This section was prepared by RMC Water and Environment.

3B.8 HAZARDS AND HAZARDOUS MATERIALS – WATER

3B.8.1 AFFECTED ENVIRONMENT

As provided in Chapter 2, "Alternatives," the placement of new structural facilities as part of the Off-site Water Facility Alternatives would be limited to Zone 4 of the "Water" Study Area and, therefore, the description of the affected environment for hazards and hazardous materials is focused to Zone 4. No new facilities are proposed within Zones 1, 2, and 3 and, therefore, no additional description of Zones 1, 2, and 3 is necessary to support the analysis of potential impacts to hazards and hazardous materials.

A material is considered hazardous if it appears on a list of hazardous materials prepared by a Federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. Title 22 of the CCR defines a hazardous material as:

> A substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed" (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10).

Hazardous wastes are defined in the same manner. Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. According to Title 22 of the CCR, hazardous materials and hazardous wastes are classified according to four properties: toxic, ignitable, corrosive, and reactive (CCR, Title 22, Chapter 11, Article 3). Toxicity, ignitability, corrosivity, and reactivity are defined in the CCR, Title 22, Sections 66261.20 through 66261.24, as summarized below:

- Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or death. For example, toxic substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels that depend on the substances in question. Carcinogens (substances known to cause cancer) are a special class of toxic substances (e.g., pesticides, heavy metal ions).

- Ignitable substances (e.g., gasoline and methane gas) are hazardous because of their ability to burn.

- Corrosive materials (e.g., chlorine gas, sulfur dioxide gas, and strong acids and bases) can cause severe burns or damage materials.

- Reactive materials (e.g., dynamite and pressurized gases) may cause explosions or generate toxic gases.

Toxic, ignitable, corrosive, and reactive materials are types of hazardous materials. A chemical that poses a significant hazard upon a single exposure is considered acutely hazardous if it is so designated by a regulatory agency (California Health and Safety Code, Section 25531). A hazardous waste is any hazardous material that is discarded, abandoned, or to be recycled. The criteria that render a material hazardous also make a waste hazardous (California Health and Safety Code, Section 25117).

Factors that influence the health effects of exposure to a hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

HAZARDS AND HAZARDOUS MATERIAL DATABASE SEARCH

Agency Database Search

As part of this EIR/EIS, the City completed an agency database search to identify known areas containing hazardous materials or waste within portions of Zone 4 of the "Water" Study Area where ground disturbance is proposed as part of the Off-site Water Facility Alternatives. The Federal database search included a review of the U.S. Environmental Protection Agency's (EPA) National Priorities List (NPL), EPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), EPA's Resource Conservation and Recovery Act (RCRA) Information System, and EPA's Emergency Response Notification System (ERNS) database. Additionally, the review included various state hazardous material databases including, but not limited to, Office of Environmental Health Hazard Assessment's (OEHHA) Hazardous Waste and Substances List (Cal SITES), the RWQCB Central Valley Tank Tracking System database, and the Cal-EPA's Active Annual Workplan Sites list.

A review of these databases identified numerous sites within 1/4 mile of the alternative alignments and WTP facilities (TrackInfo Services 2008). Table 3B.8-1 provides more detailed information for each of the Off-site Water Facility Alternatives. Of all the sites identified, two are listed on the National Priorities List (NPL) for groundwater contamination associated with past operations at the Aerojet Property and Mather Airport, respectively (TrackInfo Services 2008). These regional sources of groundwater contamination are discussed in more detail in Section 3B.9, "Hydrology and Water Quality – Water." Additionally, the database search revealed the presence of several solid waste handling facilities, leaking underground storage tanks, and registered above or underground storage tanks (AST/USTs) located within Zone 4 of the "Water" Study Area. A complete summary of the database search is provided in Appendix M-VII. The complete Database Report covering each of the Off-site Water Facility Alternatives can be reviewed at the City's Community Development Department office at 50 Natoma Street in Folsom during business hours.

