

4.10 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential for hazardous materials to affect human health and the environment at the Alternative Project sites. Historical land uses at the two Alternative sites are not known to have released contaminants affecting soils and groundwater. There may be a potential for future employees to come into contact with hazardous materials depending on the types of industries that are developed. In addition, the Project Action proposes the construction of 115/12 kv transmission and distribution electrical lines. Alternative Site 3 currently has transmission lines bisecting the site in a north south direction. Concerns arise due to the potential health effects associated with electromagnetic fields.

As defined by the U.S. Environmental Protection Agency (USEPA), a “hazardous waste” is one “which because of its quantity, concentration, or physiochemical or infectious properties, may either increase mortality or produce irreversible or incapacitating illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed (*U.S. Public Health and Welfare Code §6903*).

Accidental releases are regulated by Federal, State, and local authorities. In Shasta County, the Environmental Health Division is the local authority. Any business where the maximum quantity of a regulated substance exceeds a threshold quantity must prepare and submit a Risk Management Plan. The Risk Management Plan must contain an offsite consequences analysis, a five-year accident history, and accident-prevention program, an emergency-response program, and a certification of the truth and accuracy of the submitted information.

4.10.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING – ALL ALTERNATIVE SITES

The environmental setting for the various alternatives is described in **Chapter 3 – Project Description** and **Section 4.4 – Land Use**.

4.10.2 REGULATORY FRAMEWORK

A. Related Federal and State Regulations

U.S. Housing and Urban Development Regulations

HUD guidance looks toward ensuring that a project is designed in a manner which reduces any potential risk to the public or project users from personal injury or property damage from man-made hazards.

Sources of hazards and potential nuisances include structural, physical and psychological sources, and some have been listed because they are potential irritations to people.

- a. Site hazards: inadequate street lighting, uncontrolled access to lakes and streams, improperly screened drains or catchments areas, drilling operations, pipelines, steep stairs or walks, overgrown brush, lack of access for emergency vehicles.
- b. Traffic: circulation conflicts, heavy traffic, hazardous cargo transportation routes and road safety.

- c. Neighborhood hazards/nuisances: vibration, glare from parking lots, odors and proximity of the project to aerial transmission lines, power plants, transformers, drainage canals, junk yards, and industrial activities.

Some hazards and nuisances are covered as separate compliance or environmental issues, such as: (a) noise; (b) air pollution; (c) toxic chemical disposal sites; (d) radioactive materials; (e) chemical and petrochemicals of an explosive or fire prone nature; (f) airport/aircraft; and (g) natural hazards. Even though a project site may fall below the specific standards, there may be a residual nuisance value connected with the factor which should be indicated (e.g., a railroad line determined to be "acceptable" under the HUD noise policy).

Local codes and ordinances, health and building codes apply to many of these categories. Local zoning ordinances are used to prevent incompatible uses from impacting on residential areas. In addition, every community has a system for handling nuisances when complaints are received from citizens.

Other HUD regulations with respect to hazardous materials and hazards are the following:

24 CFR Part 51C, "Siting of HUD-Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature," effective April 2, 1984.

24 CFR Part 51D, "Siting of HUD-Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields," effective March 5, 1984.

Handbook 1390.4, A Guide to HUD Environmental Criteria and Standards Contained in 24 CFR Part 51, dated August 1984.

HUD Notice 79-33 provides guidelines for the specific problems associated with toxic chemicals and radioactive materials.

Resource Conservation and Recovery Act

The Federal government regulates hazardous wastes through a set of laws known as the Resource Conservation and Recovery Act (RCRA). RCRA provides for "cradle to grave" regulation of hazardous wastes from the point of generation until disposal, reuse, or recycling. In California, RCRA is implemented through the Department of Toxic Substances Control (DTSC). DTSC also implements California's hazardous-waste laws. California's hazardous waste laws are similar to RCRA, but more chemicals are included because the definition of hazardous waste is broader.

Department of Toxic Substances Control

As noted, RCRA is implemented through the Department of Toxic Substances Control (DTSC). The California Health and Safety Code, §25503(a), Chapter 6.95 requires any business that handles a hazardous material or substances containing hazardous materials in reportable quantities (500 pounds of a solid, 55 gallons of a liquid, or 200 cubic feet of a gas) to establish and implement a Hazardous Materials Business Plan (HMBP). The HMBP describes the response to a release or threatened release. The HMBP must identify the type of business, location, emergency contacts, emergency procedures, mitigation plan, and the chemical inventory at each location of the business. In Shasta County, HMBP are submitted

to, and administered by, the Shasta County Environmental Health Division which makes the plans available to emergency response personnel.

