarding workplace safety are contained in and implemented by individual businesses through their HMBPs and Addenda, as described above.

**Hazardous Waste Handling.** DTSC is authorized to enforce hazardous waste laws and regulations in California. Requirements place responsibility for proper hazardous waste disposal on hazardous waste generators for the lifetime of the hazardous waste, commonly referred to as cradle-to-grave.

All hazardous waste generators must certify that, at a minimum, they make a good faith effort to minimize their waste and use the waste management methods required by law. Hazardous waste laws and regulations are enforced locally by the County DEH.

**Radioactive Materials Management.** The Radiologic Health Branch of the CDHS administers the federal and State radiation control laws and regulations that govern the storage, use, and transportation of radioactive materials and the disposal of radioactive wastes. The Radiologic Health Branch licenses institutions that use radioactive materials and radiation-producing equipment, such as x-ray equipment. In order to maintain their licenses, institutions such as the facilities at the SUMC must meet training and radiation safety requirements and be subject to routine inspections.

**Medical Waste Handling.** The CDHS Medical Waste Management Program enforces the California Medical Waste Management Act and related regulations. Medical facilities that generate 200 or more pounds per month of medical waste in any month of a 12-month period are required to implement a Medical Waste Management Plan, which acts as the Medical Waste Facility Permit application. A Medical Waste Management Plan must be filed with the County DEH, the enforcement and permitting agency, on forms provided by the County DEH, containing but not limited to the name, address, and type of business of the waste generator; the type and estimated monthly quantity of medical waste generated; the type and capacity of medical waste treatment facilities used on-site; the name and address of the registered hazardous waste hauling service; the name and address of the offsite medical waste treatment facility; an emergency action plan complying with CDHS regulations; and a statement certifying that the information provided is complete and accurate. The Medical Waste Management Plan is enforced through an annual certification completed by the medical waste generator and through annual inspections by the PAFD and/or the County DEH.

Medical waste and its disposal is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, and transportation. Medical waste must be stored in closed red bags marked “biohazard” and, when transported for disposal, placed inside hard-walled containers with lids. The law imposes a cradle-to-grave tracking system and a calibration and monitoring system for on-site treatment. Facilities that treat medical waste on-site must obtain a medical waste facility On-site Treatment Facility permit from the County DEH, which is subject to annual audits, and submit a Generator Registration Application (form DHS 8550). The medical waste facility ~~on~~On-site Treatment Facility permit application must contain, but is not limited to, the permit application form (DHS 8667); the capacity and time per operational cycle; the operations schedule; the amount of medical waste expected to be handled during the permit period; the process to be used to treat medical waste; the type of waste to be treated; measures which would prevent unauthorized waste from being treated at the facility; a description of radiation detection devices; a facility site plan depicting medical waste treatment locations; a map of the vicinity; a disclosure statement; a description of security procedures; the general operation plan; the emergency action plan; the training plan; the closure plan; and a description of the monitoring equipment and schedule. The permit is valid for five years, at which point it can be renewed. The County DEH would issue a medical waste facility On-site Treatment Facility permit upon evaluation, inspection, or records review of the application. The permit is issued within 180 days if the application is in substantial compliance with the California Medical Waste Management Act. The permit may condition the handling or treatment of medical waste to protect public health and safety.

The current SUMC Medical Waste Management Plan was revised in March 2007 and includes a comprehensive list of the types of medical waste generated, as well as information on the collection and disposal of medical waste, emergency action plans, and a list of required training regiments for all new employees. With implementation of the SUMC Project, the SUMC project [applicants](#)[sponsors](#) would continue to comply with and be subject to the plan.<sup>4240</sup>

**Hazardous Materials Transportation.** The United States DOT has developed regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. Typical hospital operations could include hazardous materials transport by mail: USPS has developed additional regulations for the transport of hazardous materials by mail; DOT regulations specify packaging requirements for different types of materials; and the EPA has also promulgated regulations for the transport of hazardous wastes. These more stringent requirements include tracking shipments with manifests to ensure that wastes are delivered to their intended destinations. In California, CHP, California Department of Transportation (Caltrans), and DTSC enforce federal hazardous materials transportation requirements. All transportation of hazardous materials to and from the Project Area would be subject to these requirements.

**Hazardous Building Components.** Structural building components sometimes contain hazardous materials such as asbestos, PCBs, lead, and mercury. Demolition of buildings within the Project Area that contain such materials could disturb these materials and thus expose workers, the public, and the environment to hazardous materials. These materials are subject to regulatory oversight, as described below.

*Asbestos.* Asbestos is regulated as a hazardous air pollutant and as a potential worker safety hazard. BAAQMD's *Regulation 11* and Cal/OSHA regulations restrict asbestos emissions from demolition and renovation activities and specify safe work practices to minimize the potential for release of asbestos fibers. These regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos. California requires licensing and certification through Cal/OSHA of contractors who conduct asbestos abatement activities.

*PCBs.* DTSC has classified PCBs as a hazardous waste when concentrations exceed 5 parts per million (ppm) in liquids or 50 ppm in non-liquids. Fluorescent light ballasts may contain PCBs, and if so, they are regulated as hazardous waste and must be transported and disposed of or incinerated as hazardous waste. Ballasts manufactured after January 1, 1978 should not contain PCBs and are required to have a label clearly stating that PCBs are not present.

*Lead.* Cal/OSHA standards establish a maximum safe exposure level for types of construction work where lead exposure may occur, including demolition of structures where materials containing lead are

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<sup>4240</sup> SUMC, SUMC Project Submittal Application Supplement #1, written correspondence to the City of Palo Alto, September 2007.

present; removal or encapsulation of materials containing lead; and new construction, alteration, repair, or renovation of structures with materials containing lead. Inspection, testing, and removal of lead-containing building materials must be performed by State-certified contractors who are required to comply with applicable health and safety and hazardous materials regulations. Typically, building materials with only lead-based paint attached are not considered hazardous waste unless the paint is chemically or physically removed from the building debris.

*Mercury.* Spent fluorescent light tubes, thermostats, and other electrical equipment contain heavy metals that, if disposed of in landfills, can leach into soil or groundwater. Lighting tubes typically contain concentrations of mercury that may exceed regulatory thresholds for hazardous waste and, as such, must be managed in accordance with hazardous waste regulations. Elemental mercury also can be found in many electrical switches, which also must be managed in accordance with hazardous waste regulations.

## **Impacts and Mitigation Measures**

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### **Standards of Significance**

Based on significance thresholds determined by the City of Palo Alto, the Projects would result in a significant hazardous materials impact if they would:

- Create a significant hazard to the public or the environment as a result of the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Construct a school on a property that is subject to hazards from hazardous materials contamination, emissions, or accidental release;
- Create a significant hazard to the public or the environment from existing hazardous materials contamination by exposing future occupants or users of the site to contamination either in excess of soil and ~~ground-water~~groundwater cleanup goals developed for the site or from location on listed hazardous materials sites compiled pursuant to Government Code Section 65962.5;
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires;
- Result in a safety hazard from a public airport for people residing or working within the project area; or
- Impair implementation of or physically interfere with an adopted emergency response or evacuation plan. This topic is discussed in more detail in Section 3.4, Transportation. As such, it is not evaluated further in this section. [\[NOTE: Section § 3.4 discusses effect on emergency response time. There is no mention of an adopted emergency response or evaluation plan, much less an analysis of impairment of or interference such a plan. We recommend that this criterion should be addressed in this section of the EIR.\]](#)

## Methodology for Analysis

To assess the potential for the Projects to involve the use, production, or disposal of materials in a manner that poses substantial hazards to people, the following analysis considers the pathways through which exposure to hazards could potentially occur, and evaluates the controls that would be placed on each of these pathways. Exposure pathways that would be controlled sufficiently to pose no substantial hazards are considered less-than-significant health and safety issues. This evaluation includes the review of previous ESAs, agency files, and hazardous materials reports that deal directly with facilities located within the Project Area.

Exposure pathways are the means by which hazardous substances move through the environment from a source to a point of contact with people. A complete exposure pathway must have four parts: (1) a source of contamination, (2) a mechanism for transport of a substance from the source to the air, surface water, groundwater, or soil, (3) a point where people come in contact with contaminated air, surface water, groundwater, or soil, and (4) a route of entry into the body. Routes of entry can be eating or drinking contaminated materials, breathing contaminated air, or absorbing contaminants through the skin. Risks can be assessed when an exposure pathway is complete. If any part of an exposure pathway is absent, the pathway is said to be incomplete and no exposure or risk is possible. In some cases, although a pathway is complete, the likelihood that exposure will occur is very small.

Exposure pathways can exist under many different circumstances. Toxic substances can be released from a facility or source of contamination during normal, everyday operations or through leaks, spills, fires, or other accidents. Once released, contaminants can move or be transported through the environment by various means, including surface and groundwater flows.

## Environmental Analysis

*HM-1. Exposure from Hazardous Materials Use, Handling, and Disposal:*

- *The SUMC Project would not substantially increase exposure from hazardous materials use, handling, and disposal during operation. (LTS)*
- *The Shopping Center Project would not substantially increase exposure from hazardous materials use, handling, and disposal during operation. (LTS)*

### **SUMC Project**

**[NOTE: Throughout this impact discussion, we do not agree with increases in materials and waste being characterized as “minimal.” Instead, the analysis should focus on the control mechanisms that would prevent a significant effect from occurring.]**

**Impacts on Workers and Other Individuals On-Site.** The existing and projected amounts of hazardous materials at the SUMC Sites are shown in Table 3.12-4. In addition to the materials described in the table, facilities maintenance activities require various common hazardous materials, including cleaners (which may include solvents and corrosives, in addition to soaps

and detergents); paints; pesticides and herbicides; fuels (e.g., diesel); and oils and lubricants. As shown in Table 3.12-4, the post-construction amounts of hazardous materials at the SUMC Sites would exceed the existing amounts of chemicals and hazardous materials currently on-site. ~~However, the difference in volumes is minimal (i.e. 11 pound difference of flammable gas; 305 pound difference of non-flammable, non-toxic gas; 2 pound difference in flammable liquids; 0.2 pound difference in oxidizers; 18 pound difference of corrosive materials; and 11 pound difference in solid or liquid toxic materials).~~ [NOTE: the quantification in the parenthetical appears to be based upon 2015 haz mats at SHC and LPCH. The analysis should be based upon the tables in the project application that identify 2025 materials quantities, and should also combine SHC/LPCH and SoM. The quantifications are not relevant to the analysis given that it is based on controls rather than quantities, therefore we have not recalculated the amounts here.] Although the SUMC Project would increase the amount of these materials, their transport, storage, and use would be controlled in the same manner as under current conditions. As such, these increments are considered to be insignificant because they would not substantially increase risk of exposure compared to existing operations.