Table 3B.8-1
Hazardous Materials Database Search Results – Zone 4 of the Off-site Water Facility Study Area

Alternative	Number of Site(s) Within ¼ Mile						
	NPL	RCRA	Cal SITES	LUST	ERNS	AST/UST	SWL
Proposed Off-site Water Facility Alternative	1	--	--	1	1	1	2
Off-site Water Facility Alternative 1	1	--	--	1	1	1	2
Off-site Water Facility Alternative 1A	1	--	--	1	1	1	2
Off-site Water Facility Alternative 2	2	12	1	--	3	6	2
Off-site Water Facility Alternative 2A	2	12	1	--	3	6	2
Off-site Water Facility Alternative 2B	1	3	1	--	1	1	0
Off-site Water Facility Alternative 3	2	12	1	--	3	6	2
Off-site Water Facility Alternative 3A	2	11	1	--	5	6	2
Off-site Water Facility Alternative 4	2		1	1	3	6	3
Off-site Water Facility Alternative 4A	2	6	1	1	3	6	4

Notes:
NPL National Priorities List
RCRA Resource Conservation and Recovery (Note: Includes all generators, transporters, and disposers of hazardous waste)
Cal Sites Site Mitigation and Brownfields Reuse Program Database (SMBRPD), includes Cortese List; does not include SWLs
LUST Leaking Underground Storage Tanks Tracking System
AST/UST Above-ground/Underground Storage Tanks
ERNS Emergency Response Notification System
SWL Solid Waste Landfill
Source: TrackInfo Services 2008, Complete Summary Report provided in Appendix M-VII.

Aerojet Superfund Site and Landfill

A detailed description of the Aerojet Superfund site, listed on the NPL, is provided in Sections 3A.8, "Hazards and Hazardous Materials – Land," of this EIR/EIS. In the mid-1960s, Aerojet developed a landfill to dispose of non-hazardous waste (office waste and construction debris) and a small amount of asbestos waste. The landfill is located on a 234-acre parcel within the Aerojet property. More specially, the landfill is situated on the north side of Aerojet Road south of U.S. 50 and west of Prairie City Road. The treated-water pipeline alignment under Off-site Water Facility Alternative 4 and 4A would be constructed just to the north of the existing landfill. Aerojet has proposed removal and clean closure of the landfill and has completed a Closure Modification Plan (Sacramento County 2008a). Sacramento County prepared a Mitigated Negative Declaration to implement the removal and clean closure of the landfill.

Kiefer Landfill

Kiefer Landfill is located east of the intersection of Kiefer Road and Grant Line Road. The Kiefer Landfill is classified as a "major landfill," which is defined as a facility that receives more than 50,000 tons of solid waste per year. The landfill is over a quarter mile to the east of the Proposed Off-site Water Facility Alternative conveyance pipeline alignment.

Underground Storage Tanks

No underground storage tanks are known to exist at the two WTP sites under consideration. One documented leaking underground storage tank (LUST) is identified along the Off-site Water Facility Alternatives 1, 1A, 4, and 4A alignments; the specific location of these sites are provided in Appendix M-VII. No other LUST locations are identified within Zone 4 of the "Water" Study Area.

Past Agricultural Uses within Zone of the "Water" Study Area

The agricultural history of Zone 4 of the "Water" Study Area consists of rural residential and fallow land, hay crop, and grazing land. Given this agricultural history, surficial soils are unlikely to contain any significant residual concentrations of persistent pesticides based on the historic land use of the site. Hay cropland, dry-farmed grain sites, grazing and fallow lands, as well as hobbyist-size (homestead) orchards typically do not require applications of environmentally persistent pesticides.

High-Pressured Natural Gas Pipelines

Pacific Gas and Electric Company (PG&E) distributes natural gas to urban centers within the "Water" Study Area. There are high pressure natural gas pipelines housed within major thoroughfares that run parallel and cross the Off-site Water Facility Alternative alignments. Specific roadways containing high-pressured natural gas pipelines include Sunrise Boulevard, Folsom Boulevard, Douglas Road, and Florin Road.

Serpentine Rock/Asbestos

Sacramento County's geology is generally associated with alluvial processes and not an asbestos-bearing geologic formation, such as that identified in the Bear Mountain Fault Zone east of the Sacramento County. Based on maps produced by the California Geological Survey, Zone 4 of the "Water" Study Area does not intersect with an asbestos-containing geologic formation (Churchill et al., 2000).

