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Hazards and Hazardous Materials

This section evaluates the potential impacts related to hazards and hazardous materials as the campus grows pursuant to the proposed 2005 LRDP. Primary sources of information used in this section include the report *Phase I/II Environmental Site Assessment: Emergency Response Center and Equipment Storage Building* prepared by Weber, Hayes, and Associates (2003), information obtained from the UC Santa Cruz Office of Environmental Health and Safety (EH&S), and the EH&S website.

In response to the Notice of Preparation, the following concerns were raised by commentors regarding hazards and hazardous materials:

- The potential effect of increased campus-related traffic on Empire Grade Road on the evacuation plans of the Santa Cruz Waldorf School, the Cave Gulch, and Bonny Doon areas north of the campus
- The need for improved vegetation management techniques to prevent fires
- The need for an environmental site assessment to be performed at 2300 Delaware Avenue, the former site of Texas Instruments.

This section specifically addresses the first two comments above, and evaluates both the potential effect of new campus construction on evacuation routes for the campus and for the areas north of campus, and the need for improved vegetation management techniques. With respect to the third comment, environmental cleanup was conducted prior to the acquisition of the 2300 Delaware Avenue property by UC Santa Cruz. This is described in detail in Section 4.7.1.5, *On- and Off-Campus Contamination*, and Chapter 3, *2300 Delaware Avenue Project* (Volume III).

4.7.1 Environmental Setting

4.7.1.1 Study Area

The study area for the evaluation of impacts related to hazards and hazardous materials is the UC Santa Cruz main campus, the former Texas Instruments property at 2300 Delaware Avenue in the city of Santa Cruz, California, and the immediately surrounding properties, where applicable. UC Santa Cruz is a campus of approximately 2,020 acres located within and north of the city of Santa Cruz. The property at 2300 Delaware Avenue is an 18-acre parcel on the west side of the city.

4.7.1.2 Definitions

The term **hazardous material** is defined in different ways for different regulatory programs. This EIR uses the definition given in California Health and Safety Code Section 25501(n) and (o), which defines hazardous material as:

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. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous wastes, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

By convention, most hazardous materials are thought to be hazardous chemicals, but certain radioactive materials and biohazardous materials, as defined here, are also hazardous. This EIR considers hazardous materials to include hazardous chemicals, radioactive materials, and biohazardous materials that are used on campus and at 2300 Delaware Avenue.

A **biohazardous material** is a material that harbors a biological agent capable of causing diseases in humans, animals, or plants. Biohazardous materials include infectious agents, microbiological specimens, and cultures of microorganisms capable of causing disease; microbiological specimens or cultures included in National Institutes of Health (NIH)/Centers for Disease Control and Prevention Risk Group 2, 3, or 4 (described in *Biosafety Standards* in Section 4.7.1.3, *Regulatory Context*); recombinant organisms containing deoxyribonucleic acid (DNA) from infectious agents; human blood, body fluids, or unfixed tissue; laboratory waste contaminated with biohazards; animal parts, tissues or fluids suspected of containing an agent infectious to humans, whether deliberately introduced or naturally occurring; and discarded materials suspected of contamination with infectious agents.

An **infectious agent** is any microorganism, bacteria, mold, parasite, or virus that normally causes or significantly contributes to increased human mortality (California Health and Safety Code Section 117675). Infectious agents have also been defined as any material that contains an organism capable of being communicated by invading and multiplying in body tissues (40 CFR §259.10).

Select agents and toxins are agents and toxins listed by the Secretary of the U.S. Department of Health and Human Services as having the potential to pose a severe threat to public health and safety, as provided by Section 351A(a)(1) of the federal Public Health Service Act.

A **hazardous waste**, for the purposes of this EIR, is any material, which is intended to be discarded, and which exhibits any of the following characteristics: flammability, corrosivity, reactivity, or toxicity.

Radioactive waste is any waste that contains any isotope of an element that undergoes nuclear transformations emitting a form of radiation, including an uranium or thorium compound.

Biohazardous waste is any liquid or solid waste generated through the handling of specimens from humans or animals that may contain infectious agents. Cultures of infectious agents, human anatomical remains, and animal carcasses that may be infectious are also considered biohazardous waste.

Sharps waste includes devices capable of cutting or piercing, such as hypodermic needles, razor blades, and broken glass (California Health and Safety Code Section 117755).

Medical waste is a general term that includes both biohazardous and sharps wastes (California Health and Safety Code Section 117690). Medical waste mixed with hazardous chemical waste is also referred to as *mixed waste*. Medical waste include *pathology waste*, recognizable human anatomical parts and fixed human surgery specimens and tissues, and *chemotherapy waste*, waste such as gloves, towels, empty bags, and intravenous tubing that contains or is contaminated with chemotherapeutic agents.

Some scientific materials do not meet the standard criteria (flammability, corrosivity, reactivity, or toxicity) for hazardous materials, but their presence and use on campus may be a matter of concern to the surrounding community. These include transgenic materials and non-ionizing radiation, which are defined below.

Transgenic materials include microorganisms, plants, and animals that have been genetically engineered or modified. Recombinant DNA techniques create new genetic combinations by changing, adding, or subtracting DNA in genes, but this methodology does not necessarily mean that new organisms are created. Much research is performed using tissue cultures or benign bacteria grown under laboratory-controlled conditions. With the exception of transgenic bacteria that could be infectious (considered biohazardous materials), transgenic materials generally do not pose a threat to public health or the environment. Therefore, to the extent that they pose a hazard they are discussed under biohazardous materials.

Non-ionizing radiation (NIR) is a radioactive energy that is not created by radioactive materials and does not impart ionizing energy in a biological medium such as the body. Many devices throughout the modern world act either directly or indirectly as sources of NIR. Many sources of NIR are present on the UC Santa Cruz campus in research applications or in ancillary equipment. These sources include lasers, large magnets, and microwave generators. In general, NIR tends to be less hazardous to humans than ionizing radiation. However, depending on the wavelength/frequency and the irradiance (or power density) value, NIR sources may present a human health hazard to users or to others in the immediate vicinity.

4.7.1.3 Regulatory Context

UC Santa Cruz is subject to substantial government health and safety regulations applicable to the use and disposal of all forms of hazardous materials. This section provides an overview of the regulatory setting applicable to health and safety at UC Santa Cruz and introduces its established health and safety policies and procedures.

Research activities are subject to numerous laws and regulations at all levels of government. In order to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs, the State of California developed the Unified Program to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for certain environmental and emergency management programs. The Unified Program is implemented at the local government level by Certified Unified Program Agencies (CUPA). Certain state regulations have been delegated to Santa Cruz County through the CUPA program,

including the Business Plan, the Hazardous Waste Control Law, and the Underground Storage Tank (UST) program. A summary of applicable laws and regulations related to the storage, use, and disposal of hazardous materials and to safety hazards at the project site and a summary of campus policies and procedures is provided below.

Applicable Regulations

Worker Safety Requirements. The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for ensuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations. These regulations concern the use of hazardous materials in the workplace, including requirements for employee safety training; availability of safety equipment; accident and illness prevention programs; hazardous substance exposure warnings; and emergency action and fire prevention plan preparation. Cal/OSHA also enforces hazard communication program regulations, including procedures for identifying and labeling hazardous substances, and requires Material Safety Data Sheets (MSDSs) to be available for employee information and training programs.

Hazardous Materials Management Planning. State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored and disposed of, and to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. The California Office of Emergency Services implements these requirements. Federal laws such as the Emergency Planning and Community-Right-To-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act or SARA) impose similar requirements.

The State Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a Business Plan, which must include the following: (1) details, including floor plans of the facility and identification of business conducted at the site; (2) an inventory of hazardous materials that are handled or stored on the site; (3) an emergency response plan; and (4) a training program in safety procedures and emergency response for new employees who may handle hazardous materials, with an annual refresher course in the same topics for those same employees. Public agencies, including the University of California, were initially exempt from these reporting requirements. In 1988, the Business Plan Act was amended to include public agencies within the definition of a business, resulting in a requirement for state agencies, including the University of California, to submit business plans to designated local agencies. For UC Santa Cruz, the designated local agency is the Santa Cruz County Department of Environmental Health.

Hazardous Substances Transportation. Under Title 49 of the Code of Federal Regulations (CFR), the U.S. Department of Transportation (DOT) has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. DOT regulations govern all means of transportation, except for those packages shipped by mail, which are covered by U.S. Postal Service regulations. The federal Resource Conservation and Recovery Act of 1976 (RCRA) imposes additional standards for the transport of hazardous wastes.

Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). The CHP enforces hazardous materials and hazardous waste labeling and packing regulations designed to prevent leakage and spills of material in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance. Caltrans has emergency chemical spill identification teams at approximately 70 locations throughout the state that can respond quickly in the event of a spill for containment and cleanup. In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state.

Common carriers are licensed by the CHP, pursuant to the California Vehicle Code, Section 32000. This section requires licensing every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

Hazardous Waste Handling Requirements. In 1980, RCRA created a major federal hazardous waste regulatory program that is administered by the U.S. Environmental Protection Agency (U.S. EPA). Under RCRA, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous wastes from “cradle to grave.” Under RCRA, individual states may implement their own hazardous waste programs. In 1992, EPA approved California’s program called the Hazardous Waste Control Law (HWCL), administered by the California Environmental Protection Agency Department of Toxic Substances Control (DTSC). HWCL differs little from RCRA (although it covers a larger set of materials); both laws impose cradle-to-grave regulatory systems for handling hazardous wastes in a manner that protects human health and the environment.

Regulations implementing HWCL list 791 hazardous chemicals as well as 20 to 30 more common materials that may be hazardous; establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous waste that commonly would be disposed of in landfills. Under both RCRA and HWCL, hazardous waste manifests must be retained by the generator for a minimum of three years. The generator must match copies of the hazardous waste manifests with copies of manifest receipts from the treatment, disposal or recycling facility. For UC Santa Cruz, the agency delegated to implement these requirements locally is the Santa Cruz County Department of Environmental Health.