The hazards posed by chemicals used at the SUMC Sites, including hazardous and biohazardous materials, vary. The properties and health effects of different chemicals are unique to each chemical and depend on the extent to which an individual is exposed. As is currently the case, following occupation of the new buildings at the SUMC Sites, exposure to hazardous and biohazardous materials by physicians, staff, patients, and visitors could occur through activities associated with hazardous materials handling, storage, and accidental release. ~~The, however the potential for this is small due to strict controls and requirements that minimize risk of exposure and release. The exposure did occur, effects of hazardous materials handling and storage would generally be limited to the immediate area where the materials would be located, because this is where exposure would be most likely.~~

**Table 3.12-4a**  
**Existing and Projected Amounts of Hazardous Chemicals at the SUMC Sites\***

Type of Material	Existing Amounts On-site			Projected Amount On-site <u>[NOTE: These amounts are projected for 2015; there are different amounts projected for 2018+, which should be used here; see Table 7-1b of Project Application, page 3. 2018+ amounts are listed below in tracked changes]</u>		
	Solids (pounds)	Liquids (gallons)	Gases (cubic feet)	Solids (pounds)	Liquids (gallons)	Gases (cubic feet)
<u>Explosive, Mass Explosion</u>	<u>0.28</u>	<u>==</u>	<u>==</u>	<u>0.31</u>	<u>==</u>	<u>==</u>
<u>Explosive, Minor blast</u>	<u>0.02</u>	<u>==</u>	<u>==</u>	<u>0.02</u>	<u>==</u>	<u>==</u>
Flammable Gas	102	48	<del>4,907</del> <u>6,211</u>	113	53	<del>5,397</del> <u>6,859</u>
			<u>1</u>	<u>[131]</u>	<u>[161]</u>	<u>[7,742]</u>
Non-Flammable, Non-Toxic Gas	3,058	<del>3,575</del> <u>5,110</u>	<del>43,069</del> <u>169</u>	<del>3,363</del> <u>364</u>	<del>3,932</del> <u>5,652</u>	<del>47,376</del> <u>188,901</u>
			<u>431</u>	<u>[3,914]</u>	<u>[6,295]</u>	<u>[196,654]</u>
Flammable Liquids	20	<del>8,203</del> <u>8,991</u>	10,102	22	<del>9,023</del> <u>9,907</u>	11,112
		<u>91</u>		<u>[26]</u>	<u>[11,382]</u>	<u>[12,931]</u>
<u>Flammable Solid</u>	<u>169</u>	<u>0.06</u>	<u>==</u>	<u>189</u>	<u>0.07</u>	<u>==</u>
<u>Spontaneously Combustible</u>	<u>5.56</u>	<u>0.03</u>	<u>==</u>	<u>6.24</u>	<u>0.03</u>	<u>==</u>
<u>Water Reactive Flammable</u>	<u>3.74</u>	<u>0.05</u>	<u>==</u>	<u>4.19</u>	<u>0.06</u>	<u>==</u>
Oxidizers	<del>2147</del>	<del>36164</del>	--	<del>2,216</del> <u>5</u>	<del>40184</del>	--
				<u>[165.6]</u>	<u>[190]</u>	
<u>Organic Peroxide</u>	<u>1.07</u>	<u>30.16</u>	<u>==</u>	<u>1.20</u>	<u>33.18</u>	<u>==</u>
					<u>[38.18]</u>	
<u>Radioactive</u>	<u>0.87</u>	<u>==</u>	<u>==</u>	<u>0.97</u>	<u>==</u>	<u>==</u>
Corrosive Materials	<del>183375</del>	<del>636749</del>	--	<del>201416</del>	<del>700827</del>	--
				<u>[449]</u>	<u>[941]</u>	
Toxic Materials (solid or liquid)	<del>109726</del>	<del>166242</del>	--	<del>120811</del>	<del>183268</del>	--
				<u>[831]</u>	<u>[297]</u>	
<u>Miscellaneous Hazards</u>	<u>5,176</u>	<u>527</u>	<u>==</u>	<u>5,796.1</u>	<u>590.50</u>	<u>==</u>
				<u>0</u>	<u>[591.40]</u>	

<u>Moderately Toxic</u>	==	<u>2.00</u>	==	==	<u>2.24</u>	==
<u>Slightly Toxic</u>	==	<u>31</u>	==	==	<u>35</u>	==
<u>Flammable</u>	==	<u>31</u>	==	==	<u>35</u>	==
<u>Combustible</u>	<u>136</u>	<u>218</u>	==	<u>153</u>	<u>244</u>	==
<u>Suspect Carcinogen/Mutagen</u>	==	<u>33</u>	==	==	<u>37</u>	==
<u>Halogenated Solvent</u>	==	<u>2.00</u>	==	==	<u>2.24</u>	==
<u>Skin Irritant</u>	==	<u>121</u>	==	==	<u>136</u>	==
<u>Hepotoxin</u>	==	<u>2.00</u>	==	==	<u>2.24</u>	==
<u>Nephrotoxin</u>	==	<u>2.00</u>	==	==	<u>2.24</u>	==
<u>Neurotoxin</u>	==	<u>2.00</u>	==	==	<u>2.24</u>	==
<u>Lung Irritant</u>	==	<u>121</u>	==	==	<u>136</u>	==
<u>Eye Irritant</u>	==	<u>121</u>	==	==	<u>136</u>	==
<u>California Prop. 65 Carcinogen</u>	==	<u>2.00</u>	==	==	<u>2.24</u>	==

Source: SUMC, 2007.

Notes:

\* ~~Includes SHC and LPCH facilities.~~

- Some chemicals fall into more than one category; therefore, the columns presented here cannot be added to derive actual totals.
- This table provides a reasonable estimate of the materials that will be located at SUMC facilities; however, due to the continuing advancements in technology, the list of needed chemicals and quantities may change in the time between this estimate and the opening and ongoing operation of SUMC Project facilities.

The routes through which SUMC facility employees or others in the immediate vicinity could be exposed include inhalation, ingestion, contact, injection, and other ~~accidents~~ accidental means. Control measures to reduce or prevent exposure to hazardous chemical materials and radioactive materials currently exist explicitly in federal and State laws to minimize worker safety risks. Control measures to reduce or prevent exposure to biohazardous materials are incorporated in California law by reference in Sections 25115, 25117, and 25316 of the California Health and Safety Code. Examples of control measures to reduce the risk of exposure of on-site workers and other individuals are presented in Table 3.12-5. These control measures are consistent with occupational safety standards and standard industry practices. They respond to the materials and wastes handling regulations enforced by county, State, and federal agencies through required reporting procedures and site inspections (see Applicable Plans and Regulations, above). The SUMC Project sponsors are, and would continue to be, required by law to comply with the control measures established in the approved HMBPs, license to handle radiological materials, and Medical Waste Facility Permit.

**Table 3.12-5  
Exposure Pathways and Controls – Workers and Other Individuals On-site**

Exposure Pathway	Examples of Control Measures
Inhalation (breathing a hazardous substance)	<ul style="list-style-type: none"> <li>• Working with volatile materials in fume hoods<sup>a</sup></li> <li>• Working with potentially aerosol-suspended biohazardous materials in biosafety cabinets<sup>b</sup></li> <li>• Keeping containers closed when not in use</li> <li>• Wearing face masks or respirators, as necessary</li> </ul>
Ingestion (swallowing a hazardous substance)	<ul style="list-style-type: none"> <li>• Not eating or drinking near hazardous materials</li> <li>• Not storing food in refrigerators used for hazardous materials</li> <li>• Not smoking near hazardous materials</li> <li>• Washing hands and work areas</li> </ul>
Contact (absorbing a hazardous substance through the skin or eyes)	<ul style="list-style-type: none"> <li>• Wearing protective clothing and shoes, as necessary</li> <li>• Wearing eye protection (glasses or goggles), as necessary</li> <li>• Wearing gloves, as necessary</li> <li>• Washing hands and work areas</li> <li>• Working with radioactive materials behind shields</li> </ul>
Injection (puncturing or cutting the skin with a contaminated object)	<ul style="list-style-type: none"> <li>• Participating in awareness training</li> <li>• Keeping sharps (e.g., needles, knives, scissors) in puncture-resistant containers</li> </ul>
Other Accidents	<ul style="list-style-type: none"> <li>• Participating in emergency response training<sup>c</sup></li> <li>• Maintaining emergency equipment (e.g., safety showers, emergency eye washes, first aid kits)</li> <li>• Providing appropriate lips on shelves where hazardous materials are stored and other restraints where necessary<sup>d</sup></li> <li>• Segregating incompatible hazardous materials and storing flammable materials in fire-rated cabinets</li> <li>• Providing secondary containment for hazardous materials that are not in use</li> <li>• Calling the Palo Alto Fire Department and its Hazardous Materials Emergency Response Team, if necessary</li> </ul>

*Source:* PBS&J, 2008.

*Notes:*

- a. Fume hoods are cabinets with front-opening (usually sliding) glass doors connected to overhead exhaust fans that draw air from the room through the cabinet and expel it into the atmosphere through rooftop stacks.
- b. Biosafety cabinets look similar to fume hoods. They filter aerosols and remove particles from the air, but do not necessarily exhaust the filtered air to the outdoors.
- c. Training content and methods as required and described by California's Hazardous Materials Release Response Plans and Inventory Law, Cal/OSHA's Communication Standard, OSHA's Bloodborne Pathogens Standard, the licensing requirements of the Radiological Health Branch of the CDHS, the Medical Waste Management Act, and any other applicable laws or regulations.
- d. All containers shall be stored using restraining wire or cord, or restraining edges, when open shelving is used.

The standard industry practices are established by guidelines from agencies such as the National Research Council and the U.S. Department of Health and Human Services Public Health Service, National Institutes of Health, and Centers for Disease Control. The guidelines are often indirectly required by laws and regulations that incorporate them by reference. The protective equipment and training required by law to be provided to SUMC facilities staff would further reduce potential exposure. The occupational exposure training and personal protective equipment required by OSHA's Bloodborne Pathogens Standard, the training required by the California Medical Waste Management Act, and the training required by California's Hazardous Materials Release Response Plans and Inventory Law all limit the exposure pathway for individuals on or near the SUMC Sites. Compliance with the regulations and industry standards would protect workers and other individuals on-site from exposure to hazardous materials.

The County OES regulates the management of hazardous materials, including its storage and use. The County OES inspects hazardous material sites and performs oversight functions pursuant to Division 20 of the State Health and Safety Code. The State Health and Safety Code defines hazardous materials, establishes threshold quantities for regulation, and lists businesses that are exempt from State requirements. All businesses, including hospitals, which use or store quantities that exceed the State's thresholds, are required to file a HMBP with the County OES and the PAFD. Also, in Santa Clara County, an HMBP is required for sites that involve the use or handling of any quantity of radioactive material. The SUMC has an HMBP on file with the PAFD. Compliance with the Business Plan Act would ensure that project-related use of hazardous materials would be within acceptable risk levels because of the inventory, reporting, training, and emergency response plan requirements associated with the HMBP and oversight by the County OES. Therefore, project-related activities would not use or produce hazardous materials in a manner that poses substantial hazards to workers and other individuals on-site. As such, impacts from exposure from hazardous materials use, handling, and disposal on the community and the environment on-site would be less than significant.