Radon Potential

Radon isotope-22 is a colorless, odorless, tasteless radioactive gas that is a natural decay product of uranium. Uranium and radon are present in varying amounts in rocks and soil, and radon is present in background concentrations in the atmosphere. Current evidence indicates that increased lung cancer risk is directly related to

radon-decay products. At this time, the EPA has recommended an "action" level for indoor radon concentrations at or exceeding 4 pico-curies per liter of air (pCi/l). Because the Off-site Water Facility Alternatives would not include structures for human habitation, this issue is not discussed further.

Wildland Fires

Zone 4 of the "Water" Study Area includes urbanized areas, urbanizing rural areas, and rural agricultural areas. Based on fire severity zone maps prepared by the California Department of Forestry and Fire Protection, Zone 4 of the Off-site Water Facility Study Area is located within a Local Responsibility Area (LRA) and within a moderate fire hazard severity zone (FRAP 2008). Given that the Off-site Water Facility Alternatives would involve the use of construction equipment in close proximity to areas containing large quantities of fuels (e.g., dry grasslands), this issue is discussed further in this EIR/EIS.

Public/Private Airports

The "Water" Study Area is situated to the south and east of the Planning Area boundary of the Airport Land Use Plan (ALUP) for Mather Field. The Off-site Water Facility Alternatives would not involve the erection of any structures within the ALUP planning area that could interfere with existing air traffic patterns or place sensitive land uses (e.g., single-family residential) within a flight hazard zone. For these reasons, no additional discussion of this issue is provided.

DRINKING WATER QUALITY AND PUBLIC HEALTH

Contaminants in drinking water can be benign or harmful to human health, depending on their chemical properties and the concentrations at which they are present. Many contaminants that present a known adverse risk to public health in drinking water are regulated at the Federal and state levels. There are many other contaminants without drinking water regulations, and the EPA has ongoing studies of certain contaminants to determine if health standards for them are warranted in the future (EPA 2001). However, the total removal of harmful contaminants from sources of drinking water normally is infeasible or impossible (EPA 2001).

The ability to detect trace levels of contaminants is improving with the advancement of analytical techniques. At this time, most contaminants are measured at the parts-per-million (ppm) level, However, the scientific community is discovering and detecting more contaminants in drinking water supplies at trace amounts, often at the parts-per-billion (ppb) or parts-per-trillion (ppt) level. Many of these contaminants are a result of a combination of agricultural, municipal wastewater, urban runoff, and industrial sources. Quantifying the threat posed to a population by any single contaminant (a health risk assessment) relies on substantial amounts of data from epidemiological and toxicological studies, and may take years, sometimes decades to develop.

Water Quality of the Sacramento River

Untreated water quality at the Bryte Bend WTP, located on the Sacramento River and approximately 8 miles upstream from the Freeport Project diversion is generally good, as indicated in Table 3B.9-2 in Section 3B.9, "Hydrology and Water Quality – Water" of this document. The untreated water routinely meets all municipal drinking water maximum concentration levels (MCLs), as established by Federal and state regulations, except for turbidity and odor. These latter constituents are reduced to below MCLs during water treatment. Sacramento River water is also expected to contain elevated bacterial counts, as is typical in a non-disinfected surface water source. Bacterial levels at the Bryte Bend WTP are reduced to acceptable levels during water treatment. No regulated volatile organic chemicals or synthetic organic chemicals were detected. For additional information about the water quality of the Sacramento River, refer to Section 3B.9, "Hydrology and Water Quality – Water."

Water Quality Parameters of Concern and Potential Treatment Solutions

Although Sacramento River water quality is generally good, the water may contain numerous contaminants pertinent to human health if used as a drinking water supply. This section summarizes known contaminant levels in Sacramento River water that may present potential health risks to end users within the City's service area. This section also summarizes the conventional drinking water treatment processes that would be needed to reduce specific contaminants or groups of contaminants. The following drinking water treatment processes are considered to be conventional: pH adjustment and disinfection; conventional sedimentation, filtration, pH adjustment, and disinfection for surface water. Other treatment processes required to treat certain contaminants, above and beyond these basic steps, are discussed later in this section.

