7. HAZARDS AND HAZARDOUS MATERIALS

This SEIR chapter describes the hazardous materials implications of the proposed Stanford Outpatient Center and identifies mitigation measures to reduce potentially significant impacts to less-than-significant levels, focusing on project changes that would introduce the use, handling, storage, generation, transport, and disposal of medically related hazardous materials. In addition, section 11.1 (Fire/Emergency Services) of this SEIR discusses hazardous materials issues specifically relevant to the Redwood City Fire Department.

7.1 SETTING

7.1.1 Existing On-Site Hazardous Conditions

The 11.3-acre project site contains two existing emergency generator base (above-ground) fuel storage tanks in which diesel fuel is stored. The potential for spill or release of fuel at these two locations is an existing hazardous materials concern noted by the Redwood City Fire Department.[1] Before development of the Midpoint Technology Park, the project site contained a Sears appliance service center (whose address was 1325 Douglas Avenue), which had already been demolished before approval of the Technology Park.

7.1.2 Previous Hazardous Materials Investigations

The 1996 EIR prepared for the Midpoint Technology Park documented studies of soil contamination and groundwater pollution on the project site and in the site vicinity. The EIR noted that a property located at 800 Chestnut Street near Woodside Road and Bay Road (southwest of the current project site) had leaking underground storage tanks and evidence of other groundwater pollution. At the time the 1996 EIR was prepared, the property was overseen by the California Regional Water Quality Control Board (RWQCB) and a soil and groundwater remediation system was being installed.[2]

The 1996 EIR also discussed the Level 1 Environmental Site Assessment (ESA) prepared for the then-existing 46-acre Ampex campus, which included most of the Midpoint Technology Park site, including the western portion of the current 11.6-acre project site, along with areas to the west and south. Based on the conclusions in this Level 1 ESA, the 1996 EIR identified the following three project-related hazardous materials impact concerns:

[1] Jamie Lee, Fire Prevention Officer, Redwood City Fire Department; written communication, January 27, 2006.

[2] Draft Environmental Impact Report for the Midpoint Technology Park, prepared for the City of Redwood City by LCP Associates Planning Consultants, September 1996, pp. 119-123.

1. Groundwater contamination within the Midpoint Technology Park site has resulted from at least two Volatile Organic Solvent (VOC)[1] plumes that originated from off-site sources and migrated through the site. The plumes were first identified through past groundwater monitoring and investigation conducted primarily as part of historical investigations of the adjacent, off-site Ampex facility, to evaluate the presence of VOCs beneath and adjacent to the Midpoint Technology Park site. Additionally, groundwater was sampled from trenches on the Midpoint Technology Park site and analyzed for VOCs in 1998 during construction of the existing Midpoint Technology Park structures. Except for trichloroethylene (TCE) (see section 7.1.3 which follows), measured VOC concentrations in the site samples taken at that time were beneath RWQCB established health risk screening thresholds.

   The RWQCB has therefore required that access to the site be permitted for any further investigation and cleanup of this groundwater pollution. The RWQCB has also indicated that it does not intend to name the owner of the Midpoint Technology Park site as a party responsible for this on-site groundwater contamination. The 1996 Draft EIR (Impact 9-1) noted that because the RWQCB has determined that the property owner is not responsible for the VOC plumes originating from an off-site source, there are no project-related significant impacts. Hence, no mitigation regarding this issue is required.

2. Two sump pits (small drainage reservoirs) in the southwest corner of the Midpoint Technology Park site (southwest of the current project site) were identified in the past by the RWQCB for the presence of contaminants and in need of remediation.[2] Subsequent to preparation of the 1996 Draft EIR, remediation of the sumps was completed. Therefore, 1996 Final EIR Certified Mitigation 9-1, regarding remediation of the sump area, states: "None *[required]*. Work is completed to the satisfaction of the RWQCB."

3. The 1996 EIR noted that the former Sears appliance service center at 1325 Douglas Avenue (on the proposed Stanford Outpatient Center site) previously had an underground fuel storage tank (UST). Petroleum hydrocarbons were identified in soil and groundwater as part of the UST removal in the late 1980s; the petroleum-impacted soil was subsequently removed.

   The 1996 Draft EIR (Impact 9-1) also noted, "With regard to other potential pollution issues *[i.e., excluding the sumps]*, there is no evidence of leakage from the remaining above-ground fuel tanks; there is no evidence of pollution from the several tanks that have been removed and which have all received formal closure."

   Data collected as part of the post-1996 EIR UST removal activities in the 1980s indicate that remaining concentrations of residual petroleum in the remediated soil were beneath

[1]Volatile organic compounds (VOCs) are chemicals that easily form vapors at normal temperature and pressure (e.g., methyl tertiary butyl ether, dychloroethene, trichloroethene, dychloroethane, freon, acetone, benzene, etc.). Typical examples of materials containing VOCs include organic solvents, certain paint additives, fuels, and dry cleaning chemicals; also, VOCs are emitted naturally by some plants and trees. (*Material Safety Data Sheets Hyper Glossary*, www.ilpi.com/msds/ref/voc, accessed May 2, 2006.)

[2]Midpoint Technology Park Draft EIR, pp. 119-123.

current RWQCB health risk screening thresholds, and met water quality criteria of Title 22 of the California Health and Safety Code.[1]

The current Midpoint Technology Park site was also granted regulatory closure in 1995 by the San Mateo County Environmental Health Services Agency.[2]

7.1.3 Recent Site-Specific Hazardous Materials Investigations

Additional, updated site-specific Phase I and Phase II environmental assessments were conducted in 2004 and 2005 for the Stanford Hospital & Clinics project by Geomatrix Consultants, Inc. The 2004/2005 assessment results are summarized below.

(a) 2004 Phase I Environmental Assessment Findings:[3] The 2004 Phase I assessment report indicated that the 11.4-acre project site exhibited no evidence of USTs, automotive (e.g., lead acid) batteries, or large quantities (greater than five-gallon containers) of hazardous materials. The report indicated that, except for the two existing emergency generators and accompanying above-ground diesel fuel tanks (see Figure 3.4, Project Site--Existing Site Plan, of this SEIR), all existing storage facilities are enclosed within the buildings. The report also indicated that the project site (in its previous use as @Home) is listed on a publicly available database as disposing of hazardous waste; however, no further information was listed regarding types or quantities. Given the previous use of the site as R&D/office, it is not expected that large quantities of hazardous waste capable of affecting soil or groundwater would have been generated.