Each Hazardous Materials Business Plan addresses the potential hazards to the public or environment associated with the transport, use, or storage of these hazardous materials by the various industries and will contain the following information:

- A Business Identification Form, which describes the applicant, type of business, and contact persons.
- A Chemical Inventory, which lists chemical names, uses, forms, quantities, storage locations, and physical and health categories of hazardous substances.
- An Emergency Response Plan and Procedures which will include the following:
 1. Immediate notification procedures in the event of a release that poses a potentially significant present or potential hazard to public health or to the environment.
 2. Procedures for mitigating a release or a threatened release to minimize potential harm or damage to persons, property, or the environment.
 3. Evacuation plans and procedures, including immediate notice, for the business site. This plan would include the mechanism for notifying personnel, specific evacuation routes, and a mechanism for accounting for all personnel. Evacuation drills may be included in this plan.
 4. A description of the training program to implement the plan.
 5. A detailed facility map.

Each Risk Management Plan will contain the following information:

- Offsite consequences analysis.
- Five-year accident history.
- Accident-prevention program.
- Emergency-response program.

Consistency Analysis

Preparation, submittal, and implementation of the Hazardous Materials Business Plan and Risk Management Plan would reduce the environmental impacts from routine use, transport, and disposal of hazardous substances to **less than significant**.

California Department of Education

The California Department of Education adopted a policy that recommends minimum distances between new schools and the edge of transmission line rights-of-way. The setback guidelines are 100 feet for 100-110 kV lines, 150 feet for 220-230 kV lines, and 250 feet for 345 kV lines. Once again, these were not based on specific biological evidence.

Consistency Analysis

Whereas, the Project Action does not propose a school site, the potential exists for the establishment of a day care center, or possibly classroom space for a junior college or university satellite facility. These facilities would all be sited in accordance with the Department of Education policy for setback distances. Therefore, potential EMF effects would be **less than significant**.

B. City of Redding General Plan

The *City of Redding General Plan Natural Resources Element and Health and Safety Element* provides a series of goals and policies with which the proposed Project must be consistent; otherwise, the Project could not proceed. The following identifies applicable goals and policies for the Project:

GOAL NR4 Prevent and remedy surface-water, groundwater, and soil contamination.

Policy NR4D Work with Shasta County and other appropriate agencies to educate the public and business owners regarding proper handling and disposal of hazardous materials and household hazardous wastes.

Policy NR4D Establish and enforce penalties for illegal dumping of both hazardous and non-hazardous materials.

Consistency Analysis

Adherence to the above referenced Goals and Policies will provide Project consistency with the General Plan.

GOAL HS9 Reduce the risk of personal injury, property damage, and environmental degradation resulting from the use, transport, disposal, and release/discharge of hazardous materials.

Policy HS9A Require new developments that produce, store, utilize, or dispose of significant amounts of hazardous materials or waste to incorporate appropriate state-of-the-art project designs and building materials to protect employees and adjacent land uses.

Policy HS9C Require that soils containing toxic or hazardous substances be remediated to the satisfaction of the agency having jurisdiction prior to the granting of any permits for new development.

Policy HS9D Promote the routing of vehicles carrying potentially hazardous materials along transportation corridors that reduce the risk of exposure to the public and sensitive environmental areas.

Policy HS9E Implement the *Hazardous Materials Emergency Response* component of the City's *Disaster Response Plan* in the event of a hazardous material spill, accident, or release within Redding's corporate limits.

Consistency Analysis

The Proposed Action will adhere to the above Goal and Policies thereby providing consistency with the General Plan.

4.10.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

A. Basis for Environmental Consequences/Impacts – All Alternatives

There are potential adverse impacts on human health due to exposure to hazards that could result from development of the Project, regardless of location. Hazards evaluated include their transport and storage. Concerns also arise due to the potential health effects associated with electromagnetic fields.

B. Thresholds of Significance - Alternatives 1, 2, and 3

Significant effects could occur if development of the proposed Project were to:

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

*Hazardous materials will be transported to, stored, and used at the Park site, and hazardous waste would be stored at and transported from the Park. Routine transport, use, or disposal of hazardous materials will be conducted in compliance with Federal, State, and local regulations. The potential impact is **less than significant** and requires **no mitigation**.*

- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

*Hazardous materials will be transported to, stored, and used at the Park site, and hazardous waste would be stored at and transported from the Park. Routine transport, use, or disposal of hazardous materials will be conducted in compliance with Federal, State, and local regulations. The potential impact is **less than significant** and requires **no mitigation**.*

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

*It is likely that trucks will pass Pacheco Elementary School which is adjacent to Knighton Road. Each industry that locates to the Park must prepare a Hazardous Materials Business Plan and a Risk Management Plan, as required by California regulations. These documents would address the potential hazards to the public or environment associated with the transport, use, or storage of these hazardous materials by the various industries. The potential impact is **less than significant** and requires **no mitigation**.*

- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Not applicable because none of the sites are hazardous materials sites.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two 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?