Table 3B.9-2 in Section 3B.9, Hydrology and Water Quality – Water," shows the primary water quality constituents that may pose a public health threat if present at excessive levels, and their sources. The importance of each of these drinking water constituents is discussed further in this section.

Turbidity

Turbidity is a Measurement of the degree to which light is obstructed by substances in water. It is used as a surrogate Measurement for the concentration of particulate matter in water. Turbidity occurs in surface waters, and often spikes in concentration as a consequence of surface runoff from storm events.

Turbidity is a problem for treated water because high levels may shield microorganisms from disinfectants. To ensure adequate disinfection, turbidity of treated water must never exceed one turbidity unit (NTU), and may not exceed 0.3 NTU in at least 95% of daily samples in any month. Turbidity is also a secondary standard for aesthetic reasons, and is limited to 5 NTU in treated water.

Elevated turbidity levels require higher coagulant doses at WTPs and result in greater sludge production, with increased operating costs and potentially reduced treatment capacity.

Total Organic Carbon

Total Organic Carbon (TOC) occurs naturally in Sacramento River waters and groundwater, and is derived from plant, animal, and microorganism decomposition or excretion. TOC does not directly affect health, but instead combines with chlorine during the drinking water disinfection process, creating byproducts that are carcinogenic (Dunnick & Melnick 1993). These disinfection byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). While there is no specific maximum contaminant level (MCL) for TOC, EPA's Enhanced Surface Water Treatment Rule (ESWTR) requires that conventional WTPs remove a percentage of the TOC present in the water supply. The percentage required for removal varies, with higher TOC levels requiring higher removal percentages. Municipal WTPs with more than 4 mg/L TOC in their source water are required to utilize enhanced coagulation in their treatment process.

Trihalomethanes, specifically chloroform, bromodichloromethane, and dibromochloromethane, have been detected within treated Sacramento River water from the Bryte Bend WTP (see Table 3B.9-2). However, total trihalomethanes did not exceed the MCL of 80 µg/L.

TOC can also indirectly affect the formation of an inorganic disinfection by-product (DBP), bromate, at WTPs that utilize ozone and have sufficient levels of bromide in the source water. However, bromide concentrations in the Sacramento River average 18 µg/L (CALFED 2000), which is well below levels expected to form disinfection by-products (e.g., approximately 100 µg/L; Huang et al., 2003). Water treatment plants receiving water with higher TOC concentrations may require treatment process improvements or incur greater operating costs to produce water that provides an equivalent level of public health protection.

Nitrates

Nitrogen not used up by plants or returned to the atmosphere is converted to nitrate in the soil, which is highly soluble in water and can easily leach into the water table. Nitrates in drinking water supplies are commonly derived from agricultural chemicals such as inorganic fertilizer and animal manure, but are also released into the atmosphere by automobiles and industrial plants that burn fossil fuels. While some amount of nitrate is present within surface water from the Sacramento River, levels are typically much lower than groundwater, primarily because nitrates originate with agriculture and remain on land as water infiltrates, are very diluted if discharged to surface waters, or are naturally attenuated in surface waters. The Federal MCL for nitrate is 10 mg/L.

Typical water treatment processes for surface water do not remove nitrate. If nitrate is a significant concern (i.e., if it is above or approaching regulatory limits), ion exchange or granular activated carbon filtration may be required at a substantial cost.

Chromium-6

Chromium is a naturally occurring element found in soils. Chromium-6 can be found in the environment, or more commonly in waste generated by industries, such as metal finishing, dying, electronics, metallurgy, and others. Chromium-6 may also be found naturally in groundwater. Chromium-6 is a suspected carcinogen and is regulated as total chromium in drinking water, with an MCL of 50 µg/L. Health concerns have prompted the CDPH to pursue an MCL that is specific for chromium-6, and the process is currently underway. Sacramento River water does not contain chomium-6 levels high enough to affect public health.