(b) 2005 Phase II Environmental Assessment Findings:[4,5] The 2005 Phase II Environmental Assessment included more detailed on-site investigations, including groundwater sampling, to evaluate groundwater conditions associated with the former UST and the existing VOC plumes. Nine groundwater sampling soil borings were conducted; groundwater was encountered at depths ranging from approximately 10 to 13 feet below ground surface (bgs). Methyl tertiary butyl ether (MTBE) and trichloroethene (TCE) were detected in all nine samples; other VOCs (e.g., dychloroethene [DCE], dychloroethane [DCA], freon, acetone, benzene) were detected in

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[1] Geomatrix Consultants, Inc.; *Environmental Site Assessment, 420-450 Broadway, Executive Summary*; 2004.

[2] Geomatrix, *Environmental Site Assessment*; and Midpoint Technology Park Draft EIR (pp. 119-123).

[3] Geomatrix, *Environmental Site Assessment*. Although referring to the same types of organic compounds, this Geomatrix report uses the term Ahalogenated volatile organic compounds (HVOCs),@ while the 1996 EIR uses the more general term Avolatile organic compounds (VOCs).@ Other Geomatrix reports referenced in this Supplemental EIR use the latter term. To maintain consistency between the 1996 EIR and this Supplemental EIR, the term Avolatile organic compounds (VOCs)@ is used throughout the Supplemental EIR.

[4] Letter from Deepa Gandhi, P.E., Staff Engineer, and Martin B. Bloes, Senior Scientist, Geomatrix Consultants, Inc., to Annette Walton, Stanford Management Company, regarding AResults of Grab Groundwater Sampling Program, 420-450 Broadway Street@; Project 1909.009; February 16, 2005.

[5] Letter from Martin Bloes, Senior Scientist, et al., Geomatrix Consultants, Inc., to Deno Milano, Groundwater Protection Program, San Mateo County Department of Health Services, regarding AResponse to Comments, Results of Phase II Subsurface Investigation at Former Ampex Facility@; Project 1909.011; June 24, 2005.

one or more samples. All concentrations were below the RWQCB screening levels used to evaluate the potential for indoor air quality impacts from groundwater for residential land use on the soil type (Ahigh permeability vadose zone@) existing on-site. Concentrations were below their respective maximum acceptable contaminant levels per Title 22 of the California Health and Safety Code, except for MTBE, TCE, DCE, and DCA.

It is unclear if the presence of MTBE on-site is associated with the former UST or with the off-site plumes. Otherwise, as concluded in the Phase I environmental assessment, the presence of all other VOCs beneath the site is probably associated with the two plumes originating off-site; although a responsible party has not been identified, the RWQCB has determined that the owner of the Midpoint Technology Park (which includes the Outpatient Center site) is not responsible for the VOC plumes. Mitigation recommendations described in the 2004/2005 Phase I and Phase II reports for these remaining on-site VOC conditions are summarized on pages 7-14 through 7-15 herein under *Supplemental Impact 7-1*.

7.2 PERTINENT PLANS AND POLICIES

7.2.1 City of Redwood City

(a) Strategic General Plan. The City of Redwood City establishes policies for hazardous materials management through its General Plan. The Redwood City Strategic General Plan *Safety Element* contains the following public health and safety objective and policy pertinent to consideration of the proposed Outpatient Center project:

- *Protect City residents from the risks inherent in the use, storage, transport, and distribution of hazardous materials.* (Objective 2, page 12-3)

- *Review and update, as needed, the City's disaster response plans in coordination with the County's natural disaster preparedness plan.* (Policy S-3, page 12-3)

(b) Other City Requirements. The Redwood City Fire Department and Redwood City Community Development Services Department, Building and Inspection Division, also have regulatory roles in protecting the public from dangers associated with hazardous materials and wastes. Fire Department permits are required for storing, dispensing, using, or handling hazardous materials in excess of quantities specified in Section 105 of the Uniform Fire Code. These individual quantities can be increased when they are segregated within control areas separated by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building may be as high as four.[1]

When the maximum quantities of hazardous materials exceed the exempt amounts per control area, buildings or structures (or portions thereof) are classified as Group H Occupancies by the Uniform Building Code. Buildings or structures in this classification may require superior construction, decreased allowable floor areas or building heights, increased distances between buildings, spill control and secondary containment, fire extinguishing systems, or other measures. Some of these measures may not be practical to carry out in existing buildings.[2]

[1] Lee.

[2] Lee.

7.2.2 Federal, State, and Local Regulations Specifically Applicable to the Proposed Project

Hazardous materials handling and hazardous waste management are subject to laws and regulations at all levels of government, as described below. The following regulations apply to medical clinics, such as the Outpatient Center use proposed for the project site.

(a) Hazardous Materials Management and Emergency Planning. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or mitigate injury to 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. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where the materials are stored on-site, to prepare an emergency response plan, and to train employees to use the materials safely. Businesses that handle certain very hazardous substances must undertake a systematic analysis of their operations, study the potential consequences of possible worst-case accidents, and prepare Risk Management Plans to reduce apparent risks.

Stanford Hospitals & Clinics handles such materials in its overall operations, but not in quantities sufficient to trigger State Risk Management Plan requirements. For the proposed Stanford Outpatient Center, these laws would be enforced locally by the County of San Mateo Health Services Agency (CSMHSA) and by the Redwood City Fire Department, which also enforces fire code regulations pertaining to hazardous materials storage.

(b) Building and Fire Safety. The Redwood City Community Development Services Department, Building and Inspection Division, has adopted and enforces the Uniform Building Code. The Redwood City Fire Department enforces the Uniform Fire Code, as amended by the City Code of Redwood City. These laws specify management practices for flammable materials, including some 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 Uniform Fire Code incorporates relevant portions of National Fire Protection Association Standard 99, which addresses hazardous materials and fire safety at hospitals. The Redwood City Building and Inspection Division and the Redwood City Fire Department review proposed building design plans to ensure compliance with the Uniform Building Code and Uniform Fire Code, respectively.