**Impacts on the Surrounding Community and Environment.** The health and safety procedures that protect workers and other individuals in the immediate vicinity of hazardous materials would also protect the more distant community and environment. The pathways through which the community or the environment (e.g., local air quality and biota) could be exposed to hazardous materials include air emissions, transport of hazardous materials to or from the site, waste disposal, human contact, and accidents. Table 3.12-6 lists all of the primary means the SUMC Project sponsors would use to protect the community and the environment from exposure to hazardous materials, as required by law, such as California's Hazardous Materials Release Response Plans and Inventory Law, the 2007 California Building Code, the 2003 Life Safety Code, the 2001 California Fire Code, the San Francisco Bay RWQCB's groundwater protection program, Cal/OSHA's Hazard Communication Standard, OSHA's Bloodborne Pathogen Standard, hazardous waste laws and regulations, radiation control laws and regulations, the California Medical Waste Management Act, the DOT

**Table 3.12-6  
Exposure Pathways and Controls – Community and Environment**

Exposure Pathway	Examples of Control Measures
Air Emissions	<ul style="list-style-type: none"> <li>Using fume hood ventilation or alternative exhaust systems to dilute and subsequently disperse outgoing emissions<sup>a</sup></li> </ul>
Transport to and from the Site	<ul style="list-style-type: none"> <li>Following packaging requirements specified by the DOT, USPS, and the CDHS Radiologic Health Branch and Medical Waste Program</li> <li>Identifying container contents with appropriate labels</li> <li>Using licensed hazardous waste haulers</li> <li>Documenting hazardous waste shipments</li> </ul>
Waste Disposal	<ul style="list-style-type: none"> <li>Training workers<sup>b</sup></li> <li>Segregating wastes</li> <li>Collecting hazardous waste for appropriate disposal</li> <li>Diluting and treating wastewater from the site</li> <li>Labeling trash cans</li> <li>Following federal and <del>state</del>State hazardous waste disposal regulations and procedures, including those for hazardous waste manifest documentation</li> </ul>
Human Contact	<ul style="list-style-type: none"> <li>Identifying container contents with appropriate labels</li> <li>Training workers<sup>b</sup></li> <li>Implementing standard hygiene practices (e.g., wearing protective clothing and gloves when necessary, leaving protective clothing at work, and washing hands and work areas)<sup>c</sup></li> <li>Implementing medical surveillance programs to monitor the health of those who work with certain biohazardous materials<sup>c</sup></li> <li>Monitoring the exposure of those who work with radioactive materials<sup>c</sup></li> </ul>
Accidents	<ul style="list-style-type: none"> <li>Providing emergency response training<sup>b</sup></li> <li>Maintaining emergency equipment (e.g., safety showers, emergency eye washes, first aid kits)</li> <li>Calling the South County Fire Authority <u><a href="#">[NOTE: Shouldn't this be PAED?]</a></u> and its Hazardous Materials Emergency Response Team, if necessary</li> <li>Plugging floor drains or providing sumps in areas where relatively large quantities of hazardous waste may be handled<sup>d</sup></li> <li>Conducting facility inspections and preventative maintenance</li> </ul>

Source: PBS&J, 2008.

Notes:

- Fume hoods are cabinets with front-opening (usually sliding) glass doors connected to overhead exhaust fans that draw air from the cabinet and expel it into the atmosphere through rooftop stacks.
- Training content and methods as required and described by California's Hazardous Materials Release Response Plans and Inventory Law, Cal/OSHA's Communication Standard, OSHA's Bloodborne Pathogens Standard, the licensing requirements of the Radiological Health Branch of the CDHS, the Medical Waste Management Act, and any other applicable laws or regulations.
- These measures would prevent employees from transmitting hazardous materials to the community or into the environment.
- Floor drains in generator rooms shall be equipped with removable plugs to prevent spills from entering the wastewater sewer. A sump located at the loading dock would minimize the potential for a hazardous materials release to the storm sewers.

hazardous materials transportation regulations, the USPS hazardous materials transportation regulations, the EPA hazardous materials transportation regulations, and the BAAQMD and Cal/OSHA regulations restricting asbestos emissions and specifying safe work practices, as described in the Applicable Plans and Regulations section, above.

The SUMC Project would increase hazardous materials usage and storage on the SUMC Sites. Increased usage and storage would increase risks of human and environmental exposure to hazardous materials. Table 3.12-4 provides the SUMC Project sponsors' estimates of the quantities of hazardous materials that would be stored at the SUMC Sites. In addition to the materials described in the table, facilities maintenance activities require various common hazardous materials, including cleaners (which may include solvents and corrosives, in addition to soaps and detergents); paints; pesticides and herbicides; fuels (e.g., diesel); and oils and lubricants. It is expected that storage of gases and liquids would generally be in small, individual containers of about 5 gallons or less except for diesel fuel storage tanks and compressed gas cylinders. ~~As a result, it also is expected that~~ the quantities of the types of materials anticipated at the SUMC Sites ~~would be sufficiently small that they would fall well below~~ that are subject to the federal and California Accidental Release Prevention Program (CalARP) ~~regulated State~~ would fall well below threshold quantities that would trigger the requirements for a Risk Management Plan. The SUMC Project would not be expected to increase the use of these materials to the point that would exceed the threshold quantities identified in Section 112(r)(5) of the federal Clean Air Act (40 CFR section 68.130). Thus, the SUMC Project would not transport, use, store, handle, or dispose of hazardous materials in a manner that poses substantial hazards to the surrounding community or the environment. There would also not be a significant hazard to the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment at the SUMC Sites.

Aside from accidents possibly occurring on-site, accidents during medical waste transport to and from the SUMC Sites could expose the community and the environment to risks at some distance from the SUMC Sites. As projected by the SUMC Project sponsors, medical waste that would be transported offsite is expected to increase by ~~13 tons per year.~~<sup>43</sup> 38 tons per year.<sup>41</sup> [NOTE: The analysis should be based upon the projections at full buildout. The author seems to be using the 2015 scenario projections rather than the full buildout scenario.] Currently, the on-site functions transport an estimated 160 tons of waste per year. ~~Comparatively, this~~ This increase ~~would be considered to be minimal and~~ would not pose a significant impact on the community or the environment because the community would not be exposed to a substantially higher risk of exposure as compared to existing operations.

**Hazardous Materials Use and Storage Summary.** The SUMC Project would increase the on-site use and handling, disposal, and transport of hazardous materials ~~by a small amount~~ relative

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<sup>43</sup> ~~SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.~~

<sup>41</sup> SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.

to existing conditions. Regulations such as California's Hazardous Materials Release Response Plans and Inventory Law; the 2007 California Building Code, the 2003 Life Safety Code, the 2001 California Fire Code; the San Francisco Bay RWQCB's groundwater protection program; Cal/OSHA's Hazard Communication Standard; OSHA's Bloodborne Pathogen Standard; hazardous waste laws and regulations; radiation control laws and regulations; the California Medical Waste Management Act; the DOT hazardous materials transportation regulations; the USPS hazardous materials transportation regulations; the EPA hazardous materials transportation regulations; and the BAAQMD and Cal/OSHA regulations restricting emissions and specifying safe work practices would require that the controls summarized in Tables 3.12-5 and 3.12-6 be implemented. These mechanisms would minimize the potential for exposure to adverse health or safety effects. Therefore, the SUMC Project would not involve the use, disposal, or transport of materials in a manner that poses any substantial hazards to people, animal, or plant populations. Furthermore, the SUMC Project would implement its required emergency response plan (as part of the HMBP) in coordination with the PAFD (see Section 3.14, Public Service, for an analysis of SUMC Project impacts on PAFD services). For these reasons, the SUMC Project would not result in a significant environmental impact related to the increased use, transport, handling, and disposal of hazardous materials.

### **Shopping Center Project**

The Shopping Center Project includes construction and operation of approximately 240,000 square feet of new commercial space within numerous new buildings as well as a new 120-room hotel within the Shopping Center Site and parking to accommodate a net addition of approximately [1,234,199](#) vehicles. While the commercial space could include both office and retail/restaurant uses, it is expected that most of the Shopping Center Project would be comprised of retail and restaurant uses.

Hazardous materials used at the Shopping Center Project could include petroleum products used for back up generators for various retail stores, restaurants, and the hotel, as well as cleaning products used for store and facility maintenance. As such, exposure of site occupants to hazardous materials could occur in the following manner: improper handling or use of hazardous materials or hazardous wastes during occupancy of the Shopping Center Project, particularly by untrained personnel; environmentally unsound disposal methods; or fire, explosion or other emergencies (see Table 3.12-6). [\[Note: The majority of the items on Table 3.12-6 don't really occur or apply to the Shopping Center.\]](#)

Hazardous materials regulations, which are codified in Titles 8, 22, and 26 of the CCR, and their enabling legislation set forth in Chapter 6.95 of the California Health and Safety Code, were established at the State level to ensure compliance with federal regulations to reduce the risk to human health and the environment from the routine use of hazardous substances. These regulations must be implemented by employers/businesses, as appropriate, and are monitored by the State (e.g., Cal/OSHA in the workplace or DTSC for hazardous waste) and/or local jurisdictions (e.g., the PAFD and the County DEH).

The Shopping Center Project [occupants](#) must comply with the above regulations, and thus the potential for accidental release of hazardous materials during operation would be less than significant. Also, because compliance with the above regulations would reduce the potential for release of hazardous materials, effects related to demand for emergency response due to release of hazardous materials would be less than significant. This would be accomplished by ensuring that regulated activities (e.g., businesses) are managed in accordance with applicable regulations such as Hazardous Materials Release Response Plans and Inventories (Business Plans), and the California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements.

Workplace regulations addressing the use, storage, and disposal of hazardous materials in Title 8 of the CCR would apply to businesses and public facilities on the Shopping Center Site. Compliance with these regulations would be monitored by the PAFD and the County DEH when they perform inspections for flammable and hazardous materials storage. Other mechanisms in place to enforce the Title 8 regulations include compliance audits and reporting to local and State agencies. Implementation of the workplace regulations would further reduce the potential for hazardous materials releases.

Compliance with existing federal, State, and local laws and regulations that are administered and enforced by the County DEH and the PAFD would reduce risks associated with the routine use, handling, transportation, and disposal of hazardous materials associated with occupancy of the Shopping Center Project. Therefore, the Shopping Center Project would have a less-than-significant impact with respect to the routine use, handling, transport, and disposal of hazardous materials.

*HM-2. Demolition and Construction-Related Hazardous Materials Disturbance:*

- *The SUMC Project could disturb hazardous materials in existing buildings, but would not cause potential adverse health or safety effects [unless an asbestos survey were not performed prior to demolition or renovation activities](#). (S)*
- *The Shopping Center Project could disturb hazardous materials from parking ~~to~~[structure](#) demolition, but would not cause potential adverse health or safety effects. (LTS)*

### **SUMC Project**

The SUMC Project would require demolition of about 1.2 million square feet of existing buildings, some of which date back to 1953. Because it was common building practice to use materials containing asbestos, PCBs, lead, and mercury in structures built prior to 1981, demolition of the existing buildings (which were built prior to 1981) could disturb these hazardous building materials and, without control measures, the hazardous materials could cause adverse health or safety effects to construction workers, the public, and/or the environment.