Selenium

Naturally occurring selenium is released through both natural processes (selenium deposits within soils are regional) and anthropogenic activities. Used mainly in the electronics and glass industries, selenium is also added as a trace nutrient in phosphate fertilizers. Selenium is toxic at high concentrations, and is therefore regulated, with a state MCL of 50 ppb in drinking water. Sacramento River water does not contain selenium levels high enough to affect public health.

Mercury

Historic gold mining practices in the 1850's to 1880's released substantial amounts of mercury into California waterways. Some of this mercury was carried to downstream environments, while more leaked from the manmade recovery troughs into the soils, leaving a legacy of water quality contamination in many watersheds. It has been estimated that 1,000 tons of mercury were lost in the mining processes in the gold rush, mostly in the Sierra Nevada (Alpers 2005). Localized areas of high concentration still exist today, with drainage and runoff contributions causing over 20 water bodies to have fish consumption advisories. However, in the Sacramento River, in the vicinity of the proposed Off-site Water Facilities, mercury concentrations are within applicable water quality standards (see Table 3B.9-2).

Agriculture-Related Constituents

Agriculture in the Sacramento River watershed is common, with irrigated agriculture covering a total area greater than 2 million acres, and livestock operations with more than 570,000 cattle and calves. Drainage and runoff from agriculture can be a source of pesticides, TOC, Cryptosporidium spp. bacteria, and other compounds.

Agricultural pesticides are synthetic chemicals often used in large-scale agricultural applications. Due to the prevalence of agriculture within the Sacramento River watershed, there is potential for pesticide contamination of surface water and groundwater. Although pesticides are typically designed to target the function of only specific pests, they may still have a range of effects on human health. Because agricultural pests develop pesticide resistance over time, and because regulations have required discontinuation of specific pesticides, the suite of

pesticides applied by the farm industry changes over time. Potential effects to human health are therefore difficult to quantify, and the health effects of many newer pesticides remain largely unknown. Pesticides in natural waters are minimized with Best Management Practices and other regulatory and voluntary measures (EPA 2005).

Major pesticides and herbicides that have been detected in the Sacramento River watershed at trace concentrations include those listed below (Domagalski 2000). Some concentrations were so low that the analytical methods used could not definitively quantify the levels detected. Both sampling sites considered in compiling the following list were along the Sacramento River, near the Yolo Bypass.

- Thiobencarb
- Carbofuran
- Diazinon
- Dacthal
- Ethyl dipropylthiolocarbamate (EPTC)
- Malathion
- Metribuzin
- Napropamide
- Pronamide
- Trifluralin
- Carbaryl
- Metolachlor
- Simazine
- Historical pesticides that have been restricted or eliminated (e.g., DDT, molinate)

Annual monitoring at the Bryte Bend WTP checks for dozens of pesticides. Although some were detected at low levels, all were below MCLs (City of West Sacramento 2007 and 2008). Typical drinking water treatment practices do not target pesticides for removal. Activated carbon or reverse osmosis filters can be effective at removing most pesticides from water at moderate to high additional costs.

Industrial Organic Pollutants

Industrial wastes can contain a broad range of chemicals such as petroleum-based contaminants, solvents, dry cleaning chemicals, chlorinated hydrocarbons, and many others. These compounds occur at hazardous levels more frequently in groundwater, where they accumulate and spread as a result of industrial seepage and groundwater flow.

Industrial wastes are a concern in groundwater because they have been detected in various portions of the South American Subbasin. These compounds can be detrimental to human health, and may or may not be regulated as constituents in drinking water supplies. Surface waters may also be susceptible to contamination by industrial organic pollutants. Industrial organic pollutants however, have not been detected in the Sacramento River, as indicated by water quality sampling at the Bryte Bend WTP (City of West Sacramento 2007 and 2008).

Typical treatment processes do not remove industrial organic pollutants, but they can be removed through granular activated carbon filtration or reverse osmosis at a significant cost. A more common approach to reducing industrial organic pollutants from groundwater used for drinking water supply is to remove contaminated wells from service.