(c) 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. The California Division of Occupational Safety and Health (CalOSHA) is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, CalOSHA obligates businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The 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, Material Safety Data Sheets are to be available in the workplace, and employers are to properly train workers. The U.S. Occupational Safety and Health Administration's Bloodborne Pathogens Standard requires

the use of Universal Precautions (e.g., handling all human blood and certain body fluids as if they contain infectious agents) in the workplace.

(d) Hazardous Waste Handling. The U.S. Environmental Protection Agency (EPA) has authorized the California Department of Toxic Substances Control (DTSC) to enforce hazardous waste laws and regulations in California. Hazardous waste generators are responsible for all phases of hazardous waste disposal. Generators must ensure that their wastes are disposed of properly, and legal requirements dictate the disposal requirements for many waste streams (e.g., banning many types of hazardous wastes from landfills). Many hazardous waste generators that produce more than about 13 tons of hazardous waste per year are required to prepare Hazardous Waste Minimization Plans pursuant to the California Hazardous Waste Source Reduction and Management Review Act. All hazardous waste generators must certify that, at a minimum, they make a good faith effort to minimize their waste and select the best waste management method available. Hazardous waste laws and regulations are enforced locally by the San Mateo County Health Department, Environmental Health Division.

(e) Radioactive Materials Management. The Radiologic Health Branch of the California Department of Health Services administers the federal and state radiation safety laws 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. To maintain a radioactive materials license, an institution must meet training and radiation safety requirements and be subject to routine inspections.

(f) Medical Waste Handling. The California Department of Health Services Medical Waste Management Program delegates authority to enforce the California Medical Waste Management Act and related regulations locally to the San Mateo County Health Department, Environmental Health Division. Medical waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, and transportation. State law imposes a continual tracking system for disposal, and a calibration and monitoring system for on-site treatment. Facilities that treat medical wastes must obtain permits and are subject to annual audits. Medical waste is to be stored in closed red bags marked "biohazard" and, when transported for disposal, placed inside hard-walled containers with lids.

(g) Hazardous Materials Transportation. The U.S. Department of Transportation has developed regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation, including packaging specifications for different types of materials. The U.S. Postal Service has developed additional regulations for the transport of hazardous materials by mail. The U.S. Environmental Protection Agency (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, the California Highway Patrol, the California Department of Transportation, and the California Department of Toxic Substances Control (DTSC) play a role in enforcing hazardous material and waste transportation requirements.

(h) Oversight of Contaminated Properties. Depending on specific circumstances, the San Mateo County Health Department, San Francisco Bay Regional Water Quality Control Board (RWQCB), or the California Department of Toxic Substances Control (DTSC) oversees sites contaminated by hazardous materials releases. The administering agency implements applicable soil and groundwater cleanup laws, including Superfund. Decisions regarding

cleanup and future use of a site are typically based on actual and reasonably projected risks present at the site. This approach focuses on the level of risk acceptable for planned land uses.

(i) Hazardous Building Components. Structural building components, particularly in older buildings, sometimes contain hazardous materials such as, among others, asbestos, polychlorinated biphenyls (PCBs), lead, and mercury. These materials are subject to various regulations. In the case of the proposed Stanford Outpatient Center, the Midpoint Technology Park buildings to be renovated and converted were constructed in 1998, after laws were passed banning or regulating the use of asbestos, PCBs, lead, and mercury in building components.

Asbestos. Asbestos is regulated both as a hazardous air pollutant and as a potential worker safety hazard. Bay Area Air Quality Management District (BAAQMD) and California Division of Occupational Safety and Health (CalOSHA) 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, and 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; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos.

PCBs. The California Department of Toxic Substances Control (DTSC) classifies PCBs as a hazardous waste when concentrations exceed 5 parts per million (ppm) in liquids or 50 ppm in non-liquids. Fluorescent light ballasts, which may contain PCBs, are regulated as hazardous waste and must be transported and disposed of 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. CalOSHA 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 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 comply with applicable health and safety and hazardous materials regulations. Typically, building materials with 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 such as mercury 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 waste is considered hazardous. Mercury can also be present in traps in the plumbing of older buildings in which mercury-containing equipment has been used.

7.3 PREVIOUS EIR FINDINGS PERTINENT TO THE PROPOSED PROJECT CHANGES

The 1996 EIR set forth the following certified impact and mitigation findings which remain applicable to the proposed project changes; these existing mitigation requirements would help to mitigate the hazardous materials effects of the proposed project changes:

Impact 9-2. The County of San Mateo Health Services Division and the RWQCB will allow new construction to take place in the project area, including the former Sears site *[i.e., the current project site]*. The County requires review by their Hazardous Materials Specialist, Office of Environmental Health, as part of the City=s building permitting process for new construction *[e.g., new lobbies, enclosed walkways, possible parking decks]*, and official closure for the demolition of any buildings proposed to be removed *[no buildings are to be removed under the current project]*.

> ***Certified Mitigation 9-2a.*** The County of San Mateo=s Hazardous Materials Specialist, Office of Environmental Health, shall review and provide approval for new construction.
>
> ***Certified Mitigation 9-2c.*** ...proper permitting for any groundwater disposal activities during construction, and
>
> ***Certified Mitigation 9-2d.*** The Hazardous Materials Specialist will require a thorough understanding of groundwater pumping activities by all contractors involved in construction activities such as excavation, grading, or in groundwater pumping and removal of toxic or hazardous materials.

Specific to the proposed Stanford Outpatient Center project, the requirements of Certified Mitigation 9-2 above are described in more detail in subsection 7.4.4 (Supplemental Impacts and Mitigations) of this SEIR chapter under Supplemental Impact and Mitigation 7-1, "Potential Exposure to Existing Soil or Groundwater Contamination."

7.4 SUPPLEMENTAL IMPACT AND MITIGATION FINDINGS

7.4.1 Supplemental Analysis Scope

This supplemental analysis focuses on the hazard implications of the proposed project changes (i.e., the differences between the project evaluated in the 1996 EIR and 1998 SEIR and the currently proposed Outpatient Center project). For purposes of this evaluation, the key project changes are:

- The proposed change in land use from office/R&D use to medical clinic, and associated changes in the potential for hazardous materials to be used, handled, stored, generated, transported, or disposed; and
- Any associated changes in emergency access requirements.