If hazardous materials were found upon inspection at levels that require special handling (i.e., any building material containing 0.1 percent asbestos, paint that contains more than 5,000 parts

per million of lead, or any building materials known or suspected to contain any amount of PCBs or mercury), the SUMC Project sponsors must manage these materials as required by law and according to federal and State regulations and guidelines, including those of DTSC, BAAQMD, Cal/OSHA, Santa Clara County OES, and any other agency with jurisdiction over these hazardous materials, as described below.

Asbestos poses health hazards only when inhaled; therefore, friable (easily crumbled) asbestos is potentially hazardous if not encapsulated. Non-friable asbestos or encapsulated asbestos does not pose substantial health risks. During building demolition, asbestos fibers (if any are present) could be disturbed, released into the air, and inhaled by construction workers or the public unless proper precautions are taken. There could be asbestos containing materials in these buildings, and though currently those materials are inert, they could be released to the air during demolition activities, subsequently exposing site workers.

BAAQMD's *Regulation 11 – Hazardous Pollutants, Rule 2 – Asbestos Demolition, Renovation, and Manufacturing* establishes an allowable asbestos emissions threshold from asbestos-related demolition or construction activities, and specifies precautions and safe work practices to be followed in order to minimize the potential release of asbestos fibers. A detailed written plan or notification of demolition must be submitted to the Air Pollution Control Officer (APCO) at least 10 business days before the commencement of demolition. This plan must include contact information for the person who conducted the asbestos survey, including the surveyor's applicable Cal/OSHA certification number; a description of demolition methods, work practices, and engineering controls; the amount of regulated-asbestos containing material to be removed; certification that at least one person trained as required by the BAAQMD will supervise the removal described, with the information posted on the SUMC Sites for inspection by the APCO; the waste transporting service to be used; and the site where the waste will be disposed. The APCO at the BAAQMD enforces the regulation through inspection and testing to determine compliance, citations for non-compliance, and through identification of misdemeanors requiring fines or jail sentencing. The purpose of the BAAQMD's *Regulation 11* is to control emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing activities and establish appropriate waste disposal procedures to safeguard workers, the public, and the environment from asbestos emissions.

While compliance with these regulations would protect construction workers and the public from exposure to hazardous materials such as asbestos, potential impacts associated with asbestos ~~exposure during~~ could occur if an asbestos survey were not conducted prior to commencement of demolition activities ~~could still occur and result in adverse public health impacts. Therefore to~~ ensure that control measures are implemented. Thus, potential exposure to asbestos containing materials during building renovation and/or demolition is considered a significant impact.

Building components containing PCBs, lead, or mercury could be found in the buildings proposed to be demolished on the SUMC Sites. In sufficient concentrations, lead and mercury are regulated as hazardous wastes. PCBs, mercury, and lead are regulated under the federal Toxic Substances Control Act of 1976, and Cal/OSHA standards establish a maximum safe

exposure level for types of construction work where lead exposure may occur, as described earlier in Applicable Plans and Regulations. Because concentrations of PCBs, lead, and/or mercury are expected to be minimal, exposure hazards for these substances are considered to be negligible. Additionally, adherence to applicable health and safety requirements for these substances would ensure that potential exposure impacts from PCBs, lead, and/or mercury are less than significant.

Hazardous materials would be used in varying amounts during construction of the SUMC Project. Products and materials typically used during construction that could contain hazardous substances include paints, solvents, cements, glues, and fuels. As explained ~~in~~ under HM-1, compliance with existing federal, State, and local laws and regulations that are administered and enforced by the County DEH and the PAFD would ensure that no potential exposure impacts related to disturbances of hazardous materials would occur.

MITIGATION MEASURE. Implementation of the mitigation measure below would reduce impacts from exposure to asbestos containing materials to a less-than-significant level at the SUMC Sites by ensuring that all asbestos containing materials are identified and removed prior to structural modification and/or demolition. (LTS)

*A.HM-2.1 Conduct asbestos survey at the SUMC Sites. Prior to building renovation and/or demolition, an asbestos survey shall be performed on all areas of the building anticipated to be demolished and/or renovated. This survey shall be performed by a licensed asbestos abatement contractor. In the event that asbestos is identified in the buildings proposed to be demolished and/or renovated, all asbestos containing materials shall be removed and appropriately disposed of by a licensed asbestos abatement contractor. A site health and safety plan, to ensure worker safety, in compliance with OSHA requirements (8 CCR 5208), shall be developed by the SUMC Project sponsors and in place prior to commencing ~~work on any sites contaminated with~~ renovation or demolition work on portions of buildings containing asbestos.*

## **Shopping Center Project**

The Shopping Center Project would entail demolition of a parking structure, and the construction of new commercial buildings, ~~as well as~~ and a ~~new~~ hotel. Construction of the Shopping Center Project could occur either within the area identified in Figure 2-19, along El Camino Real and Quarry Road, or anywhere else on the ~~site~~ Shopping Center Site. Regardless of where construction takes place, the Shopping Center Project would involve structural demolition, which would result in the potential disturbance of existing hazardous materials that are imbedded in building components/materials. However, regarding asbestos containing materials, the risk of exposure is low because no major renovations and/or demolition of retail structures are proposed. The parking ~~lot structures are~~ structure to be demolished is not expected to contain asbestos containing materials because ~~these type of~~ such structures generally do not contain these types of ~~material~~ materials in their building components. Additionally, all hazardous materials, including their handling and disposal activities, are highly regulated ~~on~~ at the federal, State, and local

levels. ~~Site construction~~ Construction activities, including those involving hazardous materials, would comply with all pertinent regulations. As described for the SUMC Project, hazardous materials would be used in varying amounts during construction of the Shopping Center Project. Existing regulations would reduce risks presented by these materials, thus resulting in a less-than-significant impact.

*HM-3. Exposure to Contaminated Soil and/or Groundwater During Construction:*

- *The SUMC Project could expose construction personnel and public to existing contaminated groundwater and/or soil. (S)*
- *The Shopping Center Project would not expose construction personnel and public to existing contaminated groundwater and/or soil. (LTS) [NOTE: Is this conclusion supported by the information in the setting section showing there have been gas stations on the Shopping Center site.]*

### **SUMC Project**

Exposure to hazardous materials could cause various short-term or long-term health effects specific to each chemical present if exposure is of sufficient concentration and duration. Acute effects, which may result from a single exposure, could range from major to minor effects, such as nausea, vomiting, headache, or dizziness. Chronic exposure to hazardous materials could result in systemic damage or damage to specific organs, such as lungs, liver, or kidneys (related to exposure to benzene, a known carcinogen and a common additive to petroleum hydrocarbons). Construction workers would be at the greatest risk of exposure to contaminated soil or groundwater, particularly if the potential for hazardous materials in the soil or groundwater is not identified adequately.

As described previously in this section, four Phase I ESAs ~~and~~, one Phase II ESA, and additional soil vapor and groundwater sampling were completed in order to assess the conditions at the SUMC Sites and identify potential hazardous conditions within the SUMC Project boundary. Specifically, the Phase I ESAs were conducted for specific addresses/sites located within the SUMC Sites (a Phase II ESA was also completed for the 703 Welch Road Site – refer to Existing Conditions section for further information). These locations are:

- Site 1 - 701 Welch Road, in the Main SUMC Site
- Site 2 - 703 Welch Road, in the Main SUMC Site
- Site 3 - 1101 Welch Road, in the Main SUMC Site
- Site 4 – Hoover Pavilion Site

The Phase I ESAs for Sites 1 and 3 reported no major evidence of hazardous materials accidents or spills, and therefore, did not recommended any further soil and/or groundwater testing. [NOTE: The Existing Setting section states that the Phase I addendum for 701 Welch concluded there were “concerns regarding the use, handling, and disposal of chemicals at

Building B,” and recommended a Phase Ii that could include analysis of soil and groundwater. Please reconcile.] In addition, soil vapor and groundwater sampling was completed at the Hoover Pavilion Site.

- **Site 2 - 703 Welch Road.** The Phase I ESA for Site 2 (703 Welch Road) recommended a Phase II ESA to further investigate the soil and wastewater quality. The Phase II ESA concluded that the soil quality within a limited area (4- to 9-square-foot area) near ~~every~~each of four discharge ~~point~~points from the building had been affected by contaminated discharge of wastewater (from the amalgam separators) and recommended the discontinued practice of discharging wastewater from the amalgam separators to the landscape or garden. Such discharge activities were discontinued consistent with this recommendation. The Phase II ESA also recommended that, if the building is demolished, the sanitary sewer line should be inspected for signs of leakage at joints and bends. If the sanitary sewer line is in poor condition or leakage has occurred, collect samples of the surrounding soil. The soils samples should be analyzed for mercury, silver, and pH levels to evaluate whether disposal of wastewater from the dental offices has impacted soil quality.

The SUMC Project at this location would include subsurface excavation during construction activities of the new LPCH ~~Clinic Building. As stated in the Phase II ESA, a 4 to 9 square foot area near every discharge point from the building has been affected by~~Building. If soils contaminated by discharge of wastewater. ~~Construction from the amalgam separators were not removed prior to subsurface excavation, then construction~~ workers could be exposed to these contaminated soils during excavation in these areas. This exposure would result in adverse health impacts; therefore, this is considered a significant impact. The SUMC Project sponsors plan to remove contaminated soils at this site prior to excavation activity; however, mitigation is identified to ensure monitoring of completion of site remediation.

**Site 4 – Hoover Pavilion Site.** The Phase I ESA for the Hoover Pavilion Site identified features that could potentially affect environmental conditions. These include: two 2,200-gallon USTs (diesel); one 750-gallon UST (primarily diesel); one 350-gallon waste oil UST; a boiler room with sumps; and three oil-filled transformers. The two 2,200-gallon USTs were emptied and closed in-place with neat cement slurry under a permit with the PAFD. The 750-gallon UST (which was installed in the 1960s under a permit with the PAFD) was removed in 1996, and the 350-gallon waste oil UST was emptied and closed in-place in 1987. According to interviews conducted as part of the Phase I ESA, the boiler room and sump were closed in 2000, and the three oil-filled transformers were removed and replaced with dry type transformers in the mid-1990s.

~~While the USTs at Site 4 have either been closed in place or removed, the Phase I ESA concluded that potential petroleum impacted soils remain below ground surface in the vicinity of the two 2,200 gallon tanks. In addition, the report states that free product is likely present in on site monitoring wells. For the 750 gallon and 350 gallon tanks, while it is disclosed in the Phase I ESA that the tanks were removed and/or closed in place, no documentation exists in any agency file regarding their closure. There is no documentation indicating that a “No Further Action” certificate was submitted for the 750 gallon tank, while a closure letter was not found at the~~

~~SCVWD for the 350-gallon tank. Furthermore, the Phase I ESA indicates that no further testing has taken place in the vicinity of the 350-gallon oil waste UST (it is known that polynuclear aromatic hydrocarbons [PNAs] are commonly associated with oil waste, and as such, might be present in the vicinity of the 350-gallon tank).~~

[NOTE: All of this information is already presented in the Existing setting section. The more relevant information is the more recent groundwater and soil vapor sampling work that has been completed, and the plan for remediation prior to excavation work.] Quarterly groundwater monitoring was conducted at the Hoover Pavilion Site from 1989 to 2001. The groundwater monitoring reports indicated soil contamination of TPH-D below the site. Groundwater monitoring reports on record,<sup>4442</sup> dated April 2001, concluded that the plume of dissolved-phase hydrocarbons in the diesel range is relatively stable. Per a request from the County DEH on March 2008, groundwater monitoring ~~has now been~~was reinstated at the Hoover Pavilion Site. in 2008. The latest groundwater data (~~preliminary data~~) is dated ~~August~~December 2008 and indicates that the TPH-D contamination is below Santa Clara County's threshold of 1,000 µg/l. At the Hoover Pavilion Site, results indicated levels of petroleum hydrocarbons at 180 µg/l. Groundwater analysis also disclosed the presence of naphthalene at a concentration of 1 µg/l, well below the corresponding threshold of 24 µg/l. The complete Quarterly Monitoring Report ~~has been requested by the County DEH, and will be~~was submitted to the County DEH ~~by January 2009. Notwithstanding, continual monitoring is needed in order to fully monitor the status of the contamination~~in December, 2008. This case remains open: however, SHC has requested approval of a closure agreement.