Radioactive Materials Handling Requirements. The Federal Atomic Energy Act of 1954 and its implementing regulations establish the principal mechanism for regulating the possession and use of radioactive materials. The Federal Energy Reorganization Act of 1974 vested regulatory functions, other than those pertaining to nuclear weapons and nuclear energy, in the Nuclear Regulatory Commission.

Except for matters over which the Atomic Energy Act establishes exclusive federal jurisdiction,¹ the Nuclear Regulatory Commission may delegate its regulatory authority to a state agency.

The California State Radiological Health Branch of the Department of Health Services (DHS) regulates the possession and use of radioactive materials at facilities in California, except for federal installations, which remain under Nuclear Regulatory Commission control. At UC Santa Cruz, users of radioactive materials must comply with the California Radiation Control Law and its implementing regulations. This law requires that any person desiring to possess, use, or transfer any radioactive material must have a license. UC Santa Cruz holds a license from the State of California that governs the use of radioactive materials in campus laboratories. This license specifies the exact procedures and equipment UC Santa Cruz researchers must use when working with radioactive materials. In order to receive a license, UC Santa Cruz must follow DHS guidelines as well as guidelines published by various scientific advisory institutions.

UC Santa Cruz has a “broad scope” license that governs the uses of radioactive materials in its laboratories.² A broad scope license authorizes an institution to use radioactive materials for specified general purposes such as research and development. The institution, in turn, operates a program that approves and oversees each particular use of radioactive material within that institution. In order to receive a broad scope license, the institution must have considerable experience with large and varied radioisotope programs, a well-developed health physics group that is capable of evaluating and dealing with radiation safety problems that might be encountered, and detailed procedures for evaluating proposed specific uses of radioactive materials and for maintaining surveillance over approved uses.

UC Santa Cruz ensures compliance with the terms of its license through administrative procedures outlined in the University’s Radiation Use Authorization (RUA) (EH&S 2001b). All uses of radiation on the campus are subject to review and approval by the Radiation Safety Committee (RSC) and the Radiation Safety Officer (RSO) prior to acquisition of radioactive materials. The Radiation Safety Officer is the head of the Radiation Safety Program, which oversees the daily use of radioactive materials. In effect, DHS has delegated to UC Santa Cruz the authority to issue specific licenses to specific persons for specific uses of radioactive material on its campus. Therefore, in order to receive its broad scope license, UC Santa Cruz must assure DHS that the University’s authorization procedures are compatible with the regulations governing the issuance of specific licenses (17 CCR § 30194-30195).

UC Santa Cruz’s EH&S must maintain records of authorizations for all individual projects. These records must include information on each user’s training and experience with respect to the use of radioactive materials; the nature and purpose of the proposed use; the types and amounts of isotopes needed; procedures for use, transfer, and disposal of isotopes; conditions under which the use may be conducted;

¹ The Nuclear Regulatory Commission, for example, must retain authority over the export and import of radioactive materials, the ocean disposal of radioactive waste, and the construction and operation of any facility whose primary purpose is to produce or use radioactive materials. (42 USC § 2021(c)).

² California regulations distinguish between general and specific licenses. A broad scope license is a kind of specific license issued by DHS to institutions, like UC Santa Cruz, that have an established radiation safety program. General licenses, on the other hand, are effective without the filing of an application or the issuance of documents (17 CCR § 30190). Use of radioactive material in certain equipment, for example, is authorized under a general license as specified in the regulations (17 CCR § 30192.1).

the results of all internal inspections of the operating program; the exposure and bioassay histories of the users; leak test records; and histories of incidents and unusual occurrences. EH&S generally reviews such authorization annually.

Biosafety Standards. Numerous federal laws regulate the possession, access, use, and transfer of biohazardous materials. Title 42 CFR Part 73 implements provisions of the Public Health Security and Bioterrorism Preparedness Response Act. This act requires the Secretary of Health and Human Services to regulate the possession of certain biological agents (“select agents”) harmful to humans. The regulation controls the access, use, and transfer of select agents to ensure that these are shipped only to institutions or individuals equipped to handle them appropriately and only to those who have legitimate reasons to use them. A facility must register with the Centers for Disease Control (CDC) if it possesses any of the 40 select agents that could “cause substantial harm to human health” listed in sections 73.4 and 73.5 of 42 CFR Part 73. Work at UC Santa Cruz involving select agents must be approved by the UC Santa Cruz Radiation Safety/Biosafety Committee (RSBC) before it starts.

Another federal law regulating biohazardous materials is the Bioterrorism Preparedness Response Act of 2002 which requires that entities that possess, use, or transfer agents or toxins deemed a severe threat to animal or plant health must notify and register with the Secretary of the U.S. Department of Agriculture (USDA). The USDA’s Animal and Plant Health Inspection Service has been designated as the agency for implementing the law.

The CDC and the NIH have issued federal guidelines addressing biological safety. Compliance with these laws is required in any research receiving federal funding. These guidelines govern containment and handling in microbiological and biomedical research laboratories. In 2002, the NIH issued Guidelines for Research Involving Recombinant DNA Molecules, which classifies biohazardous agents into four safety levels, depending on the risk group of the agent used:

- **Risk Group 1** poses minimal or no potential hazard to laboratory personnel or equipment.
- **Risk Group 2** agents are considered to be of ordinary (not special) potential hazard and may produce varying degrees of disease through accidental inoculation, but may be effectively contained by ordinary laboratory techniques and facilities.
- **Risk Group 3** agents pose serious risks; therefore, work with these agents must be conducted in contained facilities using special ventilation systems and controlled access separate from public areas.
- **Risk Group 4** agents pose a high risk of life-threatening disease for which there may be no available vaccine or therapy; therefore, work with these agents must be conducted under the most stringent containment conditions.

UC Santa Cruz has adopted these guidelines. Work involving Risk Group 2 and above must be authorized by the UC Santa Cruz Institutional Biosafety Committee.

Fuel Storage Tank Standards. Federal laws require a Spill Prevention Control and Countermeasure Plan for facilities with aboveground storage tanks (AST) larger than 660 gallons. UC Santa Cruz has two ASTs on campus: one emergency generator with a 273-gallon onboard tank, and one

90-gallon day tank at the Central Heating Plant (Klaus 2005a). Because of the small size of the tanks, UC Santa Cruz is not subject to federal laws.

USTs are regulated by several state programs. Title 23 of the California Code of Regulations and Chapter 6.7 of the California Health and Safety Code require a monitoring and response program to provide for the monitoring, maintenance, and emergency response to operating USTs. The Santa Cruz County Department of Environmental Health is the local administering agency for this program. UC Santa Cruz operates four USTs for fuel storage for vehicle and generator use that are subject to this program.

Lead and Asbestos Standards. The removal and handling of asbestos-containing materials is governed primarily by EPA regulations under Title 40 Code of Federal Regulations but is implemented by the Monterey Bay Unified Air Pollution Control District (MSUAPCD 2005). Fed/OSHA also has a survey requirement under Title 29 Code of Federal Regulations, which is implemented by Cal/OSHA under Title 8 Code of California Regulations. These regulations require facilities to take all necessary precautions to protect employees and the public from exposure to asbestos.

The Cal/OSHA lead standard for construction activities is implemented under Title 8 Code of California Regulations. The standard applies to any construction activity that may release lead dust or fumes, including, but not limited to, manual scraping, manual sanding, heat gun applications, power tool cleaning, rivet busting, abrasive blasting, welding, cutting, or torch burning of lead-based coatings. Unless otherwise determined by approved testing methods, all paints and other surface coatings are assumed to contain lead, depending on the application date of the paint or coating.

Due to the age of many of the buildings on campus, UC Santa Cruz is likely to have many facilities containing lead and asbestos.

Water Quality Control Standards. The Porter-Cologne Water Quality Control Act, codified in the California Water Code, authorizes the State Water Resources Control Board to implement programs to control pollution into state waters. This law, in part, implements the requirements of the Federal Clean Water Act. The Regional Water Quality Control Board (RWQCB) establishes the allowable concentrations of a number of specific hazardous substances in treated wastewater discharged from the campus. Wastewater produced on campus is conveyed via the campus sewer system, without treatment, to the City of Santa Cruz system. The City of Santa Cruz provides municipal wastewater treatment services to the UC Santa Cruz campus through the Santa Cruz Wastewater Treatment Plant. The campus discharges to the City's sewer system under a waste discharge permit issued by the City in January 2005 for a period of 3 years. The permit establishes effluent limitations that apply to all dischargers and includes certain specific limitations for the campus. It also requires that the Campus collect and analyze samples of the wastewater leaving campus. The samples must be analyzed for flow, pH, total suspended solids, biochemical oxygen demand (BOD), volatile organic compounds, semivolatile organic compounds, copper, silver, mercury, and EPA priority pollutant metals. As discussed in more detail in Section 4.8, *Hydrology and Water Quality* (Volume II), over the course of its monitoring history, the campus has generally been in compliance with the effluent limits. The few exceedances that have occurred in the past have been related to food service facilities and not to the laboratories on the campus.

Accidental Release Regulations. The California Accidental Release Prevention Program (CalARP) addresses facilities that contain specified hazardous materials, known as “regulated substances,” that, if involved in an accidental release, could result in adverse conditions off site. CalARP defines regulated substances as chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive. UC Santa Cruz does not store any regulated substance in a quantity that would be covered by CalARP.