*The Hazardous Materials Business Plan and Risk Management Plan would address the potential hazards to the public or environment associated with the transport, use, or storage of these hazardous materials by the various industries. The **potential impact could be significant**, however, **mitigations** proposed would reduce the impacts to a **less than significant level**.*

- f) 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?

Not applicable since there is no private airstrip in the area.

- g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

*The Proposed Action would be consistent with all adopted emergency response plans or emergency evacuation plans and potential impacts are **less than significant**.*

- h) 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?

*All buildings will have sprinkler systems installed. In addition, there are two means of access and egress from each Alternative site. Buffers will be established that provide defensible space between existing wildland areas and the proposed Project sites. Potential impacts will be **less than significant** and **no mitigation** is required.*

C. Analysis of Environmental Consequences/Impacts & Mitigation Measures

The following industries are initially envisioned for possible development as part of the Project.

- Plastic products manufacturing and/or assembly
- Fabricated metals manufacturing
- Industrial machinery manufacturing and/or assembly
- Electronics manufacturing and/or assembly
- Transportation equipment manufacturing and/or assembly
- Medical industry manufacturing and/or assembly
- Food processing
- Wholesale trade/distribution
- Information services-call centers/back office
- Professional offices
- Commercial uses that support the primary Park uses & Park employee support amenities
- Electric substations

Potential hazardous substances used or generated by these industries are described below. Discussion of potential impacts follows the description of hazardous substances used/generated.

Plastic products manufacturing and/or assembly

Plastic products manufacturers would produce such items as laminated plastic sheeting, foam products, and miscellaneous items such as plastic boxes, closet organizers, kitchenware, intermediate plastic processing and injection molding, suitcases, tires, automotive parts and floor coverings.

There are two major classes of plastics used to make these items – thermoplastic and thermoset (the following information was taken largely from OSHA materials).

Thermoplastics

Thermoplastics are plastics such as polyethylene or styrene which can be softened with heat. Thermoplastics can be molded, extruded, and cast. Common thermoplastics include ABS, acrylic, cellulotics (*e.g.*, cellulose acetate or ethyl cellulose), fluoroplastics (*e.g.*, Teflon), nylon, polycarbonate, polyester, polyethylene, polyimide, polypropylene, polystyrene, polyurethane, and polyvinylchloride (PVC). Thermoplastics are typically supplied as nonreactive solids (no chemical reaction occurs during processing) and require only heat and pressure to form the finished product.

Thermoplastics are typically molded using a process called injection molding. In this process, pellets of the plastic are fed into a hopper and carried into a barrel by a screw or plunger. The plastic melts in the barrel. When the proper volume of plastic has melted to fill the mold, the screw or plunger is forced forward, injecting the plastic into the mold.

Other thermoplastic forming processes include compression molding (a mold filled with pieces of thermoset plastic as well as a filler is subjected to heat and pressure to force the material to melt and fill the mold), extrusion (much like toothpaste through a tube), blow molding (similar to glass blowing; soft drink bottles are formed by this process); and thermoforming (a sheet of thermoplastic is heated and then allowed to droop into a mold, sometimes with assistance; a typical example is plastic luggage).

Because thermoplastics are typically supplied as nonreactive solids (no chemical reaction occurs during processing) and require only heat and pressure to form the finished product, there will not be significant adverse impacts to surface or groundwater from release of these materials.

Thermosets

Thermoset plastics are typically formed from multipart solutions (a resin and a hardener/curing agent). Once set, thermoset plastics do not flow or melt when heated. Products manufactured from thermoset plastics (*e.g.*, composites) are produced by mixing the thermoset with a binding agent (*e.g.*, carbon fibers or fiberglass).

Several types of resins, which can be considered hazardous substances, are used in manufacturing thermoset plastic products. Epoxy resins are currently the most commonly used resins in the advanced composite industry. Other resins that may be used are polyurethane resins, phenol-

formaldehyde resins, urea-formaldehyde resins, bismaleimide resin, or polyether and polyester polyols.