SHC has also completed soil vapor sampling at the Hoover Pavilion site and has submitted the sampling results to the County DEH. The results indicated the presence of VOCs that include styrene, dichloroethene (DCE), trichloroethene (TCA), tetrachloroethene (PCE), and Freon-11. Concentrations of the above contaminants did not exceed water board thresholds except for PCE, which was measured at 1.63 µg/l, exceeding the adopted threshold of 0.41 µg/l.

~~There are several reports that document the aerial extent of contamination, the historic use and storage of hazardous materials and wastes at the Hoover Pavilion Site, and the potential for known soil and groundwater~~In sum, known soil contamination has the potential to impact construction personnel and the public due to exposure to contaminated soil ~~and/or groundwater~~ during construction activities unless requirements of closure are followed. Impacts associated with potential soil ~~and groundwater~~ contamination could be significant. The SUMC Project sponsors intend to remove all remaining USTs and associated from the Hoover Pavilion site, as well as soil contaminated above San Francisco Bay RWQCB thresholds prior to commencement of Project-related excavation activities in the affected areas. However, mitigation is identified below to ensure monitoring of completion of site remediation.

MITIGATION MEASURES. With implementation of Mitigation Measures A.HM-3.1 through A.HM-3.3 below, the significant impact on construction personnel and the public due to exposure

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<sup>4442</sup> Conor Pacific. 2001. First Quarter 2001 Groundwater Monitoring Report, Hoover Pavilion. April 15.

to contaminated soil and/or groundwater at the SUMC Sites would be reduced to less-than-significant levels. (LTS)

*A.HM-3.1 Excavate contaminated soil from the 703 Welch Site.* For the 4- to 9-square-foot area near ~~every~~each discharge point from the building at 703 Welch Road, soil samples shall be performed and contaminated soil excavated, removed, and transported to an approved disposal facility in compliance with OSHA requirements. The County DEH and the PAFD shall be notified by the Project sponsors if contamination is encountered during construction.

**[NOTE: Please add measure for 701 Welch if warranted based on Phase 1 addendum recommendation.]**

*A.HM-3.2 Conduct a Soil Vapor program at the Hoover Pavilion Site.* A qualified consultant, under the SUMC Project sponsors' direction, shall undertake the following activities:

- SUMC Project sponsors shall remove all buried underground storage tanks from the property ~~so that sampling can be done~~after sheds and storage buildings on the Hoover Pavilion site have been demolished;
- To the extent necessary, additional soil sampling shall be collected to determine health risks and to develop disposal criteria;
- ~~A~~If warranted based on soil sampling, a human health risk assessment shall be prepared and implemented to determine potential for impacts to construction workers as well as to develop measures to ensure it is safe to redevelop the Hoover Pavilion Site within engineering controls (e.g., SVE or vapor barriers); and [NOTE: The December testing report indicates an HRA is unlikely to be necessary.]
- ~~A~~To the extent required based upon the results of soil sampling and the results of a health risk assessment (if applicable), a Site Health and Safety Plan to ensure worker safety in compliance with OSHA requirements shall be developed by the Project sponsors, and in places prior to commencing work on any contaminated site.
- ~~All activities conducted at this site~~The SUMC Project sponsors shall ~~be~~sharedcooperate with the County DEH to proceed with closure of the Hoover Pavilion Site.

*A.HM-3.3 Develop a Site Management Plan for the Hoover Pavilion Site.* ~~In the event that the Hoover Pavilion Site inspection and/or investigations find evidence of chemical contamination, underground storage tanks, or other environmental impairments,~~

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~~the~~The SUMC Project sponsors shall prepare a site remediation assessment that (a) specifies measures to protect workers and the public from exposure to potential site hazards and (b) certifies that the proposed remediation measures would clean up contaminants, dispose of the wastes, and protect public health in accordance with federal, State, and local requirements. Site ~~development~~excavation activities shall not proceed until the site remediation has been approved by the County DEH and implemented by the SUMC Project sponsor. Additionally, the Site Remediation Assessment shall be subject to review and approval by the San Francisco Bay RWQCB. All appropriate agencies shall be notified.

### **Shopping Center Site**

General construction activities would involve disturbing soil either within the illustrative site plan area shown in Figure 2-19, or ~~anywhere else~~elsewhere within the Shopping Center Site. For example, excavation and grading would be necessary to install the building foundations and ~~underground~~parking garages.

If construction takes place only within the ~~Shopping Center Site, as proposed~~area indicated in Figure 2-~~19, 19~~, the risk of encountering contamination during construction would be lower because, according to the EDR report, there are no known contaminated sites, ~~as documented in the EDR report, in this area.~~ [NOTE: This is incorrect. The proposed location for the hotel is on the Chevron site.] Additionally, per the LOP listed with the County DEH, ~~there is currently~~ no subsurface contamination exists in this area.

However, as indicated by the EDR report historical records, and as described under the “Fuel Leak Sites” section above, there is one site within the Shopping Center Site and one site immediately outside the Shopping Center Site boundary having for which there are historical records of USTs. ~~The site immediately outside the boundary is across the street from the Shopping Center Site, south of Quarry Road and east of Arboretum Road (as depicted in Figure 2-19). These sites are the Chevron Gas Station at 480 Quarry Road (within the Shopping Center Site) and the Mobil Gas Station at 375 Arboretum Road (immediately outside the Shopping Center Site).~~ [NOTE: The prior text is repetitive and unclear so we recommend deleting it.] As described above, an Underground Storage Tank Case Closure Report has been granted for ~~both sites~~each site. ~~The~~Each reports concluded that the contamination did not appear to pose a significant threat to groundwater. In addition, the soils were excavated during tank removals and disposed of at appropriate landfills. The Chevron Gas Station case was closed in 1998 and the Mobile Gas Station case in 1994. As such, these sites are no longer considered a threat to the soil and/or groundwater in ~~and/or~~ near the Shopping Center Site.

Furthermore, existing federal, State, and local laws and regulations that are administered and enforced by the County DEH and the PAFD would protect construction personnel and the public of potentially contaminated soil and/or groundwater. The County DEH, as the CUPA for the County of Santa Clara and the City of Palo Alto, also administers the Hazardous Waste Generator/Tiered Permitting Program (California Health and Safety Code Chapter 6.5), and the

Risk Management Program (California Health and Safety Code Chapter 6.95).<sup>4543</sup> The PAFD administers the California Fire Code (with local amendments), the Hazardous Materials Storage Ordinance, and the Toxic Gas Ordinance.<sup>4644</sup> As a CUPA Participating Agency, the PAFD also administers the following State programs: the Hazardous Materials Business Plans (California Health and Safety Code Chapter 6.95), Underground Storage Tank Program (California Health and Safety Code Chapter 6.7), and Aboveground Petroleum Storage Tank Program (California Health and Safety Code Chapter 6.67).<sup>4745</sup>

These agencies would exercise the safety standards set forth by the regulations described above, and as such, would protect people and the environment from exposure to hazardous materials. Therefore, construction of the Shopping Center Project would have a less-than-significant impact with respect to exposure of construction workers, the general public, and the environment to contaminated soil and/or groundwater.

*HM-4. Hazardous Waste Generation and Disposal Resulting in Increased Exposure Risk:*

- *The SUMC Project would not substantially increase exposure risk related to hazardous waste generation. (LTS)*
- *The Shopping Center Project would not substantially increase exposure risk related to hazardous waste generation. (LTS)*

### **SUMC Project**

Proper hazardous waste disposal, regardless of the method selected, can affect the environment. Hazardous waste landfills generally leak at some point and occasionally fail. Waste incinerators release toxic air contaminants into the atmosphere and result in ash that contains unburnable hazardous constituents (such as metals). Most other treatment and recycling methods result in hazardous residuals that must be disposed of as hazardous waste. These residuals usually are incinerated or landfilled. For this reason, the generation and disposal of hazardous waste is considered to be a form of pollution. Due to the expansion of on-site activity, the SUMC Project would result in increased hazardous waste generation.

The regulatory framework described earlier under Applicable Plans and Regulations is administered by DTSC, and the Radiologic Health Branch of the CDHS. The regulations require the use, storage, handling, transportation, and disposal of hazardous materials and hazardous wastes to be maintained at a level that would ensure interruption of the exposure pathway between hazardous substances and the environment. The SUMC Project facilities would be required to have in place and to maintain “cradle-to-grave” procedures to dispose of hazardous wastes properly; would need to comply with the federal and State radiation control laws described above (see Applicable Plans and Regulations, above); and, because the SUMC Sites would likely

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<sup>4543</sup> UNIDOCS Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

<sup>4644</sup> UNIDOCS Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

<sup>4745</sup> UNIDOCS Home Page, [http://www.unidocs.org/members/Palo\\_Alto\\_Fire.html](http://www.unidocs.org/members/Palo_Alto_Fire.html), accessed November 26, 2007.

generate 200 or more pounds per month<sup>4846</sup> of medical waste, would be required to implement a Medical Waste Management Plan. Compliance with these requirements would ensure the exposure pathway would be greatly restricted. Without a complete exposure pathway, impacts from hazardous waste would be less than significant.

**Hazardous Chemical Waste.** Risk of upset from increased handling, storage, and disposal of hazardous chemical waste at the SUMC Sites would be prevented by using control measures noted above. Additionally, hazardous chemical waste would be removed from the SUMC Site by a contracted service provider in accordance with applicable regulations. There are no hazardous chemical waste landfills or incinerators located in the vicinity of the City of Palo Alto; California’s hazardous chemical waste generators rely heavily on out-of-state treatment and disposal facilities to meet their disposal needs. No hazardous chemical waste incinerators in California accept waste from third-party generators.