UC Santa Cruz Policies and Procedures

Campus Hazardous Materials Handling. It is the policy of the University of California to maintain a safe environment for its students, faculty, and visitors. It is also the University’s policy to conduct University operations in compliance with all applicable regulations and health and safety standards. UC Santa Cruz has charged the campus EH&S with compliance monitoring to ensure a safe and healthy campus environment and with coordinating the management of hazardous materials on campus. EH&S has the authority to require abatement of any condition or operation that could endanger people or facilities on campus or result in violations of pertinent federal or state laws or campus policies concerning health and safety. EH&S develops specific policies and programs in the following areas: industrial hygiene, chemical safety, physical safety, radiation safety, biohazard safety, hazardous waste management, and environmental protection.

EH&S facilitates Cal/OSHA and Fed/OSHA compliance efforts on campus. EH&S prepared model Injury and Illness Prevention and Chemical Hygiene Plans, which are used by individual campus units as the basis for preparing unit-specific plans; these plans set forth processes and procedures for employee training, the safe use of hazardous materials, the roles of various oversight committees, and the key role of the principal investigator. Principal investigators and laboratory supervisors are responsible for ensuring that personnel are trained and that their laboratories are operated in accordance with the unit’s Chemical Hygiene Plan, which must conform to the EH&S Chemical Hygiene Plan. EH&S provides a checklist for this purpose. EH&S also conducts regular inspections of laboratories. Emergency response plans are also prepared by individual units and by the campus as a whole.

To support compliance with all applicable health and safety policies and regulations, EH&S distributes written guidelines addressing health and safety issues (e.g., the use and handling of hazardous materials, including radioactive materials).³ Individual departments are assigned the responsibility for implementing specific training programs. To facilitate departmental training programs, EH&S conducts training classes throughout the year on a variety of topics (e.g., laboratory safety, hazard communication, and bloodborne pathogens). In addition, EH&S publishes information (e.g., newsletters and fact sheets) for distribution to Injury and Illness Prevention Plan coordinators. EH&S also maintains a web page that contains a variety of health and safety information. MSDSs are made available to employees through an Internet database service to which the University of California subscribes.

In accordance with the UC Santa Cruz Radioactive Materials License, laboratories in which radioactive materials are used are subject to inspection by EH&S staff one to four times per year. EH&S personnel

³ For example, EH&S training is required prior to authorization for use of radioactive materials.

use a facility audit checklist when inspecting laboratories and other campus facilities where radioactive materials are used. The inspections are conducted to ensure compliance with applicable codes and policies and conformity with applicable standards.

EH&S requires that any laboratory wanting to work with biohazardous agents, recombinant DNA organisms, select agents as defined by the CDC of the U.S. Department of Health and Human Services, or material requiring Biosafety Level 2 or above, must contact the UC Santa Cruz biosafety officer, fill out the UC Santa Cruz Biological Agent Use Authorization Form and receive approval of the Institutional Biosafety Committee before beginning work (EH&S 2005a).

Aerosol control of infectious agents or other biologically derived molecules is usually achieved by using a biological safety cabinet. There are currently three primary classes of biological safety cabinets, which are distinguished by their respective design, containment, and cleanliness capabilities.

- Class I cabinets are similar to conventional laboratory hoods with an open-face and negative pressure design, but class I cabinets exhaust through a high-efficiency particulate air (HEPA) filter.
- Class II cabinets are effective in protecting operators from research materials as well as protecting research materials from external contamination. These cabinets are designed with an inward airflow to protect personnel, HEPA-filtered downward vertical laminar flow for product protection, and HEPA-filtered exhaust air for environmental protection.
- Class III cabinets are totally enclosed, ventilated cabinets of gas-tight construction. Operations in the cabinet are conducted through attached protective gloves.

In accordance with the Business Plan Act, the Campus has prepared a business plan that has been submitted to the Santa Cruz County Department of Environmental Health. Routine audits are performed by County inspectors.

The EH&S Chemical Spill Response Team has been operating for the past 11 years. The team responds to an average of 10 spills per year. Most occurred inside laboratories or were related to minor vehicle fuel or oil releases. No significant spills have occurred on the campus (Blunk 2005a). Rapid response and thorough containment of small spills has been the norm at UC Santa Cruz.

The potential for spills or unauthorized disposal of chemicals into laboratory drains and consequently into the sewer system is addressed in several ways on campus. Accidental spills are controlled by secondary containment requirements (including use of chemical isolation trays, when appropriate), thereby minimizing the potential for accidental discharges to drains. Education and awareness training conducted by EH&S and by the various departments focuses on informing building occupants about the proper use, storage, and disposal of materials.

Campus Hazardous Waste Disposal. UC Santa Cruz complies with all of the requirements of RCRA and the HWCL, which govern the generation, storage, transport, and disposal of hazardous wastes. Hazardous wastes are collected by EH&S, brought to a central hazardous waste storage area (where materials are held for less than 90 days), packaged in accordance with federal and state requirements, and shipped via authorized transport services for recycling, treatment, and/or disposal at authorized sites. UC

Santa Cruz also implements a household hazardous materials education program, and conducts a campus household hazardous waste collection and disposal program.

Campus Emergency Response/Evacuation Planning. UC Santa Cruz maintains an Emergency Response Plan describing the roles and operation of the different units of the University during an emergency (EH&S 2005c). The Plan sets forth standard operating procedures adopted by UC Santa Cruz for handling emergencies resulting from fires, floods, storms, earthquakes, hazardous material incidents and other potential disasters.

The Emergency Response Plan uses a management system widely known as the Incident Command System (ICS). The ICS provides an organizational structure capable of responding to all levels of emergencies from simple to complex. It also provides the flexibility to respond to an incident as it escalates in severity.

UC Santa Cruz has mutual aid agreements with other public safety agencies and UC campuses that come into effect in the event of an emergency. For instance, the City of Santa Cruz Fire Department provides secondary support for structural fires, while wildfires are responded to by California Department of Forestry.

When an emergency incident occurs, the first arriving emergency responder (police, fire, or EH&S) implements the ICS. The first responder continues to exercise Incident Command authority until relieved by the senior official having legal or assigned responsibility for the type of incident occurring.

Proper implementation of the ICS depends on all UC Santa Cruz personnel understanding their roles and responsibilities. All employees are expected to be familiar with campus, building, and unit emergency plans, including evacuation procedure. Each building has a Building Coordinator responsible for preparing a Building Emergency Plan and an Emergency Assembly Point. Each Unit Coordinator is responsible for ensuring the safe evacuation of unit personnel.

Personnel may be required to evacuate a building, a region of campus, or the entire campus. The decision to evacuate generally resides with the Disaster Director, though lower levels of personnel such as Fire, Police, or EH&S officials may order evacuation if the incident requires it.

In preparation for a Stage 2 evacuation, which involves evacuation of a region of the campus or the entire campus, the campus has been divided into nine geographical regions. In the event of an evacuation, personnel are to move to their region's designated evacuation point. Commuting personnel may be asked to leave the campus entirely if time and traffic permits.

The main route in and out of the west side of the campus is via Heller Drive, whereas the majority of the central, east, and south campus areas would evacuate via Glenn Coolidge and Hagar Drives.

A new Campus Emergency Operations Center, Public Safety Dispatch Center, and Campus Police Department are included in the Emergency Response Center project, which is currently under construction. This new centralized facility will allow safety personnel and emergency responders to carry out their responsibilities more effectively.

4.7.1.4 Existing Conditions

Hazardous Materials Use, Storage, and Disposal

This section describes the existing hazardous material use, storage, and disposal for the campus and the existing controls in place to reduce the risks.

Hazardous Chemicals. Hazardous chemicals are currently stored, used, and disposed of by three broad groups: the Division of Physical and Biological Sciences research and teaching laboratories, other academic and administrative units, and the Physical Plant.

The most significant user and generator of hazardous wastes is the Physical and Biological Sciences Division. This division uses a wide variety of materials in research and instruction, including: flammable chemicals, such as alcohols and ether; corrosives, such as hydrochloric, nitric, and sulfuric acids; ammonium hydroxide; bicarbonate salts; reactives and oxidizers, such as nitrate salts and mercuric salts; health hazards, such as toxics, carcinogens, and tetragens; and other toxic chemicals.

EH&S has determined that the majority of hazardous materials use other than by the Physical Plant is in laboratories in buildings on Science Hill (Blunk 2005b). Table 4.7-1 summarizes the total volume used at these buildings for eight categories of hazardous materials: compressed gases, severe poisons, oxidizers, flammables, corrosives, carcinogens, suspected carcinogens/mutagens, and combustibles.

**Table 4.7-1
Hazardous Materials Quantities in
Physical and Biological Sciences Buildings**

Hazardous Material Group	Quantity	Units
Compressed Gases	71,282	ft ³
Oxidizers	634	lbs
Severe Poisons	296	lbs
Flammables	651	lbs
Corrosives	1,411	lbs
Carcinogens	263	lbs
Suspect Carcinogens/Mutagens	2,397	lbs
Combustibles	148	lbs

Source: Blunk 2005b

Campus maintenance work involves small quantities of hazardous materials. The custodial staff uses substances such as bleaches and wax strippers. The campus garage uses various petroleum products and solvents. The paint shop annually uses very small amounts of solvents and oil-based paint. The Heating Plant uses materials such as nitrates, biocides, sulfuric acid, and calcium hypochlorite.

Photographic laboratories used for teaching and photographic production generate hazardous waste as a byproduct of the photographic process, such as photographic fixers (which contain heavy metals), developers, and other chemicals. The Agroecology program and the Arboretum staff each use small quantities of pesticides, fertilizers, and herbicides. Office administrative staff use very small quantities of hazardous materials, primarily solvent-containing materials such as rubber cement.