Curing agents, or hardeners, used with the epoxy resins are mostly amines, amides, or anhydrides. Two of the most widely used are the aromatic amines, MDA (4,4'-methylenedianiline) and DDS (4,4'-diaminodiphenylsulfone).

A number of solvents (which can be considered hazardous substances) are used in the composites industry. These may be introduced into the workplace in three basic ways - as part of the resin or curing agent, during the manufacturing process, or as part of the cleanup process. The general classes of solvents that could be used in plastics manufacturing are ketones, alcohols, chlorinated hydrocarbons, or others.

Ketones include acetone (DMK), methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK). Alcohols include methanol, ethanol, or isopropanol. Chlorinated hydrocarbon solvents include methylene chloride (dichloromethane), 1,1,1-trichloroethane (methyl chloroform), or trichloroethylene. Other solvents that may be used include toluene, xylenes, tetrahydrofuran (THF), dimethylsulfoxide (DMSO), dimethylformamide (DMF), gamma-butyrolactone (BLO), n-methyl pyrrolidone (NMP), n-butyl acetate, or glycol ethers.

Solvents in the plastics manufacturing workplace may be found in several areas - in small containers near process equipment, in larger containers (drums or vats) for soaking and cleaning, or in process equipment containers (tanks, reactors, molds, etc.).

Fabricated metals manufacturing

Fabricated metals manufacturers that would locate to the business park would produce architectural metal work, saw blades, and miscellaneous primary metal products such as metal powders and fasteners.

Industries in Fabricated Metal Product Manufacturing transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together (<http://www.census.gov/econ/census02/naics/sector31/332.htm>).

Fabricated metals manufacturing involves processes that machine, treat, coat, plate, paint, and clean metal parts. Fabricated metals processes generate various hazardous waste streams, including oily wastes from machining operations, heavy metal-bearing streams from surface treatment and plating operations, and additional wastes related to paint application (USPEA, 1990, *Guides to Pollution Prevention, Fabricated Metal Products Industry*).

The major wastes from machining operations are spoiled or contaminated metalworking fluids which are treated as hazardous wastes because of their oil content; these fluids may also contain chemical additives such as chlorine, sulfur and phosphorous compounds, phenols, creosols, and alkalis. Spent solvents from cleaning of parts and equipment can also make up a large part of the waste stream

from machining. There are five types of metal cleaning agents used in the industry – halogenated and non-halogenated solvents, alkaline cleaners, acid cleaners, non-chemical abrasive materials, and water. Scrap metal cuttings generated during operations are not considered hazardous waste if they are reclaimed or recycled. If mixed with waste oils, however, the waste stream is considered hazardous.

Metal plating and other surface-treatment of fabricated metals can generate hazardous wastes. Electroplating operations can generate waste solutions containing various compounds of cyanide, acids, and heavy metals. Sludge from process filters or wastewater treatment can contain constituents from the plating bath and metal hydroxides or sulfides.

The final step in some metal fabrication is painting or product coating. Hazardous substances associated with this step include paints (which may be solvent-based), empty paint containers, spent cleaning or stripping solutions, and equipment cleaning materials.

Industrial machinery manufacturing and/or assembly

Industrial machinery manufacturers that would locate to the Park would produce conveyors and conveyor equipment, amusement park equipment, industrial bellows, custom machinery, internal combustion engines (except automotive), crankshafts, gas and oil filters, propellers, etc.

Hazardous substances used or generated by machinery manufacturing could consist of petroleum-based products (*e.g.*, fuel for vehicles and equipment, oils and lubricants), solvents for equipment and parts cleaning, inorganic chemicals (*e.g.*, hydrochloric acid, sodium hydroxide), cleaners of various types, etc.

Electronics manufacturing and/or assembly

Electronics manufacturers at the Park would produce carbon and graphite products, printed circuit boards, electronic capacitors and resistors, coils and transformers, connectors, and miscellaneous electronic components.

Liquid effluent from the manufacture of printed circuit boards may contain organic solvents, vinyl polymers; stannic oxide; metals such as copper, nickel, iron, chromium, tin, lead, palladium, and gold; cyanides (because some metals may be complexed with chelating agents); sulfates; fluorides and fluoroborates; ammonia; and acids. In printed circuit board operations, solid wastes may include scrap board materials, plating and hydroxide sludges, and inks.

Effluents from printed wiring assemblies may contain acids, alkalis, fluxes, metals, organic solvents, and, where electroplating is involved, metals, fluorides, cyanides, and sulfates. In the manufacture of printed wiring assemblies, solid wastes may include solder dross, scrap boards, components, organic solvents, and metals.