For the SUMC Project, specifically the SHC and LPCH components, the most accurate method for projecting the potential increase of ~~medical~~-hazardous waste is tied to the number of inpatients. Collectively, both facilities are projected to increase inpatient discharges by about 28 percent. Table 3.12-7, below, shows the type of waste generated by the SHC and LPCH components, the approximate existing waste volume, and the projected wasted volume in tons.<sup>4947</sup>

**Table 3.12-7**  
**Existing and Future Annual Hazardous Chemical Waste Volumes for SCHSHC and LPCH**

Type of waste generated by SHC and LPCH	Examples	Existing Waste Volume (tons)	Future Waste Volume (tons)
Flammable Materials	Solvents	16.5	21.12
Corrosive Materials	Acids, bases	0.4	0.51
Toxic Materials	Mercury, lead	0.3	0.38
Reactive Materials	Aerosols, oxidizers	0.1	0.13
Other Hazardous Liquids	Oil & water, latex Paints	40	51.2
Other Hazardous Solids	Batteries, lights Ballast	0.6	0.77
<b>Total</b>		<b>57.9</b>	<b>74.11</b>

Source: SUMC, 2007.

<sup>4846</sup> 5.8 tons of hazardous waste per year divided by 12 months equals an average monthly generation of 0.48 tons (about 967 pounds).

<sup>4947</sup> SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.

While the total amount of Stanford School of Medicine (SoM) floor area [on the SUMC Sites](#) would ~~essentially~~ remain the same, there would be an increased floor area allocated to wet laboratory space within the new FIM buildings. This increase would result in an approximately 12 percent increase in hazardous chemical waste generation. This increase, however, would not be considered significant. Table 3.12-8 shows the types of waste generated by the SoM component, the existing approximate volumes, and the future approximate volume (in tons).<sup>5048</sup>

**Table 3.12-8  
Existing and Future Annual Hazardous Chemical Waste Volume for SoM**

Type of waste generated by SoM in GALE buildings	Examples	Approx. Waste volume (tons)	Future Approx. Waste volume (tons)
Flammable Materials	Solvents	3	3.4
Corrosive Materials	Acids, bases	0.1	0.1
Toxic Materials	Mercury, lead	0.2	0.2
Reactive Materials	Aerosols, oxidizers	0.05	0.06
Other Hazardous Liquids	Oil & water, latex, paints	Incl. in SHC above	Incl. in SHC above
Other Hazardous Solids	Batteries, lights, ballast	0.1	0.1
<b>Total</b>		<b>3.5</b>	<b>3.9</b>

Source: SUMC, 2007.

**Radioactive Waste.** The Radiologic Health Branch of the CDHS requires dry, long-lived radioactive waste to be disposed of at a low-level radioactive waste landfill. California belongs to the Southwestern Low-Level Radioactive Waste Disposal Compact (Compact), a group of four states that, together, are responsible for disposing of their low-level radioactive waste. The intent of the Compact is to reduce the amount of low-level radioactive waste produced in the member states and to provide regional disposal facilities sufficient to dispose of the low-level radioactive waste generated within the region, including the member states. The Compact specifies that California will provide a low-level radioactive waste disposal facility for 30 years from when the facility first accepts low-level radioactive waste for disposal. Following this period, the state who is the largest major generator of low-level radioactive waste will host disposal facilities for the next 30 years. Since the early 1980s, California has attempted to construct a low-level radioactive waste disposal facility at Ward Valley, California, to serve the four states. In 1999, the Governor’s Advisory Group on Low-Level Radioactive Waste Disposal announced that they “will not consider the Ward Valley site as part of its mission.”<sup>5149</sup> For this reason, California must rely on an out-of-state disposal facility in Barnwell, South Carolina to

<sup>5048</sup> SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.

<sup>5149</sup> Atkinson, Richard C., Chairman of the Governor’s Advisory Group on Low-Level Radioactive Waste Disposal, December 1999.

accept its low-level radioactive waste. South Carolina decides each year whether it will accept out-of-state radioactive wastes.

The amount of radioactive materials used each month would increase with an increase in the number of machines in the hospital and clinic facilities. [The amount of radioactive materials used for the School Medicine is projected to be 12 percent greater than the current annual usage, due to an increase in the wet laboratory space of 12 percent.](#) The number of Single Photo Emission Computed Tomography machines is expected to remain the same, so there would not be a change in the single isotopes associated with these machines. However, there would be an increase in Positron Emission Tomography (PET) machines (both PET/CT and PET/MRI) from the existing one machine to six machines. PET machines use isotope F-18; as a result isotope F-18 would increase by a factor of 6. However, the post-construction use of radioactive materials at the SUMC Sites would minimally contribute to the demand for radioactive waste landfills because the increase of radioactive material associated with the SUMC Project operations are minimal.

The handling of radioactive waste could result in exposure of workers or other individuals at the SUMC Sites; however, regulations by the CDHS Radiologic Health Branch would protect workers and other individuals on-site from exposure to radioactive waste. Compliance with these regulations would help prevent potential exposure impacts. Therefore, impacts would be considered less than significant.

**Medical Waste.** The SUMC Sites generate medical wastes typical of other hospitals, surgery centers, and medical clinics in the course of patient care and research. Medical waste includes both biohazard waste (byproducts of biohazardous materials) and sharps (devices capable of cutting or piercing, such as hypodermic needles, razor blades, and broken glass) resulting from the diagnosis, treatment, or immunization of human beings, or similar research.<sup>5250</sup>

*Biohazard Materials Treated On-Site.* All hospital areas that provide patient care, complete testing, and diagnostics, or perform procedures, generate medical wastes (biohazardous waste). Current practice at the SUMC Sites includes collecting biohazardous wastes in red biohazard bags through the hospitals.<sup>5351</sup> In addition, general hazardous materials, which include dressings, gauzes, culture dishes, specimens and fluid containers, are treated and sterilized on-site in an autoclave system and then are sent to landfill for disposal. As part of its current operation, SUMC has installed a state-of-the-art autoclave operation which has three chambers that are filled using mechanical equipment. Once proper sterilization has been reached and the cycle has ended, the chambers automatically empty onto a conveyor system which deposits the treated waste directly into a compactor. This feature provides for minimal handling by SUMC staff during treatment phase. Table 3.12-9 summarizes the combined volumes for both hospitals

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<sup>5250</sup> SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.

<sup>5351</sup> SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.

(SHC and LPCH) and the SoM. [NOTE: This table was based on 2015 levels. We have revised to clarify.]

**Table 3.12-9**  
**Existing and Projected Volumes of Biohazardous Materials treated at SUMC**

Hospital	Existing (tons)	Projected (tons)	Future 2025 Total Projected Total
SHC	600	36	636/714
LPCH	300	51	351/435
SoM	200	7	207
<b>Total</b>	<b>1,100</b>	<b>94</b>	<b>1,194/1,356</b>

Source: SUMC, 2007.

For the two hospitals, SHC and LPCH, the most accurate method for the projection of biohazardous materials generation is the correlation with patient census.

At full buildout, SHC forecasts an increase in admissions by six percent which, as noted in Table 3.12-9, above, would result in 636 tons of annual that it would generate 714 tons of on-site treated waste—per year, representing a 19 percent increase in inpatient discharges. Meanwhile, LPCH forecasts an increase in admissions inpatient discharges by 1745 percent, which would result in 351 at buildout, generating 435 tons of annual on-site treated waste. Biohazardous The waste at the SoM is projected to increase by 3.5 percent SoM would not increase over 2015 levels because wet lab space would not increase after that year. Therefore, the approximate total amount of biohazardous waste treated on-site would increase from 1,100 tons to 1,194/1,356 tons annually at full buildout. As the data indicates, the tonnage increase of biohazardous materials treated on-site would not be significant relative to the amount of biohazardous waste currently handled at the facility. This increase would result in less-than-significant impacts.

*Medical Waste Transported to Off-Site Facilities.* Medical waste materials that cannot be treated through steam sterilization (needles, pharmaceutical waste, trace chemotherapy waste and pathological waste), are required to be incinerated and must be transported to licensed incineration facilities. Currently, two vendors assist with the off-site transport and treatment, removing wastes two to three times each week from a central and secured holding area. Combined volumes for off-site treated waste for both hospitals (SHC and LPCH) and SoM reach approximately 160 tons annually.<sup>5452</sup>

At full buildout, SHC forecasts that it would transport 104 tons waste offsite per year, corresponding to the 19 percent increase in inpatient discharges it projects. LPCH forecasts an increase in inpatient discharges by 45 percent at buildout, generating 64 tons of waste per year. The waste at SoM would not increase over 2015 levels because wet lab space would not increase

<sup>5452</sup> SUMC, *Stanford University Medical Center Facilities Replacement and Renewal Project Application*, August 2007, and the Supplement to the Application, September, 2007; April 2008; and October 2008.

after 2015. The total tonnage of medical waste transported off-site is expected to equal 198 tons, representing an increase of 38 tons over the existing amount. The approximate breakdown of ~~this total~~these totals is presented in Table 3.12-10 below.

**Table 3.12-10**  
**Volumes (tons) of Off-Site Treated Waste from the Main SUMC Site**

Hospital	Existing (tons)	Increase (tons)	Future total <del>2025</del> <u>Projected</u> (tons)
SHC	87	<del>5</del>	<del>92</del> <u>104</u>
LPCH	44	<del>7</del>	<del>51</del> <u>64</u>
SoM	29	<del>1</del>	30
<b>Total</b>	<b>160</b>	<b><del>13</del></b>	<b><del>173</del><u>198</u></b>

Source: SUMC, 2007.

Medical waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, and transportation. The law imposes a cradle-to-grave tracking system and a calibration and monitoring system for on-site treatment. As mentioned above, medical waste would be stored in closed red bags marked “biohazard” and, when transported for disposal, placed inside hard-walled containers with lids. Facilities that would handle medical wastes must obtain permits to do so and would be subject to annual audits. Compliance with these regulations would minimize potential exposure to biohazards. Because handling and disposal of medical wastes is regulated and the increases associated with the SUMC Project would not be substantial, impacts associated with potential for exposure to biohazards would be considered less than significant.

### Shopping Center Project

The potential for the generation of hazardous waste, and therefore, its disposal would depend on the type of commercial uses that populate the Shopping Center Project. For example, office and commercial activities could use a variety of products such as cleaning agents, solvents, paints, materials used in printing, pesticides, and various chemicals. The new hotel would not include uses that would generate a substantial amount of hazardous waste. The stores that would occupy the new retail space are anticipated to be similar in nature to existing uses and, ~~therefore~~similarly would not generate large quantities of ~~products-considered~~-hazardous ~~materials~~waste. As such, the Shopping Center Project is not expected to generate large quantities of hazardous waste. All hazardous waste generated from operation of the Shopping Center Project is expected to be low in volumes, given the types of uses that would occupy the new retail and hotel space. All allowable uses, and therefore hazardous waste, would be subject to code requirements, as necessary, which would ensure that all handling of hazardous waste is in compliance with applicable permits and regulations.

Furthermore, the Shopping Center Project would be a continuation of the retail and restaurant uses that are already at the Shopping Center Site, with the exception of a new hotel. However,

the transient residential and restaurant uses associated with hotels do not generate significant amounts of hazardous waste. Nonetheless, State and local regulations would ensure that any use allowed would minimize hazardous materials risks related to hazardous materials waste. Compliance with all regulations would prevent potential exposure impacts. Therefore, impacts would be considered less than significant.