A small portion of hazardous chemicals used on the campus volatilize and disperse into the air. The hazards from these airborne emissions are analyzed under Toxic Air Contaminants, in Section 4.3, *Air Quality*. Existing chemical use at UC Santa Cruz resulted in the generation of approximately 100,000 pounds of hazardous wastes in 2003, based on 2003 Uniform Hazardous Waste Manifests maintained by EH&S (Blunk 2005d). The amount of wastes fluctuates somewhat from year to year, but this figure is considered to be representative of the quantity of wastes currently generated. These hazardous wastes include acids, solvents, chemicals, mercury, corrosives, and general laboratory debris from laboratories; waste oil and paint and solvents from maintenance operations; and compressed gas.

Different kinds of hazardous waste are stored separately. The storage area and storage procedures are periodically inspected by EH&S and the Santa Cruz County Department of Environmental Health. The waste materials are recycled, treated, and/or disposed of off site at licensed facilities.

UC Santa Cruz operates four USTs for the safe storage of petroleum products. All four tanks are located on the main campus. Two tanks, located at fleet services in the south campus, are used to fuel campus vehicles. The other two tanks are located at the Fackler Cogeneration Plant, where they store pilot fuel for routine operation and for emergency operation of the cogeneration engine should the supply of primary engine fuel (natural gas) be interrupted. All four tanks are operated under permits issued by the County of Santa Cruz. Each tank is double walled and fitted with automatic leak detection, overfill protection, alarms, and double-walled piping; and is subject to periodic testing to ensure that all safeguards are functioning properly (EH&S 2005c). UC Santa Cruz has two ASTs on campus: a 273-gallon onboard tank for an emergency generator and a 90-gallon tank, both located at the Central Heating Plant (EH&S 2005a). The County, as the designated CUPA for the UST program, issues UST permits.

UC Santa Cruz has removed eight USTs from the campus. Two tanks were closed-in-place at the Central Heating Plant in 1992, three tanks were removed from the Barn G facility in 1989, and three were removed from the Central Garage Facility in 1999. Soil surrounding the former USTs was tested at that time and found to be contaminated. In each case, UC Santa Cruz implemented a remediation plan consisting of over-excavation of the soil surrounding the former USTs. Following each over-excavation event, soil sampling showed that remaining native soil was not contaminated, and that over-excavation activities had been successful. Closure was definitively granted by the County of Santa Cruz following the closure of the tanks at the Barn G facility and at the Central Heating Plant. While no paper trail exists proving closure of the three tanks at the Central Garage Facility, the closure report stated that contaminated soil was removed and that subsequent testing showed the remaining soil was not contaminated at levels exceeding the appropriate regulatory limits (Weber, Hayes, & Associates 2003).

Radioactive Materials. UC Santa Cruz currently uses only small activities of unsealed radioisotopes (radioactive material that comes in contact with equipment). Generally, the radionuclides most often encountered include ^{14}C , ^{57}CO , ^3H , ^{125}I , ^{32}P , (^{33}P), and ^{35}S . These are collectively referred to as CHIPS. In the year ending June 2004 (EH&S 2005b), UC Santa Cruz reported receipts of under 200 millicuries⁴ (mCi) of these radionuclides, and under 65 mCi of wastes.

⁴ A millicurie is one-thousandth of a Curie, a measure of the rate of radioactive decay.

UC Santa Cruz also uses a small quantity of uranium (^{238}U) each year. In the year ending June 2004, the University reported receipts of 4 grams of uranium, and wastes of 0.00020 milligrams. Uranium may be a “Source Material” if it is in any chemical or physical form, or if it comprises more than 0.05 percent of any ore.

In compliance with state and federal regulations, all principal investigators whose projects involve the use of radioactive materials apply for Radiation Use Authorizations (RUAs). All current and any future radioisotope use is reviewed by the campus RSO and the campus RSC as indicated in Radiation Safety Manual (EH&S 2001a). This review includes an evaluation of the technical proficiency of the researchers, their knowledge of UC Santa Cruz radiation safety program, and the adequacy of the facility for conducting the research. The RSO and RSC are authorized by the Chancellor to limit, suspend, or revoke an individual’s authorization to use radioactive materials if such use is dangerous to the health of individuals or violates health and safety codes. All of the applications are reviewed for compliance with Title 17 of the California Code of Regulations and the conditions in the UC Santa Cruz radioactive materials license.

Biohazardous Materials. Researchers at UC Santa Cruz currently hold 20 biological use authorizations (BUAs). All BUAs were for projects involving Biosafety Levels 1 or 2, and include 12 BUAs issued authorizing use of recombinant DNA. Seven of the BUAs were for users of infectious agents. No departments reported uses of classified Select Agents.

The UC Santa Cruz Institutional Biosafety Committee (IBC) oversees all work involving biological organisms. This committee is responsible for enforcing campus regulations under federal and state regulations and guidelines. The committee oversees activities involving recombinant DNA, toxins, and human, animal, and plant pathogens, and issues BUAs to project supervisors on a project-specific basis.

The Santa Cruz County EH&S office inspects campus medical waste generators on an annual basis. To date, UC Santa Cruz has received notification of a number of minor violations regarding medical waste storage and record keeping, and these violations have all been corrected within a month of the inspection. Until 2005, researchers generating medical waste were permitted to treat their waste stream (i.e., by autoclaving to kill infectious agents). In April 2005, the UC Santa Cruz Division of Physical and Biological Sciences decided to eliminate treatment of medical waste on campus. All medical wastes is now collected and transported by Monterey Bay Medical Waste, a certified medical waste transporter. (Blunk 2005e).

4.7.1.5 On- and Off-Campus Contamination

Project Site

According to EH&S, there are no contaminated sites on the main campus (Blunk 2005d). As discussed above (Section 4.7.1.4, *Existing Conditions*), UC Santa Cruz has removed six USTs from campus and closed-in-place two additional USTs. At the time of removal, contaminated soil surrounding the former USTs was removed; remaining soil was not contaminated. The County Health Department approved five of the site closures acting as the designated CUPA. However, three of the USTs removed have not had

final closure approvals granted, though soil samples indicate that overexcavation activities were successful.

Soil and building materials at the former Texas Instruments site at 2300 Delaware Avenue were previously identified as having been impacted by contaminants of concern (COCs) and the site was listed on the County of Santa Cruz Health Services Agency's Site Mitigation List. The primary COCs identified were metals, organic compounds, and corrosives. Remediation activities occurred in 2004 and were carried out by Anderson Environmental Management (AEM). Remediation activities included removal of contaminated soil, a general chemical sweep to capture, consolidate, and dispose of or recycle general chemicals and supplies; the decontamination, decommissioning, and removal of manufacturing systems; and the decontamination of individual rooms. Soil sampling, surface wipe sampling, and indoor air monitoring showed that remediation activities were successful. All hazardous materials have been removed from this facility except for limited janitorial supplies. Soil pH remains slightly elevated near portions of the building, however, not at a level considered a health or environmental hazard by the County of Santa Cruz (Texas Instruments Incorporated 2004). The site closure report was approved by the County of Santa Cruz Health Services Agency on September 29, 2004. The agency concurred that subsurface conditions are not a human health or environmental concern (CSCHSA 2005).

Nearby Sites

There are no known concerns about contamination from off-campus sites. UC Santa Cruz is located north of the city of Santa Cruz at a higher elevation than the city. Development upgradient of campus is primarily residential; there is currently no development upgradient of the campus that poses a potential hazard to the campus.

The University property at 2300 Delaware Avenue is surrounded by commercial and industrial development. Several Phase I Environmental Site Assessments have been performed for this site and none of these assessments have identified risks from off-site sources (Texas Instruments Incorporated 2004). Furthermore, no ground-disturbing activities are planned for this facility under the 2005 LRDP. Therefore, risk from subsurface conditions resulting from off-site contamination is not anticipated.

4.7.1.6 Wildland Fire Hazards

For a discussion of fire services, see Section 4.12, *Public Services* (Volume II). Development on the UC Santa Cruz main campus is concentrated in the central campus where colleges and buildings are built at the edge of or within the redwood forests. It has been campus practice to minimize the removal of mature trees and natural vegetation; therefore, buildings on the central campus are surrounded by trees and grasslands. Although the redwood forests generally have lower fuel loads for wildland fires because of the absence of an understory, these areas are at risk from wildland fires. The hazard is greater in the grassland areas and riparian areas. The Moore Creek corridor that runs north-south through the campus area is identified as fire hazard area on Map S-11 of the City of Santa Cruz General Plan's Safety Element.

UC Santa Cruz implements several programs designed to limit the possibility of dangerous wildfires. The campus Fire Department oversees annual inspections of all laboratories and residential buildings to help evaluate wildfire dangers. All other campus buildings are inspected every other year. These inspections

cover both building interiors and exteriors. Interior inspections ensure that fires originating within the buildings are avoided. Exterior inspections evaluate the dangers posed by vegetation in close proximity to the buildings. If the inspector determines that the vegetation is a danger, the vegetation is cleared. Public Resources Code Section 4291 requires clearance of vegetation within 30 to 100 feet surrounding all buildings, depending on the slope of the terrain. Furthermore, all new buildings constructed on campus must be fitted with sprinklers and the plans must be reviewed and approved by the campus fire marshal.

Several grasslands (meadows) are interspersed throughout the campus. These meadows are mowed annually. Chain saws and similar equipment are used for larger bushes and vegetation. Firebreaks are installed in larger meadows to protect against fires. The Campus leases land to ranchers for grazing cattle, which also limits vegetation growth. Because there are no buildings in the upper and north campuses, the Campus has not actively managed the vegetation in those portions of the campus, except that it regularly clears vegetation within 15 to 20 feet of all paved and unpaved roads throughout the campus to ensure access in the event of a fire. The Uniform Wildlife Interface Code (UWIC), which establishes requirements for structures within urban-wildlife interface areas, including vegetation clearance and fuel modification, is adopted as part of this campus's Fire Protection Policy.

UC Santa Cruz maintains a 1-million-gallon water tank at the north end of the campus that provides fire suppression water for the central campus. This tank is filled by booster pumps from reservoirs located at lower elevations along Empire Grade Road. The booster pumps between the lower reservoirs and the 1-million-gallon water tank are electrical and are equipped with backup power generators.