The manufacture of passive components (resistors and capacitors) is similar to that of semiconductors, although passive component manufacturing uses less of the toxic chemicals employed in doping semiconductor components and more organic solvents, epoxies, plating metals, coatings, and lead. Chemicals used may include hydrogen, silane, arsine, phosphine, diborane, hydrogen chloride, hydrogen fluoride, dichlorosilane, phosphorous oxychloride, and boron tribromide.

Effluent from the manufacture of semiconductors may have a low pH from Hydrofluoric, hydrochloric, and sulfuric acids (the major contributors to low pH) and may contain organic solvents, phosphorous oxychloride (which decomposes in water to form phosphoric and hydrochloric acids), acetate, metals, and fluorides.

All three manufacturing processes may generate sludges containing heavy metals from wastewater treatment. Organic solvent residues also require management and disposal (the foregoing discussion was taken from World Bank, July 1998, *Pollution Prevention and Abatement Handbook*).

Transportation equipment manufacturing and/or assembly

Transportation equipment manufacturers at the park would produce motorcycles, bicycles, and parts and accessories.

Hazardous substances used or generated by this type of manufacturing would be similar to machinery manufacturing, and could consist of petroleum-based products (e.g., fuel for vehicles and equipment, oils and lubricants), solvents for equipment and parts cleaning, inorganic chemicals (e.g., hydrochloric acid, sodium hydroxide), cleaners of various types, etc.

Medical industry manufacturing and/or assembly

Medical industry manufacturers at the park would produce surgical appliances and medical instruments and surgical supplies.

Manufacture of these goods would involve industrial machines and equipment, with similar hazardous substances used or generated as described above for industrial machining.

Food processing

The food processing industry covers commercial manufacturing that starts with raw animal, vegetable, or marine materials and transforms them into food stuffs or edible products such as dairy, meat, vegetable, bakery, grain, and cereals.

Hazardous substances can be used and generated by food processors (USEPA, 1999, *Multimedia Environmental Compliance Guide for Food Processors*). Typical hazardous substances used or generated by the food processing industry include chemical preservatives, solvent-based cleaning materials, lab chemicals, flux for soldering and waste ink (from packaging and printing), and vehicle-maintenance waste.

Wholesale trade/distribution, information services-call centers/back office, professional offices, other commercial support uses

Wholesale trade and distribution would include e-commerce firms, catalog retailers, electronics/ electrical suppliers, trucking companies, and suppliers of miscellaneous goods and services. Other commercial uses would include restaurants, fitness centers, and day-care centers.

Hazardous substances used or generated in these categories would be those typically found in general offices – small quantities of cleaners, solvents, etc.

Trucking companies would use and generate more hazardous materials than general offices. Hazardous materials commonly found at trucking companies are petroleum-based products (fuels, oils, lubricants). Trucking companies at the Park could haul hazardous materials to and from the site for their customers.

Industrial Waste Pretreatment Program

The City of Redding operates a state approved Pretreatment Program to regulate the introduction toxic materials from commercial and industrial wastewater in the sanitary sewer system. This program is reviewed annually by the Regional Water Quality Control Board. All new Industrial Users (IU's) must complete an Industrial Waste Survey or IWS to typify the business activity, wastewater constituents, and impacts to the sewer system. IU's which discharge high strength (greater than 200 mg/l BOD or suspended solids), high flow (greater than 25,000 gallons per day), incompatible pollutants or fall within certain federal categories must obtain an Industrial User Permit that will detail limits on types and quantities of discharge. Some examples are: pH limits (must be above 6.8 and less than 12.0), pollutant constituent limits, flow limits (tanks may be needed so high flows can be discharged over a longer period of time), spill containment plans, toxic organic management plans and details of any necessary pretreatment to ensure compatibility with the wastewater treatment plant. Food processing or food service facilities can discharge high strength wastes, greasy or oily wastes, and wastes that require solids removal prior to sanitary sewer discharge. If mandated by the Regional Water Quality Control Board, the City will prepare and adopt a *City of Redding Local Limits for Metals and Organics* and businesses will be required to meet those standards.

Certain business activities are regulated by Federal Categorical Standards, which become part of a wastewater discharge permit from the City of Redding. These processes are regulated even if they are a small portion of the overall business activity. Some common activities fall into the Metal Finishing, Metal Molding and Casting, and Metal Products and Machinery categories and are regulated uniformly throughout the United States. Metal Finishing includes metal plating, printed circuit board manufacturing, anodizing, phosphating and other processes. Some categories only regulate larger facilities with production-based standards or mass based limits. See specific section below for more details related to specific types of businesses.