*HM-5. Emit Hazardous Emissions or Handle Hazardous Materials Within One-Quarter Mile of a School:*

- *The SUMC Project would not emit or handle hazardous materials within one-quarter mile of [a school](#). (NI)*
- *The Shopping Center Project would not emit or handle hazardous materials within one-quarter mile of a school. (NI)*

### **SUMC Project**

The SUMC Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No existing K-12 schools are located within one-quarter mile of the SUMC Sites. The closest schools to the Project Area are Palo Alto High School, approximately 0.7 mile east of the SUMC Sites, and Addison Elementary School, approximately 1.2 miles northeast. The nearest private schools are Castilleja School, 1.1 miles northeast, and Montessori School, approximately 1.0 miles northeast. Because there are no existing or proposed schools within one-quarter mile of the SUMC Project, no impact would occur. [\[NOTE: There is a school at LPCH. However, the SUMC Project would not introduce hazardous materials handling near the school-- this is an existing, ongoing condition to the nature of this school being located inside of a hospital. Please briefly discuss this.\]](#)

### **Shopping Center Project**

Similar to the SUMC Project, there are no existing or proposed schools within one-quarter mile of the Shopping Center Site. As such, no impact would occur.

*HM-6. Construct a school on a property that is subject to hazards from hazardous materials contamination, emissions or accidental release:*

- *The SUMC Project would not construct a school that is subject to hazards from hazardous materials contamination, emissions or accidental release. (NI)*
- *The Shopping Center Project would not construct a school that is subject to hazards from hazardous materials contamination, emissions or accidental release. (NI)*

## **SUMC Project**

The SUMC Project would not involve school construction. Because there are no schools proposed for construction, no impact is expected to occur.

## **Shopping Center Project**

The Shopping Center Project would increase on-site commercial space. No schools are proposed for construction under the Shopping Center Project. Therefore, no impacts would occur.

*HM-7. Occur on a site included on the Cortese List, a List of Hazardous Materials Sites:*

- *The SUMC Project would result in construction of facilities on a site included on the Cortese List. (S)*
- *The Shopping Center Project would not result in construction of facilities on a site included on the Cortese List. (LTS)*

## **SUMC Project**

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5, requires the California EPA to develop at least annually an updated Cortese List. The DTSC is responsible for a portion of the information contained in the Cortese List. The Cortese List compiles information on public drinking water wells with detectable levels of contamination; sites selected for remediation; sites with known toxic material; LUST sites; and/or solid waste disposal facilities. The sites for the list are designated by the SWRCB, the Integrated Waste Management Control Board, and DTSC.

The Hoover Pavilion Site (211 and 215 Quarry Road) is listed on the Cortese List. As such, construction at the Hoover Pavilion Site could potentially expose future occupants and the environment to hazardous materials, resulting in a significant impact.

MITIGATION MEASURES. Implementation of Mitigation Measures A.HM-3.2 and A.HM-3.3, which involve the implementation of a soil vapor program and development of a site management plan, would reduce the potential for exposure to hazardous materials to less-than-significant levels. Additionally, compliance with current federal, State and local regulations would help prevent any further exposure to hazardous materials. (LTS)

## **Shopping Center Project**

As documented in the EDR Report, there are no sites [listed under the Cortese List](#) within the [area of the Shopping Center Site](#) ~~as proposed in Figure 2-19 listed under the Cortese List. However, in the remaining Shopping Center Site (outside of the site plan~~ [where development of the Project is](#)

likely to occur (see Figure 2-19). [NOTE: This is incorrect. The hotel is proposed to be constructed on the Chevron site.] However, development of the Project could occur outside of the area shown in Figure 2-19)19, where there are two sites listed under the Cortese List: the Mobile Gas Station ~~is~~site located at 375 Arboretum Road and the former Chevron Gas Station site at 480 Quarry Road. As described previously under the “Fuel Leak Sites,” an Underground Storage Tank Case Closure Report has been granted for ~~both~~each of these sites. ~~The reports~~Each report concluded that the contamination did not appear to pose a significant threat to groundwater. In addition, the soils were excavated during tank removals and disposed off at appropriate landfills. The cases were closed in 1994 and 1998, respectively. As such, these sites are no longer considered to be a threat to the soil and/or groundwater near the Shopping Center Site and no impacts would occur related to construction on a Cortese site.

Furthermore, existing federal, State, and local laws and regulations that are administered and enforced by the County DEH and the PAFD would protect construction personnel and the public from potentially contaminated soil and/or groundwater. Therefore, the Shopping Center Project would have a less-than-significant impact with respect to exposure of construction workers, the general public, and the environment to contaminated soil and/or groundwater.

#### HM-8. Wildland Fire Risk:

- *The SUMC Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. (NI)*
- *The Shopping Center Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. (NI)*

### **SUMC Project**

The *Comprehensive Plan* and the *City of Palo Alto Emergency Operations Plan*<sup>5553</sup> have designated fire hazard zones, including areas of wildland fire risk. These areas are located in the foothills in the southwest portion of the City. For the most part, these designations target homes built in the foothills and other areas where there is a potential of wildland fire risk.

The SUMC Sites are located in a flat, urbanized area and therefore would not be located in areas susceptible to significant grass, brush, or tree fires. Furthermore, the SUMC Project would be required to comply with all fire codes and regulations related to emergency services access. The absence of wildland fire hazards means that the SUMC Project would have no impact on this public health and safety risk.

### **Shopping Center Project**

Similar to the SUMC Project, the Shopping Center Site is located in a flat, urbanized area and therefore would not be located in an area susceptible to wildland fires. In addition, the Shopping

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<sup>5553</sup> City of Palo Alto, Emergency Operations Plan, June 2007.

Center Project would be required to comply with all fire codes and regulations related to emergency services access. As such, the Shopping Center Project would have no impact regarding this public health and safety risk.

*HM-9. Occur on a Site Located Within an Airport Land Use Plan or Within Two Miles of a Public Airport, and Result in a Safety Hazard:*

- *The SUMC Project would not be located within an Airport Land Use Plan or within 2 miles of a Public Airport. (NI)*
- *The Shopping Center Project would not be located within an Airport Land Use Plan or within 2 miles of a Public Airport. (NI)*

### **SUMC Project**

The SUMC Sites are not within the jurisdiction of any Airport Land Use Plan (ALUP) or within 2 miles of a public airport. The closest airport to the SUMC Sites is the Palo Alto Airport, approximately 3.3 miles east of the SUMC Sites. The Palo Alto Airport is near the County's northwestern ~~border~~[border](#) and falls within the area governed by the Airport Land Use Commission of Santa Clara County. The SUMC Project is not within the corresponding ALUP nor is it within 2 miles of the airport, and thus would not result in an airport safety hazard. No impacts would occur. ~~Potential impacts of increased heliport operations relative to Palo Alto Airport operations are addressed in Section 3.4, Transportation.~~ [NOTE: This impact is not addressed in Traffic.; also, there will be one additional helicopter trip per day; this does not appear to be justification for in-depth analysis of impacts on airport operations]

### **Shopping Center Project**

Like the SUMC Project, the Shopping Center Site is not within the jurisdiction of any ALUP or within 2 miles of a public airport. As such, no impact would occur.

## **Cumulative Analysis**

The geographic context for the analysis of cumulative hazards is northwest Palo Alto, adjacent development on the Project Area, including all cumulative growth therein, and development near the residential areas in Menlo Park near the project site. This area could be impacted by the Projects in the event of hazardous materials spill or release. Thus, the area in which impacts of the Projects could combine with impacts from other projects also would be limited to areas relatively close to the Project Area.

Additionally, the cumulative analysis below focuses on those impacts for which either of the Projects would have a less-than-significant or significant impact, as determined previously in this section. For those areas where the Projects would have no impact, the Projects would have no potential to contribute to cumulative impacts. As discussed above, the Projects would have no impacts related to hazards on

schools, from wildland fires, and on airport operations. [NOTE: Please confirm this is the case after considering the school at LPCH.]

*HM-10. Cumulative Handling, Storage, Disposal, and Transport of Hazardous Materials. The Projects, in combination with other reasonably foreseeable probable future development in the area, would not substantially increase hazards associated with the handling, storage, disposal and transport of hazardous materials because of applicable federal, State, and local regulations that would govern these activities. As a result, the cumulative impact would be less than significant. (LTS)*

## 2025 Cumulative Impact

[NOTE: This is not a proper cumulative impacts analysis. It is not based on either a list of projects or a summary of projections. We recommend that you review the list of projects in Appendix B. If there are no projects that would result in hazards from handling, storage, disposal or transport of hazardous materials, then you can say so and end the inquiry. The analysis in this section, like that in geology, is based upon undefined future regional development. It is not helpful to the reader, and it is not consistent with the methodology described in the CEQA Guidelines.]

Each project in the Project Area and surrounding areas must comply with the laws and regulations that apply to the storage, handling, and disposal of hazardous materials, as described in Impact HM-1. Laws and regulations pertaining to the handling, storage, and disposal of hazardous materials include hazardous materials management by the County OES, pursuant to the State Health and Safety Code; complying with California's Hazardous Materials Release Response Plans and Inventory Law by filing an HMBP with the County OES and the PAFD if a business uses or stores quantities of hazardous materials that exceed the State's thresholds; filing a Risk Management Plan if handling certain very hazardous substances in excess of State thresholds, as required by the CalARP Program and federal law; complying with the 2007 California Building Code; complying with the 2003 Life Safety Code; complying with the 2001 California Fire Code; complying with San Francisco Bay RWQCB's groundwater protection program; complying with Cal/OSHA's Hazard Communication Standard; complying with OSHA's Bloodborne Pathogen Standard; and complying with the California Medical Waste Management Act. The transportation of hazardous materials is addressed by existing regulatory requirements including packaging requirements for hazardous materials and wastes established by DOT, USPS, and EPA to minimize the potential consequences of possible accidents during transport. The vehicle accident rate in California is relatively low compared to other states and not all accidents release hazardous materials.<sup>5654</sup>

All projects that would involve the use, storage, and handling of hazardous materials would be required to comply with these laws and regulations; therefore, cumulative impacts related to hazardous materials use, storage, and handling would be less than significant. [NOTE: The

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<sup>5654</sup> California Department of Transportation, 1996 Accident Data on California State Highways (Road Miles, Travel, Accidents, Accident Rates), 1997.

preceding conclusion isn't really justified. It is possible that a project could have such quantities and types of hazardous materials that the risk associated with their use or transport is great enough to warrant a significance conclusion. For example, we have seen significance conclusions for projects that involve transport of anhydrous ammonia. Even though legal requirements minimize the risk of spill, the consequence is so great that some EIRs find the impact significant. While we agree that the materials associated with SUMC and Shopping Center uses do not rise to this level of concern, you cannot make the blanket statement that no project would result in a significant impact. This is why a cumulative impacts analysis should be based upon a defined set of projects or summary of projections.]

Because cumulative impacts would be less than significant, it is not necessary to evaluate the contributions of each of the Projects to the cumulative effect.

### **Combined Projects Contribution**

The combined Projects analysis is provided for informational purposes. While the combined Projects would increase hazardous materials handling associated with a net addition of 1.3 million square feet of medical uses, 240,000 square feet of retail use and a 120 room hotel, all handling, storage, and disposal of hazardous materials would be subject to the federal, State, and local regulations previously described. The resulting combined risk from both Projects would not be ~~substantial~~significant.