As discussed in the Section 4.12, *Public Services* (Volume II), several fire departments are responsible for responding to fires on or near campus. The University of Santa Cruz Fire Department has de facto primary responsibility for responding to all fires on campus land. The northern portion of the campus lies in a State Response Area (SRA), and therefore the California Department of Forestry is the official primary responder for this area; however, in practice the campus fire department acts as the first responder for any fire on campus. In the event that a fire is beyond the immediate response capacity of the campus fire department, second responders may be called in. The City of Santa Cruz Fire Department provides secondary support for structural fires, while wildfires are responded to by California Department of Forestry.

While wildfires in California are common, the climate of the Santa Cruz region is not particularly susceptible to wildfire, due primarily to high humidity. In the past 11 years, wildfires occurred on campus only in 1997, and this was due to the actions of a lone arsonist (Hernandez 2005).

4.7.1.7 Sensitive Receptors

Nine existing sensitive receptors – defined as kindergarten through twelfth grade schools, and child care centers - are located within ¼ mile of the main campus. Two schools are within ¼ mile of campus, including Santa Cruz Waldorf School northwest of the campus in the Cave Gulch area and Westlake Elementary School southeast of the campus. Five child care centers are southeast of and within ¼ mile of the campus: Harvey West Children's Center, Holy Cross Preschool, Johnny Crow's Garden, Messiah Lutheran Preschool, and Neighborhood Child Care Center. There are two child care centers on campus: a

child care center at the Family Student Housing development on the west side of the campus, and the Granary Child Care Center in the southeastern corner of the campus.

4.7.2 Impacts and Mitigation Measures

By 2020, UC Santa Cruz foresees expanding the campus from a base year (2003-04) population of approximately 14,050 students to approximately 21,000. This increase in enrollment is expected to be accompanied by an increase in faculty and staff of approximately 1,520 persons. Under the 2005 LRDP, development to accommodate this growth would occur.

Hazards issues are associated with the construction of campus facilities in the north campus, which would increase the possibility of wildland fires and would affect emergency operations plans, and with increases in laboratory space, which would result in increased use of hazardous materials. Approximately 30 acres of new Academic Core facilities as well as 63 acres of employee and student housing would be constructed north of the existing campus core alongside the north campus loop road.

4.7.2.1 Standards of Significance

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, an impact is considered significant if campus growth under the 2005 LRDP would:

- Create a significant hazard to the public or the environment through 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
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

4.7.2.2 CEQA Checklist Items Adequately Addressed in the Initial Study

- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport, would the project result in a safety hazard for people residing or working in the project area?
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The Initial Study determined that neither the main campus nor 2300 Delaware Avenue is within 2 miles of a public airport, nor is a private airstrip located near the main campus or 2300 Delaware Avenue.

4.7.2.3 2005 LRDP Impacts and Mitigation Measures

LRDP Impact HAZ-1: Implementation of the 2005 LRDP would increase routine use of hazardous chemicals, radioactive materials, and/or biohazardous materials on campus by UC Santa Cruz laboratories and departments and in maintenance and support operations, which would not create significant hazards to the public or the environment.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

Campus growth under the 2005 LRDP would involve an increase in the number of laboratories and the expansion of other facilities, such as building and vehicle maintenance, which involve the use of hazardous materials. The area of all engineering and science buildings is projected to increase from about 1.1 million square feet to 2.2 million square feet. Currently, hazardous materials are primarily used in five major science and engineering buildings. These buildings encompass an area of approximately 740,000 square feet. UC Santa Cruz expects that the area of buildings with fume hoods will increase to approximately 1.4 million square feet under the 2005 LRDP.

Laboratories and other facilities constructed under the 2005 LRDP would continue to comply with all hazardous materials standards for UC Santa Cruz. Cal/OSHA has mandated that steps be taken to minimize exposure to chemicals in the air. Researchers and other workers would continue to take these standard procedural precautions, such as working under fume hoods when using chemicals likely to present exposure hazards. To prevent exposure through skin contact, campus policies and procedures established by EH&S require that protective clothing, such as laboratory coats, gloves, and safety glasses, be worn while handling hazardous materials and wastes. Proper washing after handling chemicals is also required. Exposure to the public from hazardous materials use on campus is limited because such materials are primarily used indoors. The only potential pathway for public exposure would be air emissions. To minimize exposure to chemicals in the air and to comply with Cal/OSHA requirements,

researchers and other workers would continue to take standard procedural precautions, such as working under fume hoods when using chemicals likely to present exposure hazards.

Growth of the campus under the 2005 LRDP would involve increased use of biohazardous materials on campus. The proposed 2005 LRDP provides for construction of a new biomedical research center on campus. At this time, the exact size and nature of this research center is unknown. However, standard biomedical research activities that would be conducted in the center might include mass spectroscopy, genetic sequencing, and research on small laboratory animals such as mice. Equipment used in laboratories at the research center may include basic laboratory equipment such as desks, benches, cabinets and shelves for storage, sinks, gas, fume hoods, tissue culture rooms, and imaging equipment such as magnetic resonance imaging and ultrasound machines. The types of biological agents used in this and other future laboratories would likely remain largely the same as those currently used on the campus, although new research could create a need for new and different biological agents. It is expected that work in these laboratories will fall within Biosafety Levels 1 and 2, as does all work currently performed at UC Santa Cruz. Biohazardous materials can potentially affect humans through air (inhalation of aerosols), water (release to the sewer), waste disposal, and accidents. However, all of these potential effects would be minimized through existing campus policies and procedures, including the Biosafety Program, engineering controls and training programs described in Sections 4.7.1.3, *Regulatory Context*, and 4.7.1.4, *Existing Conditions*. The potential impact of increasing the number of research animals and other research materials on student and employee health would not be significant because of regulatory requirements and current campus guidelines for controlling exposures to blood-borne pathogens would be followed. These programs are continuously monitored and updated as necessary. Such programs include the Cal/OSHA Bloodborne Pathogen Standard, the Centers for Disease Control guidelines for work in laboratory and animal facilities, Guidelines for Animal Transport and Quarantine, and National Institutes of Health guidelines for work with recombinant DNA.

Construction of the new biomedical research facility and other laboratories may increase use of radioactive materials on campus, but all new use would be subject to the campus control programs and radiation standards described in Section 4.7.1.3, *Regulatory Context*. Radioactive materials would continue to be monitored closely. In accordance with the UC Santa Cruz Broadscope Radioactive Materials License, prior to obtaining radioactive materials, each principal investigator must apply for an RUA from the Radiation Safety Committee. The UC Santa Cruz Radiation Safety Program, which is required by the Radiation Control Law, is designed to provide adequate protection against exposure for visitors, students, faculty, staff, and the community at large. Average background radiation exposure in the United States is about 360 millirem per year. Typical average doses to radiation workers at campus facilities are less than 10 millirem per year (EH&S 2005d), a level below naturally occurring or background radiation and below applicable standards.

As discussed earlier, existing campus policies and procedures are in place to minimize the risks, including those associated with fire. Implementation of these policies and procedures would continue under the 2005 LRDP. Therefore, the increase in the use of non-ionizing radiation devices on campus that would result from implementation of the 2005 LRDP would not have a significant impact on the public or on the environment.

Environmental and health and safety laws and regulations are dynamic and have been revised and expanded in recent years. UC Santa Cruz is committed to providing a safe environment for the campus and local community by implementing the increasingly complex and stringent laws and regulations regarding the use of hazardous materials. Throughout the span of the 2005 LRDP, UC Santa Cruz will continue to comply with all federal and state laws and regulations and will continue to implement all safety programs and procedures currently in place as established by EH&S. These procedures will continue to limit exposure of students, faculty, staff, and the community at large to hazardous, radioactive, or biohazardous materials, to research animals, or to non-ionizing radiation. All UC Santa Cruz projects implemented under the 2005 LRDP would comply with these controls. Therefore, the impact would be less than significant.

LRDP Impact HAZ-2: Development under the 2005 LRDP could increase routine generation of hazardous, radioactive, or biohazardous wastes on campus by UC Santa Cruz laboratories and departments and in maintenance and support operations, which would not create significant hazards to the public or the environment because hazardous waste would continue to be comprehensively managed by UC Santa Cruz pursuant to state and federal law and campus policies and procedures.

Significance: Less than significant

LRDP Mitigation HAZ-2: The Campus will enhance its hazardous waste minimization program by (1) monitoring chemical purchases and use; and (2) maintaining a hazardous waste website to provide campus waste generators with the latest information on hazardous waste requirements; recycling, treatment, and disposal options; and waste minimization techniques.

Residual Significance: Not applicable

Hazardous chemical wastes are generated whenever hazardous chemicals are used. General types of hazardous chemical wastes include spent solvents from laboratories and the physical plant, discarded laboratory reagents and reaction products, unused paints and oils, and contaminated materials such as gloves and containers. Campus growth under the 2005 LRDP would increase the number of research laboratories on campus and therefore may result in an increase in hazardous waste generation. As discussed in LRDP Impact HAZ-1, the increase in area of buildings using fume hoods, and thus of buildings routinely using hazardous materials, is expected to be proportional to the overall increase in the area of all science and engineering buildings.

The campus EH&S has prepared guidelines for proper disposal of hazardous wastes based on regulations established by the EPA and the DTSC (EH&S 2005h). To facilitate safe management, hazardous wastes are controlled from generation to pick-up by EH&S hazardous waste disposal guidelines (EH&S 2005e). These guidelines specify that as soon as the first drop of waste is generated, the user must complete an online storage tag and attach it to the storage container. Waste must be stored in a hazardous waste accumulation area in a container with a tight lid that is compatible (i.e., nonreactive) with the material

being stored, surrounded by secondary containment, and free from contamination. Sharps wastes must be packaged in appropriate, safe containers. Different types of wastes, such as medical wastes and radioactive wastes, must not be mixed. Containers must not be filled beyond 95 percent of capacity to prevent the containers from bursting due to a change in waste volume when the temperature changes. Partially filled containers can be stored for up to six months. Once a container is ready for disposal, the user must submit a request for disposal of the container to the online database.