Restaurants/Food Service: Food service facilities, including stand-alone restaurants, facility cafeterias and day care facilities, produce grease, which can cause the flow in sewer lines to be restricted or stopped. Therefore these facilities must complete a Food Service Facility Survey to determine the need for an Oil and Grease Interceptor. The minimum interceptor size is 1250 gallons and the units usually have to be pumped by a waste hauler every two to three months to maintain effectiveness.

Food and Beverage Processors: High water use and high BOD, suspended solids, and Oil and Grease (greater than 200 mg/l BOD and TSS; 100 mg/l O&G) are typical of this type of business which may require the business to pretreat their wastewater in order to reserve capacity for other businesses. The Stillwater Wastewater Treatment Plant (SWWTP) currently (07/04) processes 2.7 million gallons per day (MGD) and has capacity to treat 4.0 MGD at the strengths listed above. Equipment wash water will often vary in pH and must be neutralized to between 6.8 and 12.0 pH units (a high flow facility may be more restrictive on the high side of this range); high flows will require flow equalization in tanks to prevent shock loads to the SWWTP. Typical hazardous substances used or generated by the

food processing industry include chemical preservatives, solvent-based cleaning materials, lab chemicals, flux for soldering and waste ink (from packaging and printing), and vehicle-maintenance waste.

Vehicle Cleaning and Maintenance: All businesses that wash vehicles must install a Sand and Oil Interceptor (SIO) to drain to the sanitary in a bermed and covered area to prevent discharge of this waste to the storm drain. These units can range in size from 250 gallons to over 2000 gallons depending on the washing needs of the business. Some businesses opt to install water reclaim systems to reduce water use and utility fees. Waste solids and oily residue from these units must be hauled by a hazardous waste handler. Solvents, anti-freeze, waste oil, brake fluid and other wastes from vehicle maintenance must also be handled as hazardous wastes.

Plastics Products manufacturing and/or assembly: spent solvents must be managed as a hazardous waste and are not suitable for sewer discharge.

Metal finishing (within all categories of General Manufacturing, Metal Fabrication, Machinery Fabrication, Transportation Equipment and Electronics manufacturing): Metal Finishing regulations are found at 40 CFR 433; processes include electroplating, electroless plating, printed circuit board manufacturing, anodizing, etching and chemical milling and coating (such as chromating and phosphating); other processes, such as cleaning and machining are regulated when these processes are located onsite. Wastewater from these operations may contain acid, cyanide, heavy metals and solvents and therefore wastewater must be pretreated prior to sewer discharge to meet the local limits when they are derived and federal limits in the regulations listed below.

Other processes may require pretreatment or offsite disposal if they are considered a hazardous waste. In heat-treating industries, the majority of waste is from spent baths (*e.g.*, cyanide solutions), spent quenchants, and wastewater from cleaning parts must be handled appropriately. Heat treating by case hardening (bathing steel in a liquid that can supply carbon or nitrogen while being heated), uses hazardous materials and can generate hazardous wastes. Case hardening is performed with liquids that can contain cyanide or alkaline salts.

Quenching (cooling) can be performed by immersing the hot metal in water, oil, polymer solution, or molten salt; the quenching media can become contaminated with compounds used in case hardening. Alternatively, the metal can be cooled by spraying with mist or gas. Descaling removes oxide scale that can form during heating; descaling can be done by sandblasting or immersion in a hot acid bath (usually sulfuric, nitric, or hydrochloric acids). After descaling, the metal is rinsed with water, and can be bathed in oil or other coatings.

Other hazardous substances that may be used in metals manufacturing include petroleum-based lubricants, fuels, and solvents used to clean machinery. Waste materials must be handled as hazardous waste and are not suitable for sewer disposal.

Federal wastewater discharge regulations for some of the metal working businesses targeted for the Stillwater Business Park can be found as follows:

Metal Finishing	40 CFR 433
Metal Products and Machinery	40 CFR 438

Metal casting	40 CFR 464
Coil Coating	40 CFR 465
Nonferrous Metals Forming and Metal Powders	40 CFR 471

Table 4.10-1 identifies metal finishing limits

TABLE 4.10-1		
METAL FINISHING LIMITS – 40 CFR 433		
Pollutant (mg/l)	Daily Maximum (mg/l)	Monthly Average
Cadmium	0.11	0.07
Chromium	2.77	1.71
Copper	3.38	2.07
Lead	0.69	0.43
Nickel	3.98	2.38
Silver	0.43	0.24
Zinc	2.61	1.48
Cyanide	1.20	0.65
Total Toxic Organics	2.13	--

The state approved Pretreatment Program that regulates the introduction toxic materials from commercial and industrial wastewater in the sanitary sewer system will ensure that potential impacts are reduced to a **less than significant** level and **no mitigation** is required.