7.4.2 Significance Criteria

Applying a similar significance criterion to that used in the 1996 EIR, the project would be considered to have a significant impact related to hazards or hazardous materials if it would directly or indirectly:[1]

(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

In addition, based on the current CEQA Guidelines, the project would be considered to have a significant impact related to hazards or hazardous materials if it would directly or indirectly:[2]

(b) 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; or

(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. *(NOTE: The Initial Study Checklist prepared for the proposed project indicated that the project site might be located within one-quarter mile of the existing Taft Elementary School at 917 10th Avenue. However, a review of street maps confirms that there are no existing schools within one-quarter mile of the project site; Taft Elementary School is located approximately one-half mile from the site. Therefore, this issue is not discussed further in this SEIR.)*

7.4.3 Project Use, Storage, and Generation of Hazardous Materials

(a) Overview. Similar to existing outpatient services at the Stanford University Medical Center in Palo Alto, the proposed Stanford Outpatient Center would include activities that make use of and store a variety of hazardous materials. Most hazardous materials use would be associated with laboratory activities, patient treatment, and diagnostics. Typical hazardous materials used, stored, or generated on-site would include:

- Solvents and chemical reagents;
- Drugs and pharmaceuticals used for medical therapy;
- Infectious agents, including bacteria, viruses, and similar agents;
- Test samples (e.g., blood or tissue specimens) for use in testing procedures;
- Diesel fuel (for on-site generators); and
- Miscellaneous materials used for maintenance and cleaning.

For purposes of this SEIR, *hazardous materials* are materials that, because of their quantity, concentration, or physical or chemical characteristics, pose substantial hazards to human health

[1] CEQA Guidelines, Appendix G, item VII(a).

[2] CEQA Guidelines, Appendix G, items VII(b) and VII(c).

or safety, or to the environment, particularly if released. *Hazardous wastes* are a subset of hazardous materials. They pose substantial hazards to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous materials can be categorized as non-radioactive chemicals, radioactive materials, or biohazardous materials. *Radioactive materials* contain atoms with unstable nuclei that spontaneously emit ionizing radiation to increase their stability. *Biohazardous materials* include infectious agents (i.e., microorganisms, bacteria, molds, parasites, or viruses) that normally contribute to human diseases. *Medical wastes* include 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 similar research.

The following paragraphs describe the types of hazardous materials typically handled at Stanford Hospital & Clinics (SHC) facilities, along with established SHC health and safety policies and procedures.

(b) Hazardous Materials Use and Storage. Table 7.1 lists the potential hazardous materials anticipated on-site at the proposed Outpatient Center. Patient care activities at the proposed Outpatient Center would involve the handling and storage of relatively small quantities of hazardous materials, such as chemical reagents and other pharmaceuticals; chemicals used to sterilize equipment; chemicals used for specimen preservation; and solvents, corrosives, and stains used in clinical laboratories. Some of these materials would require dispensing under a fume hood or in a designated area. In addition, facilities maintenance activities would require various common hazardous materials, including paints, pesticides and herbicides, oils and lubricants, and cleaners (which may include solvents and corrosive materials, in addition to soaps and detergents).

All human body fluids and tissues--such as blood, urine, stool, and saliva--are assumed to be potentially biohazardous. Biohazardous materials would be handled in clinical laboratories, operating rooms, pathology, radiology, and other areas of the Outpatient Center.

No unsealed radioactive materials would be used on-site. X-ray equipment would be on-site, but this equipment would not involve radioactive atoms or require storage of radioactive materials.[1,2]

As required by law, storage of some hazardous materials would be accommodated in containers manufactured specifically for the type of hazardous material (e.g., flammable material containers, oxygen tanks) and only in the areas where the materials are needed.

All hazardous materials use and storage on-site would be subject to federal, state, and local regulations (see section 7.2, herein).

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[1]Mirna Cintron, Environmental Health and Safety Specialist, Stanford Hospital & Clinics; written and personal communications, April 24 and 27, 2006. The radioactivity of X-ray equipment is integral to operation of the equipment and does not exist as radioactive atoms or involve radioactive material stored in containers. "Digital" X-ray equipment, which might be included on-site, emits less radioactivity than standard X-ray equipment, or no radioactivity at all. Nevertheless, X-ray equipment and its use are regulated in a manner similar to radioactive materials.

[2]Mark How, Senior Health Physicist, Stanford University Health Physics; written communication, April 27, 2006.

Table 7.1
STANFORD OUTPATIENT CENTER ANTICIPATED HAZARDOUS MATERIALS INVENTORY

Type of Material	Examples	Maximum Amount Anticipated On-Site
Nonflammable Gases	nitrous oxide, carbon dioxide, nitrogen, oxygen, helium, argon	25,000 cubic feet
Flammable Gases	hydrogen, acetylene	3,800 cubic feet
Combustible Liquids	hydrolic oil, machine oil, diesel	3,000 gallons
Liquid Nitrogen[1]		13,750 gallons
Liquid Oxygen[1]		1,100 gallons
Flammable Liquids	ethanol, methanol, acetone, xylenes, acetronile, solvents	1,200 gallons
Oxidizers	hydrogen peroxide, sodium hypochlorite, osmium tetroxide	150 gallons
Etiological Materials[2]	formalin, chloroform	120 gallons
Corrosive Materials	photographic developer and fixer, acetic acid, ammonium hydroxide	550 gallons
Toxic Materials	polyethylene glycol, xylene	200 gallons
Other Liquid Materials[3]	floor finish, cleaners	1,000 gallons
Other Solid Materials[3]	sodium chloride, ammonium sulfate, sodium phosphate	100 pounds

SOURCE: Mirna Cintron, Environmental Health and Safety Specialist, Stanford Hospital & Clinics, April 2006.

Notes:
1. Liquid nitrogen and liquid oxygen are cryogenic. They are normally gases at room temperature, and as liquids, they are extremely cold.
2. Etiological materials (i.e., used in researching the cause or origin of a disease) may contain disease-causing agents.
3. Many "other" materials are not necessarily hazardous, although they do appear on the *Hazardous Materials Business Plan* chemical inventory for the Stanford University Medical Center in Palo Alto.