UC Santa Cruz has also prepared guidelines for the storage and disposal of radioactive wastes (EH&S 2005f). These guidelines, entitled the *Radiation Waste Disposal Procedures*, are implemented and enforced by the Radiation Safety Committee, RSO, and EH&S. Radioactive waste must be stored in containers labeled as containing radioactive waste. The laboratory principal investigator must maintain records detailing the quantities and specific isotopes generated and stored. Containers must be stored in a secure, out-of-the-way location. The *Radiation Waste Disposal Procedures* specify that subtypes of radioactive wastes must be stored in different ways, and that different radioactive isotopes must not be stored together without permission from the Radiation Safety Officer. Containers storing radioactive waste must not be filled beyond 90 percent of capacity, and must not exceed 20 liters (5 gallons). Radiation Safety staff removes and disposes of all radioactive wastes. A completed Radioactive Waste Tracking Form must accompany a request for pickup.

EH&S specifies characteristics that define a biohazardous waste, including but not limited to human or animal specimen cultures; waste from the production of bacteria, viruses, and spores; and human or animal surgery specimens. EH&S specifies procedures for treating biohazardous and medical wastes via autoclaving prior to disposal in city sewer or garbage facilities. Certain biohazardous and medical wastes must be disposed of by alternative methods, including biohazardous wastes mixed with chemical wastes, animal carcasses, and sharps waste. Due to the limited generation of biohazardous wastes, EH&S does not currently have facilities to store such wastes prior to disposal off campus (EH&S 2005g). The construction of a future biomedical research laboratory may require EH&S to adopt procedures for storing and disposing of larger quantities of biohazardous and medical wastes. As and when project-specific details about the biomedical research laboratory are available, EH&S and the Division of Physical and Biological Sciences will evaluate the options for waste storage, including whether there would be a need to construct a facility dedicated to the safe temporary storage of biohazardous wastes.

In summary, campus growth under the 2005 LRDP would likely result in an increase in hazardous waste generated at UC Santa Cruz. Compliance with hazardous waste storage and transportation regulations, and continuation of the programs and controls currently in place to manage hazardous wastes would minimize the hazards to workers, the public, and the environment. Therefore, the impact would be less than significant.

To further reduce this less-than-significant impact the Campus will implement LRDP Mitigation HAZ-2, pursuant to which the Campus will enhance its hazardous waste minimization program by monitoring chemical purchases and use; and maintaining a hazardous waste website to provide campus waste generators with the latest information on hazardous waste requirements; recycling, treatment, and disposal options; and waste minimization techniques.

LRDP Impact HAZ-3: Development under the proposed 2005 LRDP would increase the routine transport of hazardous materials to and from the UC Santa Cruz campus, which would not create significant hazards to the public or the environment.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

As discussed above, campus growth under the 2005 LRDP would increase the use of hazardous materials and the generation of hazardous waste on campus. Consequently, the transport of hazardous materials to and from campus would also increase. UC Santa Cruz policy requires that packaging of chemicals to be transported on public roads conform with all legal requirements, including those of the DOT, the California Department of Agriculture, the California Highway Patrol, and the guidelines of the International Civil Aeronautics Organization and the International Air Transport Association. All hazardous waste is picked up from generators by EH&S or a licensed hazardous waste contractor, and generators must properly package and label all hazardous wastes. In addition to proper packaging and labeling, radioactive waste must be accompanied by a completed Radioactive Waste Tracking Form. The Campus contracts with radioactive waste contractors to remove the radioactive waste from campus and the contractors take the waste to approved radioactive waste facilities, all of which are out of state.

Under the 2005 LRDP, UC Santa Cruz would continue to require compliance with these safety regulations, guidelines, and policies. Therefore, the impact of the increased transport of hazardous materials to and from the campus would be less than significant.

LRDP Impact HAZ-4: Development under the 2005 LRDP would not create significant hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

All individuals who handle hazardous materials are required to receive appropriate training and have access to MSDSs, which outline procedures to follow in the event of an accidental release or exposure. Staff and students who work around hazardous materials are required to wear appropriate protective equipment and to use fume hoods when warranted. Safety equipment is routinely available in all areas where hazardous materials are used. EH&S inspections and the CUPA self-audit system enforce compliance with these procedures.

The United States Department of Transportation Office of Hazardous Material Safety prescribes strict regulations for the transportation of hazardous materials, as described in Title 49 Code of Federal

Regulations. Transportation along state roadways near the campus is also subject to all hazardous materials transportation regulations established by the California Highway Patrol pursuant to the California Vehicle Code. As detailed in the discussion of LRDP Impact HAZ-3, campus policy requires that all hazardous materials to be shipped on public roads be packaged in compliance with all applicable regulations. Compliance with these regulations minimizes the potential for accidental release of hazardous materials being transported to or from the campus.

Hazardous wastes are picked up from users only by EH&S staff or licensed hazardous waste contractors, who also check the wastes for appropriate packaging. All stored hazardous waste must meet EH&S guidelines, including being stored in secondary containment, in a container at less than 95 percent of capacity, and in a supervised or locked room. In summary, UC Santa Cruz transports, uses, stores, and disposes hazardous materials in a manner that protects the public and environment. In addition, the campus Business Plan also requires a site-specific emergency response plan, employee training, and designation of emergency contact personnel. The same practices would continue under the 2005 LRDP and, therefore the impact would be less than significant.

LRDP Impact HAZ-5: Development under the proposed 2005 LRDP would result in increased handling of hazardous or acutely hazardous materials within ¼ mile of an existing or proposed school, which would not create a significant hazard for those attending the school.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

Existing schools within ¼ mile of the main campus boundary include Santa Cruz Waldorf School northwest of the campus in the Cave Gulch neighborhood, and Westlake Elementary School southeast of the campus on High Street. Existing childcare centers southeast of the campus include Harvey West Children's Center, Holy Cross Preschool, Johnny Crow's Garden, Messiah Lutheran Preschool, and Neighborhood Child Care Center. There are also two child care centers on campus: a child care center at the Family Student Housing development on Heller Drive, and the Granary Child Care Center near the main entrance to the campus. Development under the proposed 2005 LRDP includes the expansion of the child care center in the Family Student Housing complex and the construction of an additional child care facility, potentially on the north campus where additional employee and student housing is envisioned. Three schools and child care facilities are located on Swift Street within 1 mile of 2300 Delaware Avenue: Pacific Collegiate School, a 7-12 grade school Monarch Alternative School and Swift Street Child Care Center.

Although hazardous materials and waste use within ¼ mile of an existing or proposed school would likely increase as a result of campus growth under the proposed 2005 LRDP, these materials would not exist in quantities sufficient to pose a risk to occupants of the school or campus community. Because hazardous materials in laboratories are typically handled in small quantities and would continue to be handled in this manner under the proposed 2005 LRDP, the potential consequences of an accidental release would be

limited to a single building and in most cases, to the individual laboratory where the spill occurred. Furthermore, as discussed under LRDP Impact HAZ-1, above, UC Santa Cruz will continue to comply with federal and state regulations and will continue to implement existing campus safety programs and procedures. Therefore, the impact to those attending existing or proposed schools and child care centers would be less than significant. For an analysis of human health effects from routine emissions of hazardous materials into ambient air, see Section 4.3, *Air Quality*.

LRDP Impact HAZ-6: Construction and demolition activities under the proposed 2005 LRDP would not expose construction workers and campus occupants to contaminated soil or groundwater.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

The proposed project would not be located on a site that is on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5. There are no known sites with soil or groundwater contamination on the main campus or at 2300 Delaware Avenue, as areas with contaminated soil at 2300 Delaware Avenue and at several former UST sites on campus have been remediated and contamination is no longer a concern. EH&S is not aware of any existing contaminated sites on campus. Also, the past uses of the campus are well known and are not likely to have resulted in soil or groundwater contamination. “Due diligence” assessments (Phase I Environmental Site Assessments) have been performed for the area of the main entrance (“South Entrance”) and Physical Plant. These involved a review of past and current uses of the site for activities that may have involved hazardous materials use or disposal. The due diligence assessments did not identify locations with potential contamination.

Due to the low probability of any remaining contaminated locations on campus, this impact is less than significant.

LRDP Impact HAZ-7: Demolition or renovation of buildings under the proposed 2005 LRDP could potentially expose construction workers and campus occupants to contaminated building materials.

Significance: Less than significant

LRDP Mitigation HAZ-7: The Campus shall survey buildings for potential contamination before any demolition or renovation work is performed. If contamination is discovered, appropriate remediation will be completed.

Residual Significance: Not applicable

Hazardous materials could be encountered in campus buildings when they are demolished or remodeled under the 2005 LRDP. These hazardous materials could be related to lead-based paints or asbestos used in the construction of the buildings, or to spills and other releases of hazardous materials (such as chemicals) in laboratories during research activities.

Due to their age, some of the older UC Santa Cruz buildings are expected to contain asbestos on, lead-based paints. These materials may already be documented or would be documented by a lead and asbestos survey that UC Santa Cruz requires for all remodeling and demolition projects. State law also requires that contractors and workers be notified of the presence of lead-based paint and asbestos in buildings constructed before 1979. The DHS requires the certification of employees and supervisors performing lead-related construction activities in residential and public buildings. Standard specifications included in all campus construction contracts specify that contractors who disturb or potentially disturb asbestos or lead must comply with all federal, state, and local rules and regulations regarding hazardous materials. Contractors are also required to stop work and inform the campus if they encounter materials believed to be asbestos, lead, PCBs, or other hazardous materials.