Electric and Magnetic Field Effects (EMF)

The following discussion is primarily derived from *Questions and Answers About EMF Electrical and Magnetic Fields Associated with the Use of Electrical Power* dated June 2002 by the National Institute of Environmental Health Sciences and National Institute of Health.¹

“Since 1995, two major U.S. reports have concluded that limited evidence exists for an association between EMF exposure and increased leukemia risk, but that when all the scientific evidence is considered, the link between EMF exposure and cancer is weak. The World Health Organization in 1997 reached a similar conclusion.

The two reports were the U.S. National Academy of Sciences report in 1996 and, in 1999, the National Institute of Environmental Health Sciences report to the U.S. Congress at the end of the U.S. EMF Research and Public Information Dissemination (RAPID) Program.

Initiated by the U.S. Congress and established by law in 1992, the U.S. EMF Research and Public Information Dissemination (EMF RAPID) Program set out to study whether exposure to electric and magnetic fields produced by the generation, transmission, or use of electric power posed a risk to human health.

The electric power industry contributed about half, or \$22.5 million, of the \$45 million eventually spent on EMF research over the course of the EMF RAPID Program. The NIEHS received \$30.1 million from this program for research,

¹ The June 2002 Report can be found on the National Institute of Environmental Health Sciences web page, <http://www.niehs.nih.gov/emfrapid>

public outreach, administration, and the health assessment evaluation of extremely low frequency (ELF) EMF. The DOE received approximately \$15 million from this program for engineering and EMF mitigation research. The NIEHS contributed an additional \$14.5 million for support of extramural and intramural research including long-term toxicity and carcinogenicity studies conducted by the National Toxicology Program.

An interagency committee was established by the President of the United States to provide oversight and program management support for the EMF RAPID Program. The interagency committee included representatives from NIEHS, DOE, and seven other federal agencies with EMF-related responsibilities.

The EMF RAPID Program also received advice from a National EMF Advisory Committee (NEMFAC), which included representatives from citizen groups, labor, utilities, the National Academy of Sciences, and other groups. They met regularly with DOE and NIEHS staff to express their views. NEMFAC meetings were open to the public. The EMF RAPID Program sponsored citizen participation in some scientific meetings as well. A broad group of citizens reviewed all major public information materials produced for the program.

In preparation for the EMF RAPID Program's goal of reporting to the U.S. Congress on possible health effects from exposure to EMF from power lines, the NIEHS convened an expert working group in June 1998. Over 9 days, about 30 scientists conducted a complete review of EMF studies, including those sponsored by the EMF RAPID Program and others. Their conclusions offered guidance to the NIEHS as it prepared its report to Congress.

Using criteria developed by the International Agency for Research on Cancer, a majority of the members of the working group concluded that exposure to power-frequency EMF is a possible human carcinogen.

The majority called their opinion "a conservative public health decision based on limited evidence for an increased occurrence of childhood leukemias and an increased occurrence of chronic lymphocytic leukemia (CLL) in occupational settings." For these diseases, the working group reported that animal and cellular studies neither confirm nor deny the epidemiological studies' suggestion of a disease risk.).

In June 1999, the NIEHS reported to the U.S. Congress that scientific evidence for an EMF-cancer link is weak."

The 1999 NIEHS report concluded that the NIEHS believed that "the probability that ELF-EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal, scientific support that exposure to this agent is causing any degree of harm."

No regulatory action was recommended or taken based on the NIEHS report. The NIEHS director, Dr. Kenneth Olden, told the Congress that, in his opinion, "the conclusion of the NIEHS report was not sufficient to warrant aggressive regulatory action."

"The NIEHS did not recommend adopting EMF standards for electric appliances or burying electric power lines. Instead, it recommended providing public information about practical ways to reduce EMF exposure. The NIEHS also suggested that power companies and utilities continue siting power lines to reduce exposures and . . . explore ways to reduce

the creation of magnetic fields around transmission and distribution lines without creating new hazards." The NIEHS encouraged manufacturers to reduce magnetic fields at a minimal cost, but noted that the risks do not warrant expensive redesign of electrical appliances.