(c) Hazardous Waste Generation. Use of hazardous materials typically produces hazardous waste; however, much of the hazardous material handled by SHC is consumed through use. Table 7.2 summarizes hazardous materials handled at SHC that typically result in remaining waste. Currently, SHC waste is shipped to hazardous waste treatment, storage, and disposal facilities in accordance with the California Hazardous Waste Control Law. Most hazardous waste is shipped to the Aptus incinerator in Utah. The facility is owned by Safety-Kleen, which also transports the waste.

Almost all of the medical waste generated by SHC (e.g., hypodermic needles, razor blades, broken glass) is shipped for disposal, typically to the Integrated Environmental Systems medical waste incinerator at 499 High Street in Oakland, California.

(d) Physical Hazards. Various physical safety hazards also exist at SHC facilities. Common work activities--such as lifting, using sharp tools, and performing repetitive motions--are associated with various physical hazards. Some employees work with equipment that presents special hazards, such as high-voltage electrical equipment, X-ray-producing instruments, lasers, and high-intensity magnetic fields. Some hazardous materials pose physical safety hazards, like burns, if not properly managed. Classes of materials that can be associated with physical injuries include pressurized liquids and gases, cryogenic (extremely cold) liquids, flammable materials, and corrosive chemicals.

(e) Health and Safety Program Implementation. For its existing outpatient centers, SHC has prepared various plans and policies as required by applicable regulations, including Hazard Communication Programs, Safety Management Plans, Bloodborne Pathogen Standard Exposure Control Plans, Hazardous Materials and Waste Management Plans, a Radiation Safety Manual, a Chemical Waste Management Policy, a Medical Waste Management Policy, a Cytotoxic Handling and Disposal Policy, Disaster and Emergency Preparedness Management Plans, Hazardous Materials Response Team Plans, and Hazardous Materials Business Plans.

In addition to the external oversight provided by regulatory agencies described in section 7.2 above, SHC reviews its environmental health and safety performance through Administrative & Environmental Rounds/Hazard Assessment Rounds Programs. These programs involve inspections of housekeeping, maintenance, supply, and health and safety at medical center facilities. Inspection team members represent the SHC's Housekeeping, Environmental Health and Safety, Engineering and Maintenance, Design and Construction, Security Services, and Materials Management departments. Weekly inspections cover all facilities over the course of a year. Weekly deficiencies are tracked until corrections are completed. SHC also occasionally conducts internal audits of specific programs.

7.4.4 Supplemental Impacts and Mitigations

Activities at the proposed Stanford Outpatient Clinic would use hazardous materials and generate hazardous waste. The hazardous materials now found at the existing outpatient facilities at the Stanford University Medical Center in Palo Alto and described above are expected to reflect the range of hazardous materials types that could be found at the proposed Stanford Outpatient Center in Redwood City, and the nature of the hazards associated with such materials is expected to be similar.

Table 7.2
STANFORD OUTPATIENT CENTER ANTICIPATED HAZARDOUS WASTES

Type of Waste	Examples	Anticipated Waste Volume (pounds)[1]
Flammable Materials	solvents	32,907
Corrosive Materials	acids, bases	720
Toxic Materials	glutaraldehyde, mercury	545
Reactive Materials	aerosols, oxidizers	127
Other Hazardous Liquids	oil and water, latex paints	81,867
Other Hazardous Solids	batteries, light ballasts	890

SOURCE: Mirna Cintron, Environmental Health and Safety Specialist, Stanford Hospital & Clinics, January 2006.

[1] Waste volume corresponds to weight of waste containers shipped. Actual volumes may be considerably smaller. In addition to the waste above, the Stanford Outpatient Center would discard some gas cylinders in compliance with applicable laws.

To assess the potential for the proposed project to pose a significant impact, the following analysis considers the pathways through which exposure to hazards could potentially occur and evaluates the controls that would foreseeably be placed on each of these pathways. Exposure pathways that would be sufficiently controlled so as to pose no substantial hazard are considered to result in less-than-significant environmental impacts.

Supplemental Impact 7-1: Potential Exposure to Existing Soil or Groundwater Contamination. Excavation and construction of the proposed underground storm water retention basins, underground utilities, and potential future parking decks could expose construction personnel and members of the public to existing soil and groundwater contamination, if any. Implementation of previously Certified Mitigation 9-2 from the 1996 EIR would help to reduce such potential exposure to less than significant levels. In addition, or more specifically, recommendations included in the recent Phase I Environmental Assessment commissioned by the applicant call for preparation by the applicant of a *Site Management Plan* prior to site development to address potential environmental issues associated with project construction activities (e.g., excavation, dewatering, etc.) and operation, and the recent Phase II Environmental Assessment commissioned by the applicant calls for preparation of a site-specific, construction period *Health and Safety Plan* (a standard CalOSHA requirement for work at hazardous waste sites). Until these two plans are completed to the satisfaction of the County of San Mateo's Office of Environmental Health, project-related potentials for construction worker and public exposure to existing soil and groundwater contamination, if any, are assumed to represent a ***potentially significant impact*** (see criterion [a] in subsection 7.4.2, "Significance Criteria," above).

Explanation:

The proposed project would involve construction of two underground storm water detention basins, underground utilities (e.g., water, sewer, power), and possible foundation excavation for potential future parking decks (*Supplemental Mitigation 12-10*). While the project site does not appear on the State of California Hazardous Waste and Substances Sites List, the 1996 EIR noted that groundwater contamination from at least two volatile organic compound (VOC) plumes had originated from off-site sources and migrated through a portion of the Midpoint Technology Park site.

If soils on-site were contaminated, earth-moving activities undertaken without appropriate safeguards could potentially expose workers, and possibly the public, to chemicals in the soil. Exposure would most likely occur through skin contact or inhalation. Workers directly engaged in on-site activities would face the greatest potential for exposure. The public could be exposed if construction site access were insufficiently controlled or if contaminated soil were to become airborne. Any contaminated soil found on-site would need to be managed appropriately, and residual risk to future site occupants would need to be kept within acceptable levels, as determined by the San Mateo County Health Department and other appropriate oversight agencies. Without such measures, the project could create a hazard through the inappropriate management and disposal of hazardous materials, thereby posing a potentially significant impact.

For these reasons, steps to characterize the potential for contamination have been implemented, as required under previously Certified Mitigation 9-2, to ensure that the proposed project changes will not create unacceptable risks. Specifically, SHC has commissioned Geomatrix Consultants, Inc., licensed Environmental Assessors, to conduct site-specific Phase I and Phase II environmental assessments, following associated state and federal regulatory protocols. The assessment results are summarized in section 7.1.3 herein, and associated mitigation recommendations are summarized below.