Prior to demolition or renovation work in a laboratory, all hazardous materials must be removed and the user is instructed to survey the laboratory for contamination. EH&S then performs a confirmation survey for contamination resulting from the use of radioactive or biohazardous materials, chemical carcinogens, fume hoods or safety cabinets, and hazardous chemicals. EH&S uses a survey meter and collects wipe samples to test for radioactivity before removing a room from an RUA. If the EH&S auditor finds reason to suspect a major chemical spill or if there are concerns about waste disposal, sampling for chemical constituents may be performed.

Compliance with federal and state regulations, campus policies, and current EH&S procedures minimizes the potential for exposure of workers to contaminated building materials or other contamination inside structures. UC Santa Cruz will continue to comply with the pertinent regulations and campus policies and procedures under the 2005 LDRP. The impact would therefore be less than significant. To further reduce this less-than-significant impact, the Campus shall implement LRDP Mitigation HAZ-7.

LRDP Impact HAZ-8: Hazardous materials use on campus under the proposed 2005 LRDP would not exceed emergency response capabilities.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

UC Santa Cruz EH&S currently maintains emergency response plans that account for the existence of hazardous materials on campus. Each individual building and unit is required to have an emergency plan that accounts for the materials present in the building. Each building has a building safety coordinator to ensure that its emergency plan is adequate to account for situations the building is likely to face. All campus departments prepare and maintain department Illness and Injury Prevention Plans and emergency response plans. The Santa Cruz Hazardous Materials Interagency Team (SCHMIT), a regional hazardous material response team that includes some UC Santa Cruz Fire Department and EH&S staff, is called in to respond to any hazardous materials incident too large for the UC Santa Cruz Fire Department to handle. Incidents at the proposed facilities at 2300 Delaware Avenue would be responded to first by the City of Santa Cruz Fire Department before requesting the assistance of the SCHMIT.

The types of hazardous materials used by new facilities developed under the proposed 2005 LRDP would be similar to those used in existing facilities. Although the number of hazardous materials incidents could increase, the types of incidents would be similar to those (small spills and laboratory fires) that have occurred in recent years. The UC Santa Cruz Fire Department has responded to several laboratory fires since 1999. Depending on the severity of the fire, other agencies have responded to assist with control of the fire. The Santa Cruz City Fire Department has provided assistance for most incidents. For larger fires, other fire agencies may respond as well. For example, during the 2002 Sinsheimer Labs fire five different agencies responded to assist in controlling the incident. The Campus Fire Department does not anticipate any difficulty in responding to laboratory fires and incidents that may occur with new development under the 2005 LRDP. Therefore, the impact would be less than significant. Impacts related to wildland fires are discussed below under LRDP Impact HAZ-10.

LRDP Impact HAZ-9: Campus development under the 2005 LRDP could potentially interfere physically with the campus's Emergency Operations Plan (EOP).

Significance: Potentially significant

LRDP Mitigation HAZ-9A: The Campus shall continue to include the following requirements in its Campus Standards and implement them under the 2005 LRDP:

- Construction work shall be conducted so as to ensure the least possible obstruction to traffic.
- Contractors shall notify the University's Representative at least two weeks before any road closure.
- When paths, lanes, or roadways are blocked, detour signs must be installed to clearly designate an alternate route. Fire hydrants shall be kept accessible to fire fighting equipment at all times. To ensure adequate access for emergency vehicles when construction projects would result in temporary lane or roadway closures, Physical Plant and Physical Planning and Construction shall continue to require that construction and maintenance project managers notify campus police and fire departments and the campus dispatchers of the closures and alternative travel routes.

LRDP Mitigation HAZ-9B: The Campus shall test the effectiveness provisions of the EOP annually, and update as necessary.

LRDP Mitigation HAZ-9C: Before the beginning of the construction of the north campus loop road, the Campus shall expand existing main campus EOP to cover new development areas. In addition, the Campus will develop a site-specific EOP for the facility at 2300 Delaware Avenue.

LRDP Mitigation HAZ-9D: Any new development project on the north campus shall be provided with a secondary emergency egress route prior to occupancy of the

development.

Residual Significance: Less than significant

Campus growth under the proposed 2005 LRDP would not interfere with the main campus EOP through construction-related road closures. Under current campus policy, contractors must complete work with the least possible obstruction to traffic, and must keep fire hydrants accessible at all times. The Campus must be notified of all road closures in writing with at least a two-week notice. The campus police and fire department, EH&S, and Transportation and Parking Services (TAPS) are all notified of any road closure. To ensure that these procedures and notification requirements will continue under the 2005 LRDP, LRDP Mitigation HAZ-9A is included so that construction activity would not interfere with the campus EOP.

The current main campus EOP provides guidance for campus activities in case of an emergency. The EOP details a chain of command to help the campus handle a variety of emergencies. Different campus staff may take control of the situation, depending on the type of emergency. The 2005 LRDP would allow the development of new campus facilities on the north campus. The existing main EOP does not encompass the north campus. The EOP should be modified to include these new areas, with potentially two new evacuation points, one at each end of the north campus loop road. An EOP for the 2300 Delaware Avenue facility is in preparation and will be completed in early 2006.

With the expansion of the campus core and the construction of housing in the north campus, more population would be concentrated in the northern portion of the campus. North campus construction would also include construction of a new connector road connecting the north campus loop road with Empire Grade Road. Residents of the Cave Gulch neighborhood and Bonny Doon region northwest of the campus have expressed concern that with the growth in the northern part of the campus, in an emergency the number of people exiting the campus via Empire Grade Road would increase. This could impede the evacuation of residents of these areas who would also evacuate to the south via Empire Grade Road.

In the event of an emergency involving evacuation of the campus population, similar to current emergency protocols, campus Police Department staff would direct traffic and advise drivers on the routes to take to exit the campus. The particular evacuation route would depend on the location and type of incident. If there were a fire between the north and west entrances that required evacuation, for example, campus population would be directed to the new north entrance and north on Empire Grade toward Bonny Doon. On the other hand, in the case of an emergency on the north campus, campus population would be directed to exit via Heller Drive (west entrance). In the case of a large regional fire or earthquake, when all campus population might be evacuated, all persons would likely be directed to the western and main entrances, as campus roads would be safer and quicker than Empire Grade Road. Therefore, traffic related to the evacuation of the north campus would not interfere substantially with evacuation by residents of Cave Gulch and Bonny Doon. In fact, with the provision of the north entrance on Empire Grade Road, it would be possible for the residents of Cave Gulch neighborhood and Bonny Doon to use campus roads to exit the area in an emergency affecting Empire Grade Road.

The 2300 Delaware Avenue property is in a relatively flat, developed area of the city and is easily accessible by way of city streets. Development at that property under the 2005 LRDP would not affect emergency access.

In summary, UC Santa Cruz currently has an EOP in place. Implementation of LRDP Mitigations HAZ-9B, HAZ-9C and HAZ-9D will reduce the impact related to emergency response plans to a less-than-significant level by requiring: that the Campus continue to implement the existing EOP and regularly test its provisions; that the EOP be extended to include the north campus area as that area is developed; that a site-specific EOP be developed for the facility at 2300 Delaware Avenue; and that development in the north campus is provided with adequate emergency egress routes. The Campus will also implement LRDP Mitigation HAZ-9A to ensure that construction-related road closures do not adversely affect campus activities in the event of an emergency.

LRDP Impact HAZ-10: Campus development under the proposed 2005 LRDP would result in increased risk from wildland fires.

Significance: Potentially significant

LRDP Mitigation HAZ-10A: UC Santa Cruz Fire Department will continue to conduct annual inspections of all residential and laboratory buildings and biennial inspections of all other buildings.

LRDP Mitigation HAZ: Prior to beginning north campus construction, UC Santa Cruz will develop a new Fire Management Plan aimed at preventing wildland fires in the north campus. This Fire Management Plan will include provisions governing vegetation management and will specify pruning guidelines and provide a minimum of 30 feet of clearance between existing vegetation and buildings. The Fire Management Plan will include a rigorous inspection schedule of the interior and exterior of buildings with particular focus on ensuring that surrounding vegetation does not endanger buildings. The Plan will ensure that fire hydrants are adequately spaced and accessible and that fire roads are maintained and accessible. The Plan will also address limiting the risk of fires in the undeveloped regions on the campus.

LRDP Mitigation HAZ-10C: The Campus shall provide wildland fire prevention signage in the north and upper campus areas in conjunction with the new development.

LRDP Mitigation HAZ-10D: Building component protection as prescribed in the International Uniform Wildland Interface Code (UWIC) shall be required where appropriate as determined by the Campus Fire Marshal. All building construction shall comply with the minimum requirements adopted by the State Fire Marshal's Office.

Residual Significance: Less than significant

Current UC Santa Cruz fire management procedures have been successful at controlling fires on campus in the past decades. UC Santa Cruz uses several methods to prevent wildfires on campus (Hernandez 2005). The UC Santa Cruz Fire Department performs annual inspections of residential and laboratory buildings, and biennial inspections of other buildings on campus, for internal (i.e., improper use of

extension cords) and external (i.e., vegetation) fire hazards⁵. In addition, the Fire Marshal reviews and approves all building plans. Meadow perimeters are mowed seasonally, and firebreaks are cut through larger meadows. Ranchers lease portions of the Great Meadow for cattle grazing, and this helps prevent buildup of the vegetative fuel load. Equipment such as chainsaws and mowers is used to clear brush.

Public Resources Code (PRC) Section 4291 requires fire breaks 30 to 100 feet from buildings to provide responders with room to work. Areas on steeper slopes require more room. This requirement does not apply to single specimen trees or to ornamental shrubbery that does not provide a means of rapidly transmitting fire. UC Santa Cruz fulfills the requirements where it is applicable. The UWIC, which is adapted and incorporated as part of the campus Fire Protection Policy, requires a minimum of 10 feet of clearance on each side of fire access roads. UC Santa Cruz maintains clearance of 15 to 20 feet between vegetation and roads that may be used by fire department vehicles.