*HM-11. Cumulative Disturbance of Hazardous Materials from Construction. The Projects, in combination with other reasonably foreseeable probable future development in the area, would substantially increase exposure of persons to hazardous building materials during demolition and construction, resulting in cumulatively considerable impacts. (S) [NOTE: Please see comments below. This doesn't seem like a cumulative impact issue.]*

- *The SUMC Project's contribution to the cumulative impact could ~~result in~~be cumulatively considerable~~-impact~~. (S)*
- *The Shopping Center Project's contribution to the cumulative impact would be less than cumulatively considerable. (LTS)*

### **2025 Cumulative Impact**

Many buildings in northwest Palo Alto were built prior to 1981, when it was common building practice to use materials containing asbestos, PCBs, lead, and mercury in structures. Cumulative projects in the area [NOTE: Please list the relevant projects. It is not appropriate to base a cumulative impacts analysis on these types of generalities.] may include demolition of existing buildings and potential disturbance of hazardous building materials and consequent exposure of persons to those materials. [NOTE: Why is this a cumulative impacts issue? Wouldn't the effect be confined to the immediate surrounding of the building? These are not effects that combine with one another throughout a region.]

However, adherence to applicable laws and regulations for these substances would ensure that potential exposure impacts from these materials are less than significant, unless they are not identified adequately prior to demolition. If any unidentified hazardous materials were present in the existing buildings when demolition occurred, these hazardous materials could create worker health hazards. Also, environmental release (or inappropriate disposal) of these hazardous materials could occur. Pre-construction inspection for asbestos, PCBs, lead, and/or mercury in existing on-site structures that were built prior to 1981 and the implementation of remediation procedures is required by existing regulations. Other development in the Project Area or nearby areas would be required to comply with these regulations and to implement the required procedures to prevent exposure of persons to these hazardous materials. [NOTE: This does not indicate a cumulative impact. Please see comments above.]

### **SUMC Project Contribution**

As described under HM-2, the SUMC Project would require demolition of about 1.2 million square feet of existing buildings, some of which date back to 1953. Because it was common building practice to use materials containing asbestos, PCBs, lead, and mercury in structures built prior to 1981, demolition of the existing buildings (which were built prior to 1981) could disturb these hazardous building materials and, without control measures, the hazardous materials could cause adverse health or safety effects to construction workers, the public, and/or the environment. Impacts from the SUMC Sites are therefore considered cumulatively considerable. [NOTE: To contribute to a cumulative impact there must be other projects that also contribute to the impact. What other projects would contribute to the same impact to the same population group? Wouldn't asbestos-related effects be limited to the site and its immediate surroundings?]

MITIGATION MEASURES. With implementation of previously identified Mitigation Measures Measure A.HM-2.1, which refers to the completion of an asbestos survey at the SUMC Sites prior to any demolition activity, the SUMC Project contribution would be less than cumulatively considerable. (LTS)

### **Shopping Center Project Contribution**

As explained under Impact HM-2, the structure to be demolished on the Shopping Center Site Project involves demolition of a single parking structure, which is not expected to contain asbestos, PCBs, lead, and/or mercury ~~in existing on-site structures~~ that could be released during demolition. As such, no exposures to these contaminants are expected from construction activities. Therefore, the Shopping Center Project would not expose contaminants and, thus, would ~~thus not have a~~ contribute to this cumulative ~~contribution~~ impact.

### **Combined Projects Contribution**

The combined Projects analysis is provided for informational purposes. While the combined Projects would demolish approximately 1.2 million square feet of ~~older~~ medical structures, parking garages on the SUMC Sites, and a surface garage at the Shopping Center Site, ~~both of~~

~~which could contain hazardous building materials~~, the combined demolition and construction would be subject to the federal, State, and local regulations previously described. The resulting combined risk from both Projects would not be substantial. [NOTE: This is not consistent with the general cumulative impact conclusion above or the SUMC conclusion. Please reconcile]

HM-12. Cumulative Exposure to Contaminated Soil and/or Groundwater, ~~and from~~including exposure occurring on Cortese List Sites. The Projects, in combination with other reasonably foreseeable probable future development in the area, could result in the substantial exposure of the people and the environment to contaminated soil and/or groundwater. [NOTE: Please see comments below. This does not appear to be a cumulative impact.]

- The SUMC Project's contribution to the cumulative impact could ~~result in~~be cumulatively considerable ~~impact~~. (S)
- The Shopping Center Project's contribution to the cumulative impact would not be cumulatively considerable. (~~HLTS~~)

## 2025 Cumulative Impact

In the cumulative context, there are foreseeable development projects in the vicinity of the Projects that could occur within the same timeframe (construction period) of the SUMC Project and Shopping Center Project. Specific foreseeable development projects include medical facilities adjacent to the Project Sites; and retail, residential, and office use in the area of northwest Palo Alto. [NOTE: The question is what is the geographic scope of the area that could be affected by exposure to contaminated soils associated with the two Projects. Wouldn't that area be limited to the sites and their immediate surroundings? How could exposure to soils across town combine with impacts associated with exposure to soils on the Project sites? Different people would be affected by each. We suggest that you define the relevant geographic area to the area in which the same population group could be affected.]

Construction activities for foreseeable projects, as well as the Projects, would consist of site grading, excavation, and construction of building foundations. It is known that a portion of the Main SUMC Site (703 Welch Road) and the Hoover Pavilion Site is contaminated and if contaminated soils were not removed prior to excavation, construction disturbance could ~~impose~~result in a significant impact on construction workers and the public. ~~While there is no known documentation that the other foreseeable projects are located on contaminated sites, there is the possibility that some unknown soil and/or groundwater contamination may be encountered during construction activities.~~ [NOTE: The preceding sentence does not reflect the proper approach to a cumulative impacts analysis. It does not provide meaningful information to the public to simply speculate that some similar impact could happen somewhere. The question is whether reasonably foreseeable probable future projects are going to result in impacts that are going to combine with these projects' impacts. Here, the analysis also suffers because there is no indication of the geographic scope of the impact at issue. What other sites would result in exposure that would combine with exposure from these

projects?] If contaminated media were to be encountered during construction, construction personnel and the public would be exposed to potentially contaminated soil and/or groundwater. Therefore, the combination of the exposure of contaminated soil and groundwater from the SUMC Site, in addition to the exposure of other potentially contaminated sites during construction, would result in significant cumulative impacts. [NOTE: We still are not clear how this is a cumulative impact. Are there overlapping areas where vapor release from contaminated soil would combine with vapor releases from other construction sites to affect the same workers or members of the public? Isn't this just a project-specific impact?]

Additionally, as discussed under the “Fuel Leak Sites” section, above, ~~two sites~~ one site within and one site across the street from the boundary of the Shopping Center Project have been known to have contained USTs, ~~which are.~~ Each site is recorded under the County LOP as a Fuel Leak sites. These are the ~~Mobil~~ former site of the Mobile Gas Station, located at 375 Arboretum Road, and the former site of the Chevron Gas Station, located at 480 Quarry Road. However, as described previously, each of these sites has been closed. An Underground Storage Tank Case Closure ~~Reports have~~ Report has been granted for ~~both sites.~~ The reports each site. Each report concluded that the contaminations did not appear to pose a significant threat to groundwater. In addition, the soils were excavated during tank removals and disposed off at appropriate landfills. The cases were closed in 1994 and 1998 respectively. As such, these sites are no longer considered to be a threat to the soil and/or groundwater. The EDR report also provides other known cases of LUST sites in the vicinity of the Project Area. <sup>5755,5856</sup> There are three unclosed LUST cases within the cumulative study area, which are located at 211 Quarry Road, which is the Hoover Pavilion Site (discussed above); at 528 High Street, about 0.6 mile from Project Area [NOTE: Is there a reasonably foreseeable future project at this location?]; and at 130 Lytton Avenue, about 0.8 mile from Project Area [NOTE: Is there a reasonably foreseeable future project at this location?]. The Hoover Pavilion Site is listed under the Cortese List as well. [NOTE: Either indicate that there are no reasonably foreseeable probable future projects at the other two locations, or, if there is such a project, address the question whether encountering contaminated soils or groundwater at those sites would expose the same worker or public population members to risk.]

Ground disturbance at these sites and on other sites with unknown contamination could potentially expose construction workers and the public to contaminated soils and/or groundwater. [NOTE: Please see prior comments. It is not appropriate to speculate about other unidentified sites with other unidentified contamination. This is not consistent with the CEQA Guidelines.] There could be significant cumulative impacts in the City of Palo Alto if the required hazardous materials surveys and proper management of hazardous materials are not undertaken on sites with contaminated soils and/or groundwater. However, adherence to applicable laws and regulations would ensure that potential exposure impacts from these materials are reduced. In addition to applicable laws and regulations, Mitigation Measures

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<sup>5755</sup> Environmental Data Resources, Inc, Database Search Inquire # 2059906.1s, October 24, 2004.

<sup>5856</sup> The EDR report is available upon request at the City of Palo Alto Planning and Community Environment Department, the contact information of which is provided in Section 1, Introduction, of this EIR.

A.HM-2.1, A.HM-3.1, A.HM-3.2, and A.HM-3.3, as described under Impact HM-2, HM-3, and below, would reduce potential exposure to less than ~~eumulative~~cumulatively considerable.

### **SUMC Project Contribution**

As explained under Impact HM-3, soil contaminated with metals is located at the Main SUMC Site and potential petroleum-impacted soils remain below ground surface in the vicinity of the two 2,200-gallon tanks at the Hoover Pavilion Site. The Hoover Pavilion Site is listed under the Cortese List. Additionally, there are other sites, such as the 528 High Street site, about 0.6 mile from Project Area; and the 130 Lytton Avenue site, approximately 0.8 mile from Project Area, that, according to the EDR report, are documented as having unclosed LUST cases. These sites are within the cumulative study area. Therefore, construction activities at the SUMC Sites, in combination with construction at any other known or unknown potentially contaminated site, would result in a significant cumulative impact with regards to exposure of contamination during construction. [NOTE: Please see prior comments in the paragraph above this one.] As such, ground disturbance at the SUMC Sites, in combination with other construction activities taking place at known or unknown contaminated sites, could result in significant cumulative impacts. Therefore, impacts from the SUMC Sites are considered cumulatively considerable. [NOTE: So far, the analysis does not support the conclusion that there is a cumulative impact as opposed to a project-specific impact.]

MITIGATION MEASURES. With implementation of previously identified Mitigation Measures A.HM-2.1, and A.HM-3.1 through A.HM-3.3, involving conducting asbestos survey, excavating contaminated soil, implementing a soil vapor program, and development of a site management plan, the SUMC Project contribution would be less than cumulatively considerable. (LTS)

### **Shopping Center Project Contribution**

As explained under Impact HM-3 and Impact HM-7, the Shopping Center Site contains no contamination. As such, the Shopping Center Project would not disturb contaminated soils and would thus not contribute ~~with~~to any cumulative impact.

### **Combined Projects Contribution**

The combined Projects analysis is provided for informational purposes. The combined Projects would result in potential ground disturbance to contaminated soils only at the SUMC Sites, which would result in a substantial effect.

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