Urban Runoff Contaminants

Urban runoff consists of water that has drained from non-porous surfaces in densely populated areas. Any form of precipitation and/or irrigation can wash away materials from these impervious surfaces, since urban terrain is non-porous and does not have the ability to filter or biodegrade contaminants like natural soil. Suspended sediment is the primary pollutant in urban runoff, and may contain oil, grease, pesticides, road salts, metals, bacteria and

viruses, and toxic chemicals from automobiles. While urban runoff contaminants are likely to be present in Sacramento River water at trace concentrations, as indicated by water quality sampling at the Bryte Bend WTP (City of West Sacramento 2007 and 2008).

Urban Wastewater Effluent-Related Constituents

There are at least eight major urban areas upstream of the Freeport Project: Redding, Red Bluff, Chico, Oroville, Yuba City/Marysville, Woodland, Sacramento, and West Sacramento. These urban areas represent potential sources of treated wastewater effluent in the Sacramento River. All wastewater effluent discharged to surface waters is regulated by the Central Valley RWQCB and must be adequately treated and monitored to minimize impacts to the receiving water. Permits are renewed periodically to ensure that they remain protective in the face of changing knowledge and regulations. Therefore, for conventional toxic compounds, treated wastewater contributions to surface water do not typically present a risk to human health, especially when combined with the surface water treatment process prior to human consumption.

Many constituents, however, that are commonly found within treated wastewater effluent, including pharmaceuticals and personal care products (PPCPs) and endocrine disrupting compounds (EDCs) are still not regulated. Typical examples of these compounds found at trace levels in wastewater effluent include:

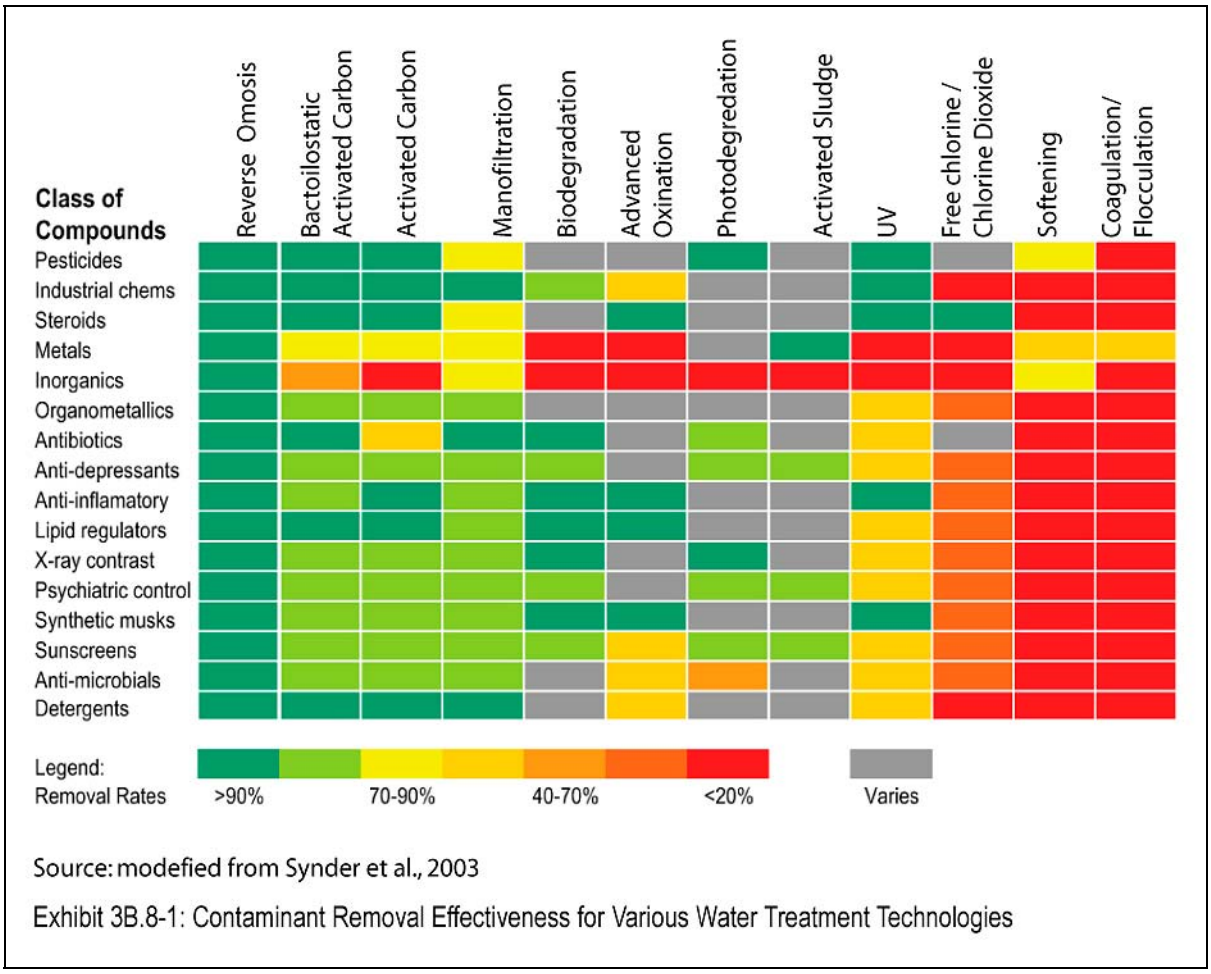
- veterinary and human antibiotics;
- prescription drugs (e.g., antacids, analgesics, antidepressants);
- nonprescription drugs (e.g., caffeine, acetaminophen);
- personal care products (e.g., fragrances, antioxidants);
- household products (e.g., solvents, disinfectants, detergents);
- industrial products in the household (e.g., plasticizers, fire retardants, insecticides); and
- steroids and hormones.