As part of the 2005 LRDP, UC Santa Cruz would expand to the north of the existing campus core. Some of the vegetation in the area north of the central campus is more prone to fire than is the redwood forest that surrounds the existing central campus development. This is due to the widespread existence of chaparral vegetation (see [Figure 4.4-5, *Vegetation Communities and Sensitive Habitats Within Proposed Developed Areas*](#) in Section 4.4, *Biological Resources*) in the north campus. New construction in areas along the north campus loop road that are designated Campus Student Housing and Academic Core would occur in areas with chaparral and chaparral-forest transitional vegetation. Construction of employee housing near the northwestern end of the north campus loop road would occur in an area that has chaparral vegetation and mixed evergreen forests. These new developments will place campus facilities at increased risk of fire due to the preponderance of chaparral and mixed forest in the area. There have not been any major fires on campus in the past decade. However, the risk of fire would increase as the campus population grows and as campus development extends north into areas with chaparral and mixed forests. For these reasons, the impact is considered potentially significant.

Implementation of LRDP Mitigations HAZ-10A through HAZ-10D would decrease the risk from wildland fires. LRDP Mitigation HAZ-10A requires the Campus to continue its practice of conducting biennial inspections of all campus buildings to minimize fire incidents. LRDP Mitigation HAZ-10B requires that prior to beginning construction in the area north of the campus core, the Campus must develop and implement a Fire Management Plan focused on the unique character of the north campus, with particular attention given to vegetation management. Because much of the north campus is in a designated State Resource Area, this plan must be reviewed and approved by the CDF. LRDP Mitigation HAZ-10C requires the Campus to install additional fire prevention signage in the north and upper campus areas, and LRDP Mitigation HAZ-10D requires that building construction comply with the UWIC code where appropriate. With the implementation of these mitigations, this potential impact will be reduced to a less-than-significant level.

⁵ Annual inspections of residential buildings is required by law. Inspection of other buildings is at the discretion of the Campus Fire Marshal.

LRDP Impact HAZ-11: Implementation of the proposed 2005 LRDP would increase use of hazardous materials by non-UC Santa Cruz entities on campus, which could create hazards to the public or the environment under routine and upset conditions.

Significance: Potentially significant

LRDP Mitigation HAZ-11: For projects proposed by non-UC Santa Cruz entities on campus that involve laboratory space, non-UC Santa Cruz entities shall be required, through contracts and agreements, to implement programs and controls that provide the same level of protection required of campus laboratories and departments. The following project-specific mitigation measures would be implemented for non-UC Santa Cruz tenants:

- Non-UC Santa Cruz entities shall submit the qualifications of designated laboratory directors to UC Santa Cruz EH&S prior to commencing laboratory operations. Such documentation shall be in the form of educational and professional qualifications/experience.
- Non-UC entities shall submit certification of compliance with NIH biosafety principles to the UC Santa Cruz EH&S prior to commencing on-site research. Non-UC entities shall submit copies of completed medical waste management plans, biosafety management plans, inventories of infectious or genetically modified agents, applicable permits and updates.
- If hazardous material quantities are proposed to be increased above applicable threshold quantities as defined in California Code of Regulations, Title 19, Division 2, Chapter 4.5, non-UC entities shall implement a Risk Management Plan/California Accidental Release Prevention Plan (RMP/CalARP), which discusses the handling and storage of acutely hazardous materials on site. The RMP/CalARP shall be approved by the CUPA and filed with the UC Santa Cruz EH&S prior to commencing proposed operations.
- Non-UC entities shall submit certification to the UC Santa Cruz EH&S to verify that applicable requirements for handling and disposal of hazardous wastes have been met prior to commencing on-site research. Non-UC entities shall submit copies of management plans for handling and disposal of hazardous wastes, and written verification of contracts with licensed waste disposal firms.
- Non-UC entities shall provide to the UC Santa Cruz EH&S copies of all required environmental reports to local, state, and federal

environmental and safety regulators.

Residual Significance: Less than significant

Under the 2005 LRDP, the number of laboratories operated on campus by non-UC entities may increase. The current planning for 2300 Delaware Avenue suggests that laboratories at the facility may be used by private, public, and non-profit entities. In addition, though the 2005 LRDP does not foresee the use of laboratories on the main campus by non-UC Santa Cruz entities, it is possible that these laboratories may be used in the future by non-UC Santa Cruz entities. These laboratories used by non-UC Santa Cruz entities would use hazardous chemical materials, radioactive materials, and biohazardous materials similar to those used in campus laboratories and described above. Under the 2005 LRDP, non-UC Santa Cruz entities operating on campus would be subject to the same laws and regulations that apply to campus laboratories. While the entities would be responsible for obtaining their own permits and keeping in regulatory compliance, pursuant to LRDP Mitigation HAZ-11, these requirements would be contractually enforceable by UC Santa Cruz. Non-UC Santa Cruz entities will be subject to laws and regulations related to safe transportation, handling, and disposal of hazardous, biohazardous, and radioactive materials and wastes. As a result, spills or releases of hazardous materials would be highly regulated and controlled, protecting the public and the environment. LRDP Mitigation HAZ-11 would ensure that the practices of non-UC entities on campus provide the same level of environmental protection required of campus laboratories and departments. Though use of UC Santa Cruz laboratory space by non-UC Santa Cruz entities is currently foreseen only at 2300 Delaware Avenue, any use of laboratory space on the main campus by non-campus entities will also be addressed by this mitigation. Implementation of this mitigation would reduce this impact to a less-than-significant level.

4.7.2.4 Cumulative Impacts and Mitigation Measures

LRDP Impact HAZ-12: Development under the proposed 2005 LRDP, in conjunction with other regional development, would result in increased use and transport of hazardous materials, but the increase would not result in a significant cumulative hazard or hazardous materials impact. It is unlikely that there will be a cumulative increase in risk of hazardous materials release, risk to existing and proposed schools from handling of hazardous materials, or risk of wildland fires.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

The cumulative context for the 2005 LRDP is the development of the University of Santa Cruz main campus, the UC-owned facilities at 2300 Delaware Avenue, and the buildout of all remaining undeveloped parcels located within the city of Santa Cruz by about 2020. According to the City General Plan, limited vacant residential and commercial land remains in Santa Cruz (City of Santa Cruz 1992).

Industrial areas in Santa Cruz are concentrated in the Harvey West and Natural Bridges industrial parks, and in an area for coastal-dependent industries in the west side. According to the 2005 General Plan, these areas “contain sizeable undeveloped lands that should meet the needs of industrial development through 2005” (City of Santa Cruz 1992).

The City General Plan notes that most industrial development in recent years has resulted from research and development from high-tech computer related start-ups and spin-offs from UC Santa Cruz research ventures. These industries tend to exist primarily in office spaces, as opposed to manufacturing facilities that may need to be segregated from the general populace. While the City plans to keep some land suitable for manufacturing uses, the City plans to primarily promote the expansion of environmentally sensitive industries that are less likely to contribute to a cumulative hazardous materials impact (City of Santa Cruz 1992). The General Plan states that the City “aims at encouraging new and existing businesses that are non-polluting and that will also improve the City’s long-term economic and environmental vitality...” (City of Santa Cruz 1992).

The City General Plan specifically states that the goal of the City of Santa Cruz is to limit the use and transportation of hazardous materials within city limits. Recognizing that such materials cannot be completely eliminated, the General Plan also demands that businesses comply with local and national regulations governing the use and disposal of household and industrial hazardous wastes. These regulations will limit any cumulative hazardous materials impact (City of Santa Cruz 1992).

Increased industrial uses in Santa Cruz would increase the use, transport, and disposal of hazardous materials within the city. As development in this area is subject to the Business Plan Act, all future projects that involve the handling of hazardous materials would be required to prepare and file a hazardous materials business plan that demonstrates the safe handling and control of hazardous materials in compliance with state and federal regulations. Future development in the city would be required to provide for the safe use, storage, and disposal of hazardous materials. Therefore, although the amount of hazardous material that would be used, transported, and disposed of cumulatively would increase, the impact of those increases would be less than significant.

Similarly, although the quantities of hazardous material that could be present within the city of Santa Cruz due to future cumulative industrial development would increase, the accidental release of hazardous materials from a facility would not necessarily be linked to potential accidental releases at other facilities, nor would there be a mechanism by which the effects of those releases would necessarily cumulate. The individual facility emergency response plans prepared under the Business Plan Act and under CalARP would be adequate to mitigate the adverse effects of each and every release to be less than significant.

The areas south of UC Santa Cruz and those surrounding the facility at 2300 Delaware Avenue are currently built up. These areas have limited potential to increase in population, thus, there is limited potential for a new school to be located within ¼ mile of the 2005 LRDP project site in the future. Furthermore, Section 17213 of the Education Code (School Siting Code) requires that, prior to acquiring property for a new school site, an environmental site investigation must be completed to determine the health and safety risks associated with a site. Thus, it is not expected that a school would be sited in the

area if a significant risk were considered to exist. As such, cumulative impacts associated with hazardous emissions or hazardous materials handling near a school would be considered less than significant.

Future cumulative development in the city of Santa Cruz would be expected to decrease, rather than to increase, the risk of occurrence or the risk to development from wildland fire. The areas near the campus considered to be a risk for wildfire are north of campus, outside of the incorporated limits of Santa Cruz where according to the county little or no development is anticipated. Thus, there would be no related cumulative impact.

In summary, development under the proposed 2005 LRDP, when combined with other past and reasonably foreseeable development in the city, would not result in significant adverse cumulative hazards and hazard materials impacts.

4.7.3 References

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