2004 Phase I Environmental Assessment Mitigation Recommendations: In the 2004 Phase I report, Geomatrix recommended the following more specific procedures to address potential encounters with residual petroleum or VOCs on the project site:

- Construction activities in the northeast area of the site (where an underground storm water retention basin and possible parking deck are proposed) may encounter residual petroleum from the former UST. Although it is expected that residual concentrations would not pose a significant human health risk, the material, if encountered, should be evaluated with respect to construction worker exposure and to proper disposal. ***This evaluation was completed as part of the Phase II environmental assessment, as summarized below.***

- Groundwater is expected to occur at depths of less than ten feet below ground surface at the site. Therefore, dewatering effluent generated during construction (e.g., while excavating for the underground storm water retention basins and possible parking decks) should be evaluated, and, if necessary, treated for the presence of VOCs prior to disposal. Grab groundwater sampling should be conducted to evaluate current groundwater conditions. ***Grab groundwater sampling was completed as part of the Phase II environmental assessment, as summarized below.***

- Groundwater beneath the project site contains VOCs originating from an off-site source. Although this condition is not expected to result in a significant human health risk to project employees and visitors, measurements and data regarding indoor air quality within the project structures should be collected and evaluated. ***This procedure was completed as part of the Phase II environmental assessment, as summarized below.***

2005 Phase II Environmental Assessment Approval Status: The findings of the project-commissioned 2005 Phase II Environmental Assessment were summarized in section 7.1.3(b) herein. According to Geomatrix, as documented in its Phase II report, based on comparisons of the VOC and MTBE concentrations in groundwater with RWQCB screening criteria, the current levels of on-site presence of these chemicals should not pose an unacceptable human health risk for Outpatient Center employees and visitors, or limit the use of the site as an outpatient medical facility. Geomatrix, on behalf of Stanford Hospital & Clinics, has initiated correspondence with the RWQCB to obtain regulatory clearance verifying that Stanford Hospital & Clinics is not the party responsible for cleanup of the VOCs in groundwater under the project site. Also, the San Mateo County Department of Health Services (SMCDHS), Groundwater Protection Program, has provided comments to Geomatrix regarding the Phase II environmental assessment (e.g., regarding sampling procedures, analytical methods, sampling locations). As of the preparation of this SEIR, the RWQCB and SMCDHS approval processes for the Phase II environmental assessment were ongoing.

These measures, along with the application of cleanup standards subject to review by responsible agencies, would serve to protect public health and the environment during site remediation, thereby minimizing potential adverse effects.

To the extent that the proposed project could involve removing existing contaminants from soil or groundwater, it could also be beneficial over the long term. Contaminant removal could reduce potential health threats and prevent individuals from encountering these contaminants in the future.

Supplemental Mitigation 7-1: Implement the following:

Phase II Environmental Assessment Approval: Complete the RWQCB and SMCDHS approval process for the Phase II environmental process.

Site Management Plan: Regardless of the outcome of the Phase II approval process, a construction period *Site Management Plan* shall be prepared by the applicant and approved by the County of San Mateo=s Hazardous Materials Specialist, Office of Environmental Health, prior to site development, to ensure that potential environmental issues associated with construction (e.g., dewatering) and operation of the site are adequately addressed. The *Site Management Plan* shall include or incorporate by reference an applicant-prepared or appropriate contractor-prepared site-specific construction period *Health and Safety Plan* (a standard CalOSHA requirement for work at hazardous waste sites). In addition to measures that protect on-site workers, the plan shall include measures to minimize public exposure to contaminated soil and groundwater (e.g., measures for the evaluation, handling and disposal of groundwater effluent generated during project construction period during dewatering, in accordance with applicable regulations). Such measures shall include dust control, appropriate site security, restriction of public access, and posting of warning signs. The plan shall apply from the time of surface disruption through the completion of earthwork construction.

Implementation of these supplemental mitigations, in addition to Certified Mitigation 5-2 from the 1996 EIR, would reduce this supplemental impact to a ***less-than-significant level***.

Supplemental Impact of Potential Hazardous Materials Disturbance in Existing Buildings. Demolition or renovation of existing buildings could disturb hazardous materials, if any, in existing building components and thereby cause adverse health or safety effects. As noted in subsection 7.2.3(i) above, however, the Midpoint Technology Park buildings that the project proposes for renovation were constructed in 1998-2000, after laws were passed banning or regulating the use of asbestos, PCBs, lead, and mercury in building components. The potential for hazardous materials in the existing buildings is therefore considered low, and the potential for hazards would represent a ***less-than-significant impact.***

Supplemental Mitigation. No significant impact has been identified; no mitigation is required.

Supplemental Impact Due to Hazardous Materials Storage and Handling. The proposed project would introduce hazardous materials storage and handling to the site, thereby increasing risks of human and environmental exposure. However, existing SHC health and safety programs--as well as existing local, state, and federal regulations and permitting requirements described in section 7.2, above--would limit the potential for exposure to hazardous materials by workers, other individuals on-site, the community, and the environment to established safe levels. Potential dangers due to hazardous materials storage and handling at the proposed project would therefore represent a ***less-than-significant impact.***

Explanation:

Typical On-Site Hazardous Materials and Agents. The types of hazardous materials that would be found at the proposed Stanford Outpatient Center would be similar in nature to those that exist now at the Stanford University Medical Center outpatient facilities in Palo Alto. Table 7.1 lists the potential hazardous materials anticipated on-site at the proposed Stanford Outpatient Center.

The hazards posed by chemicals and infectious agents vary. Some chemicals can pose physical hazards (e.g., chemical burns) or health hazards (e.g., poisoning), including potential acute or chronic illnesses. 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 excessive levels of radiation, whether from radiation-producing equipment or radioactive materials, can result in headaches, skin burns, or chronic illness, including cancer; the project is not anticipated to use any unsealed radioactive materials.

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 these cases, the risks posed by the hazardous materials depend on the potential for exposure.