The USGS completed a water quality survey in 1999–2000 to study the levels of pharmaceuticals, hormones, and other organic wastewater contaminants in surface waters across the United States subject to the treated wastewater discharges of urban areas (Kolpin, et al., 2002). In this study, 95 compounds were analyzed, representing a wide range of compounds likely to be present in treated wastewater effluent, including those groups listed above. One of the sampling sites was on the Sacramento River, near the discharge from the Sacramento Regional Wastewater Treatment Plant located downstream of the Freeport Project diversion. Trace concentrations of three PPCPs (acetaminophen, cholesterol, and mestranol) were detected in the samples from the Sacramento River. The other 92 compounds tested were not detected at levels the USGS was capable of measuring. Concentrations of acetaminophen, cholesterol, and mestranol were very low, and would have required ingestion of 1,200 to over 5 million gallons of untreated wastewater to amount to the equivalent of a single dose of mestranol or acetaminophen, respectively.

Typical water treatment processes for surface water are not designed to remove EDCs and PPCPs, although some incidental removal does take place. To target their removal, reverse osmosis is considered the best available technology, but can only be implemented at a high cost.

Water Treatment Options for Water Pollutants

Exhibit 3B.8-1 below outlines potential treatment measures for several classes of compounds considered in this EIR/EIS. Typical water treatment processes may include pH adjustment, chlorine disinfection, sedimentation, and filtration. Of the treatments shown on Exhibit 3B.8-1, UV and Coagulation/Flocculation would be present at the WTP. Advanced technologies such as activated carbon filtration and reverse osmosis are generally not applied because of high cost.



Source: Modified from Synder et al., 2003

Contaminant Removal Effectiveness for Various Water Treatment Technologies **Exhibit 3B.8-1**

Hazardous materials presently used at the City's existing WTPs include those common to water treatment processes. The use of these hazardous materials would also be expected at the new WTP, if constructed. The Hazardous Material Management Plan (HMMP) for the WTPs lists all hazardous materials located and used on-site. Such materials include: Aluminum Sulfate, Aluminum Sulfate Acidized, Argon, Polymer, Diesel Fuel, Non Ionic Polymer, Sodium Ortho/Polyphosphate, Sodium Hydroxide, and Sodium Hypochlorite. Each of these materials is described in more detail below.

- **Aluminum Sulfate, or Liquid Alum** is used in the water and waste treatment industry, and the production of aluminum chemicals. Liquid Alum is generally used in soaps, greases, drugs, cosmetics, some food additives, and fire extinguisher compounds. Mist inhalation of Liquid Alum may irritate the nose, throat, and lungs. Ingestion of Liquid Alum may irritate the gastrointestinal tract and cause nausea, vomiting, and purging.