Based on the guidance for siting power lines and for aesthetic and land use considerations, the preferred routes avoid densely populated residential areas to the extent practical, thereby reducing the potential for EMF impacts. The levels from the proposed 115kV transmission line are comparable to the levels experienced at some distance from common electrical appliances and office products (such as televisions, hair dryers, electric blankets, and computer terminals) and well below the levels experienced, temporarily, a few inches from these products. While current research does not support a finding of no increased risks from the predicted levels of electromagnetic fields, the evidence is inconclusive. The risks, if they do exist, are comparable to those at which the population at large is exposed. The risk from exposure to electromagnetic fields from the transmission lines is considered **less than significant** and no mitigation measure is required.

Impact 4.10.3-1

Hazardous materials would be transported to, stored, and used at the Park site, and hazardous waste would be stored at and transported from the Park. Routine transport, use, or disposal of hazardous materials will be conducted in compliance with Federal, State, and local regulations.

Preparation, submittal, and implementation of the Hazardous Materials Business Plan and Risk Management Plan would reduce the environmental impacts from routine use, transport, and disposal of hazardous substances to be **less than significant**, therefore, no mitigation measure is necessary.

Impact 4.10.3-2

Even with implementation of hazardous substances handling plans, accidental spills could occur. While procedures in the Hazardous Materials Business Plan, if followed correctly, would minimize the impacts from spills, impacts to soils and water quality from an uncontrolled spill could be **potentially significant unless mitigated**.

The most likely waterways to be affected are Stillwater Creek (Alternatives 1 and 2) and Clover Creek (Alternative 3). As described in the **Section 4.5 – Hydrology** all drainage from developed areas will flow to sedimentation-settling ponds. There will be no direct connection between the creeks and site runoff.

Hazardous substances imparted to the subsurface would not tend to migrate directly downward because of the nature of the layered sedimentary units in the area (and the Redding basin in general). Typically, layers of clay (which inhibit the movement of contaminants) are interbedded with layers of sand or gravel (which transmit contaminants more readily). Contaminants in the subsurface in this setting will take the path of least resistance, moving laterally and downward in sand and gravel units, and more laterally in clay units. The following mitigation measures are proposed to be implemented in addition to the Hazardous Materials Business Plan.

Mitigation Measure 4.10.3-2A

In addition to operational controls implemented from various plans and procedures, engineering controls should be incorporated into the design of facilities built for companies that will use hazardous substances. It is likely that all areas in which hazardous substances will be used will be surfaced with concrete, asphalt, or other engineered material. In addition to the standard surfacing, engineering controls could include bermed and lined areas where hazardous materials will be offloaded, design of surface drainage so that spills, if they do occur, will move towards areas that do not drain directly to waterways adjacent to the site, and/or installation of collection sumps in offloading areas.

Mitigation Measure 4.10.3-2B

If not part of spill response, environmental monitoring should be conducted after a spill is cleaned up to verify that contaminants do not remain in the environment. Depending on the location of the spill, this monitoring could include sampling of soil, surface water, and/or groundwater. At a minimum, the monitoring results should be reported to the Shasta County Environmental Health Department; submittal of results to additional agencies also may be required. Post-spill monitoring will allow characterization of the extent of contamination, if present, and allow development of remediation plans before contamination can reach deeper groundwater (100 feet or more in the Project vicinity).

Mitigation Measure 4.10.3-2C

If not part of spill response, an investigation of the conditions and practices that contributed or led to the spill should be conducted by the responsible parties. Ideally, this information would be used to update hazardous substances handling practices to reduce the chance for additional spills. At a minimum the investigation results should be reported to the Shasta County Environmental Health Department; submittal of results to additional agencies also may be required.

Implementation

The City will be responsible to ensure that all future business park companies are aware of the mitigation measures as part of their purchase/and or leasing of the land. The Building Department will be responsible to ensure that engineering controls are incorporated into the design of facilities built for companies that use hazardous substances.

Significance After Mitigation

Implementation of the mitigation measures will reduce potential spill impacts to a level that is **less than significant**.

D. Conclusion

Alternatives 1, 2, and 3

Implementation of mitigation measures will reduce potentially significant impacts from hazardous material spills to a **less than significant** level. The risks from the routine use, transport, and disposal of hazardous substances, and exposure to electromagnetic fields from the transmission lines are considered **less than significant** and no mitigation measures are required.

No Action Alternative

No significant short-term, long-term, or cumulative effects will result from the No-Action Alternative.

4.10.4 REFERENCES

City of Redding General Plan, Natural Resources Element and Health and Safety Element October 2000

National Institute of Environmental Health Sciences and National Institute of Health. June 2002.
Questions and Answers About EMF Electrical and Magnetic Fields Associated with the Use of Electrical Power