Impacts on Workers and Other Individuals On-Site. The project-related effects of hazardous materials handling and storage would generally be limited to the immediate areas where the materials would be located because this is where exposure would be most likely. (Exposure at more distant locations would require some mechanism to transport the material to the more distant locations.) The individuals most at risk would therefore be Outpatient Center employees or others in the immediate vicinity of the hazardous materials. The routes through which these individuals could be exposed include inhalation, ingestion, contact, injection, and other accidents.

As described previously, SHC is required to comply with health and safety and environmental protection laws and regulations. To ensure compliance, SHC implements its own health and safety policies and procedures. Table 7.3 summarizes the primary means through which SHC protects workers and other individuals on-site from exposure to hazardous materials. For the proposed Outpatient Center project, SHC would be expected to implement policies and procedures similar in nature to those that currently exist at the Stanford University Medical Center outpatient facilities in Palo Alto. The effectiveness of these controls would also be expected to be similar.

Impacts on Greater Community and Environment. For the most part, 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 (e.g., local air quality and biota). The pathways through which the greater community or the environment 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 7.4 lists some of the primary means SHC uses to protect the community and the environment from exposure to

Table 7.3
EXPOSURE PATHWAYS AND CONTROLS--WORKERS AND OTHER INDIVIDUALS ON-SITE

Exposure Pathway	Examples of Control Measures
Inhalation (breathing a hazardous substance)	▪ Working with volatile materials in fume hoods[1] ▪ Working with potentially aerosol-suspended biohazardous materials in biosafety cabinets[2] ▪ Keeping containers closed when not in use ▪ Wearing face masks or respirators, as necessary
Ingestion (swallowing a hazardous substance)	▪ Not eating or drinking near hazardous materials ▪ Not storing food in refrigerators used for hazardous materials ▪ Not smoking near hazardous materials ▪ Washing hands and work areas
Contact (absorbing a hazardous substance through the skin or eyes)	▪ Wearing protective clothing and shoes, as necessary ▪ Wearing eye protection (glasses or goggles), as necessary ▪ Wearing gloves, as necessary ▪ Washing hands and work areas ▪ Working with radioactive materials behind shields
Injection (puncturing or cutting the skin with a contaminated object)	▪ Participating in awareness training ▪ Keeping sharps in puncture-resistant containers
Other Accidents	▪ Participating in emergency response training ▪ Purchasing and handling many hazardous materials in relatively small containers ▪ Maintaining emergency equipment (e.g., safety showers, emergency eye washes, first aid kits) ▪ Providing appropriate lips on shelves where hazardous materials are stored and other restraints, where necessary ▪ Segregating incompatible hazardous materials and storing flammable materials in fire-rated cabinets ▪ Providing secondary containment for hazardous materials that are not in use ▪ Calling the Redwood City Fire Department and its Hazardous Materials Emergency Response Team, if necessary

SOURCE: Mirna Cintron, Environmental Health and Safety Specialist, Stanford Hospital & Clinics, January 2006.

Notes:

[1] 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.

[2] Biosafety cabinets look similar to fume hoods. They filter aerosols and remove particles from the air, but they do not necessarily exhaust the filtered air to the outdoors.

Table 7.4
EXPOSURE PATHWAYS AND CONTROLS--COMMUNITY ENVIRONMENT

Exposure Pathway	Examples of Control Measures
Air Emissions	▪ Using fume hood ventilation or alternative exhaust systems to dilute and subsequently disperse emissions to the atmopshere[1]
Transport to and from the Site	▪ Following packaging requirements specified by the U.S. Department of Transportation, the U.S. Postal Service, and the California Department of Health Services Radiologic Health Branch and Medical Waste Program ▪ Identifying container contents with appropriate labels ▪ Using licensed hazardous waste haulers ▪ Documenting hazardous waste shipments
Waste Disposal	▪ Training workers ▪ Segregating wastes ▪ Collecting hazardous waste for appropriate disposal ▪ Diluting and treating wastewater from the site ▪ Labeling trash cans ▪ Following federal and state hazardous waste disposal regulations and procedures, including those for hazardous waste manifest documentation
Human Contact	▪ Identifying container contents with appropriate labels ▪ Training workers ▪ Implementing standard hygiene practices (e.g., wearing protective clothing and gloves when necessary, leaving protective clothing at work, and washing hands and work areas) ▪ Implementing medical surveillance programs to monitor the health of those who work with certain biohazardous materials ▪ Monitoring the exposure of those who work with radioactive materials
Accidents	▪ Providing emergency response training ▪ Maintaining emergency equipment (e.g., safety showers, emergency eye washes, first aid kits) ▪ Calling the Redwood City Fire Department and its Hazardous Materials Emergency Response Team, if necessary ▪ Not providing floor drains in areas where relatively large quantities of hazardous materials may be handled

SOURCE: Mirna Cintron, Environmental Health and Safety Specialist, Stanford Hospital & Clinics, January 2006.

Note:

[1] 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.

hazardous materials. The effectiveness of these controls at the proposed Outpatient Center would be expected to be similar to existing conditions at the Stanford University Medical Center outpatient facilities in Palo Alto.

Most hazardous materials storage at the proposed Outpatient Center would present little risk of upset, particularly to the community or environment away from the immediate vicinity of the hazardous materials. The materials would generally be stored in small, individual containers (with exceptions such as some compressed gases). Therefore, the probability of a major hazardous materials incident would be relatively low.

Minor incidents would be more likely, but the consequences of such accidents would not be expected to be severe due to the typically small quantities of materials handled at any particular time, and the equipment and training provided to SHC staff.

SHC maintains Disaster Plans to help ensure that staff can respond to possible hazardous materials emergencies and disasters. In addition, the Redwood City Fire Department provides "first response" capabilities to identify and secure access to hazardous materials incidents.

Other jurisdictions are also available, if necessary, to support the Redwood City Fire Department through mutual aid agreements. Hazardous materials spills and releases posing immediate threats to life or property are mitigated through an agreement among the Fire Department, the San Mateo County Environmental Health Services Division, and the South County Fire Authority Hazardous Materials Response Team. These entities provide a unified response to hazardous materials emergencies.[1] (The Redwood City Fire Department has concluded that demand for hazardous materials emergency services at the proposed Stanford Outpatient Center would not result in a noticeable change in the demand for hazardous materials emergency response services in Redwood City. See further discussion in chapter 11 [Fire/Emergency Services and Child Care].)

Aside from accidents possibly occurring on-site, accidents during hazardous waste transport to and from the site could expose individuals and the environment to risks at some distance from the project site. The U.S. Department of Transportation, the U.S. Postal Service, and the California Department of Health Services Radiologic Health Branch and Medical Waste Program all specify packaging requirements for hazardous materials and wastes that limit the potential for packages to fail on impact. These requirements reduce the potential for hazardous materials releases to occur in the unlikely event of an accident.

Hazardous Materials Use and Storage Impact Summary. Tables 7.3 and 7.4 summarize the hazardous materials controls that would be implemented at the proposed Stanford Outpatient Center. In addition, SHC reviews new building plans to minimize risks and to ensure compliance with health and safety laws and regulations. Administration & Environmental Rounds/Hazard Assessment Rounds and periodic program audits also would be implemented.

These mechanisms would be expected to minimize the potential for exposure to adverse health or safety effects from the use and storage of hazardous materials. Furthermore, SHC would implement Disaster and Emergency Preparedness Management Plans, and the City of Redwood City would continue to provide emergency response services. As a result, the proposed project would not create a significant hazard to the public or the environment through

[1] Lee.

the transport or use of hazardous materials; or through reasonably foreseeable upset or accident conditions involving the release of hazardous materials.

Supplemental Impact Due to Hazardous Waste Generation. The proposed project would generate hazardous waste, but would not substantially increase risks of environmental exposure to hazardous waste. Potential dangers due to hazardous waste generation would represent a ***less-than-significant impact.***

Explanation:

The use of hazardous materials at the proposed Outpatient Center would result in hazardous waste generation, including hazardous chemical and medical waste generation.

Even proper hazardous waste disposal, regardless of the method selected, often affects the environment. Hazardous waste landfills generally leak at some point and occasionally fail. Waste incinerators release toxic air contaminants to the atmosphere and result in ash that contains unburnable hazardous constituents (such as metals). Most other treatment and recycling methods also result in hazardous residuals that must be disposed of as hazardous waste. These residuals are usually either incinerated or landfilled. For this reason, the generation and disposal of hazardous waste is considered to be a form of pollution, and current hazardous waste management policies designate hazardous waste disposal as the least desirable management approach. Waste management strategies that seek to prevent pollution by reducing waste generation at its source are considered the most desirable approach.

Pollution prevention is a national objective established by the Pollution Prevention Act of 1990. This priority is reflected in San Mateo County's *Hazardous Waste Management Plan*.

Hazardous Chemical Waste. The proposed project would incrementally contribute to the volume of hazardous chemical waste generated in Redwood City. The increased hazardous chemical waste generation would increase the volume of waste managed at hazardous waste facilities inside and outside California. The increased demand for waste treatment and disposal would incrementally contribute to the demand for new hazardous waste treatment, recycling, and disposal facilities. The likely effects of hazardous waste disposal would probably occur far from the project site (since no hazardous chemical waste landfills or incinerators are located in the Redwood City vicinity).

California's hazardous chemical waste generators rely heavily on out-of-state treatment and disposal facilities to meet their disposal needs. For example, no hazardous chemical waste incinerators in California accept waste from third-party generators such as SHC. Out-of-state facilities may not receive environmental supervision equivalent to that of California. Therefore, the possibility exists that some hazardous waste generated as a result of the project could be managed at facilities that do not comply with some standards deemed appropriate by California.

Medical Waste. Most of SHC's medical waste is currently sent to incineration at Integrated Environmental Systems, a regional medical waste disposal facility in Oakland (on High Street near I-880). As with most hazardous waste disposal technologies, incineration involves potentially hazardous air emissions, including dioxins, and residuals that must be landfilled. Project-related medical waste would continue to be shipped to the Integrated Environmental Systems facility, unless other arrangements are made.

In November 1997, the Bay Area Air Quality Management District (BAAQMD) prepared a health risk screening analysis to assess the maximum potential acute and chronic risks posed by the incineration of medical waste at the Integrated Environmental Systems Oakland facility.[1] The analysis relied on conservative assumptions in estimating health risks. It assumed that the facility would operate at its maximum permitted capacity (its design capacity) of 2,000 pounds of medical waste per hour and that the facility would operate 24 hours a day for 365 days a year. In reality, the facility operates about 75 percent of the time. The study concluded that the maximum cancer risk posed by these operations would be no higher than 9.4 cancer cases per million individuals exposed. The total chronic and acute hazard indices (which indicate the potential for substantial chronic and acute health effects if over 1.0) would be at most approximately 0.37 and 0.008, respectively. The portion of this risk attributable to all SHC activities would be a relatively small fraction of the total. The portion attributable to the Outpatient Center project would be smaller still.

Hazardous Waste Summary. The proposed project is expected to increase SHC's generation of hazardous waste and, therefore, its demand for hazardous waste disposal services. This overall increase in demand would, by itself, have little observable effect on the levels of existing hazards that waste disposal poses to the public or the environment. With implementation of the established SHC health and safety control measures described in this chapter, no additional mitigation would be necessary.

Supplemental Mitigation. No significant impact has been identified; no additional mitigation is required.

Supplemental Impact Related to Physical Safety Hazards. The proposed project would expose individuals, including construction workers, project employees, patients, and other site occupants, to on-site safety hazards. However, established safety programs would minimize the potential for physical hazards, and therefore this exposure would represent a ***less-than-significant impact***.

Explanation:

The proposed project would introduce potential physical safety hazards on-site. These hazards would include, among others, electrical shock hazards from high-voltage equipment, safety risks posed by compressed gas cylinders (including those filled with inert gases), radiation hazards from x-ray equipment (regulated as radioactive material), and exposure to magnetic fields, intense light, or lasers. Other more common hazards would include slips and falls, overexertion, and repetitive motions. Workers engaged in activities that present special hazards, such as those mentioned above, would be adequately trained in accordance with SHC's Injury and Illness Prevention Plan requirements. Although individuals would be exposed to physical safety hazards with the project, compliance with occupational safety regulatory requirements would minimize the potential risks that physical hazards could pose. Accordingly, no additional mitigation would be necessary.

Supplemental Mitigation. No significant impact has been identified; no mitigation is required.

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[1]Bay Area Air Quality Management District, Toxic Evaluation Section; *Supplemental Health Risk Screening Analysis for Integrated Environmental Systems, Inc.*; November 1997.