- **Argon Gas** is used in critical industrial processes such as the manufacturing of high quality stainless steels and production of impurity-free silicon crystals for semi-conductor manufacture. Argon is also used as an inert filler gas for light bulbs and as a dry, heavier-than-air-or-nitrogen filler for the space between glass panels in high-efficiency multi-pane windows. Inhalation of high concentrations of Argon gas may cause asphyxiation. Symptoms may include loss of mobility and consciousness.

- **Polymer (CAT-FLOC)** is a commercially available flocculating agent used in many settings because it is a highly effective polymer. It acts in much the same way that Alum does, except that it is faster. Water Polymer is made up of cations, and since most suspended particles are negatively charged, Cat-Floc neutralizes these negative-repulsive forces and allows the suspended particles to flocculate together (forming larger, denser particles) which settle more quickly. This agent creates a gel like web that, as it settles, traps small suspended particles, and forces them to settle with the gel. The primary routes of exposure to polymer are through the eyes and the skin. Prolonged contact may cause irritation in both the eyes and the skin. Ingestion and inhalation are not likely routes of exposure.

- **Diesel Fuel No. 2** is a colorless to brown liquid with a kerosene-like odor. Diesel is a central nervous system depressant. Chronic dermal exposure may result in dermatitis, erythema (reddening of the skin), and eczematous lesions. Diesel fuel causes an aspiration hazard if swallowed and can cause damage if it gets in the lungs. In addition to diesel fuel's health hazards it is highly flammable in the liquid and vapor form.

- **Non-ionic Polymer** is a flocculation and filter aid in the water treatment process. The primary routes of exposure are through the eyes and skin. Prolonged exposure may cause irritation to the eyes and the skin. Inhalation of non-ionic polymer can occur by breathing in the dust. Ingestion is not a likely route of exposure.

- **Sodium Ortho/Polyphosphate** is used in potable water and industrial water treatment for corrosion control, lead and copper control, scale control and sequestering. They are generally effective in the pH range of 6.0 to 8.5. Blends improve the range and reliability of phosphate based inhibitors and represent the most vigorous growth opportunities. Ingestion may cause irritation to the mouth and throat, or cause nausea and vomiting. Contact with the skin and eyes may also cause irritation. If inhaled irritation to the respiratory tract may occur.

- **Sodium Hydroxide or Caustic Soda Liquid** is used in industry to neutralize acids; to precipitate alkaloids; in metal finishing; in cleaners; and to precipitate most metals as hydroxides from aqueous solutions. Inhalation of mists may be severely irritating or corrosive to the nose, mouth, throat, and lungs. Exposure may cause burns to the respiratory tract with the production of lung edema, which can result in shortness of breath, sneezing, choking, chest pain, and impairment of lung function. Exposure to the skin or eyes may cause severe irritation or burns characterized by redness, swelling, and pain. Ingestion can cause severe irritation or burns to the entire gastrointestinal tract, including the stomach and intestines.

- **Sodium Hypochlorite or bleach** is used as a disinfectant in the treatment process. A major drawback to using chlorine gas or sodium hypochlorite, however in the disinfection process is that they react with organic compounds in the water to form potentially harmful levels of the chemical by-products THMs and HAAs, both of which are carcinogenic and regulated by the EPA. Mist inhalation can irritate the nose and throat. Chemical burns may result from exposure of the skin to sodium hypochlorite. In addition, exposure of the eyes can cause severe irritation. Ingestion may cause irritation, pain, and inflammation of the mouth and stomach, vomiting, shock, confusion, delirium, coma and in severe cases death.

3B.8.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

The following Federal plans, policies, regulations, and laws related to hazards and hazardous materials are relevant to the Off-site Water Facilities alternatives, and are described in detail in Section 3A.8, "Hazards and Hazardous Materials – Land:"

- Hazardous Materials Handling Resource Conservation and Recovery Act (RCRA),
- Worker Safety Requirements,
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),

- Superfund Amendments and Reauthorization Act,
- National Oil and Hazardous Substances Pollution Contingency Plan, and
- Clean Air Act.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

The following state plans, policies, regulations, and laws related to hazards and hazardous materials are relevant to the Off-site Water Facilities alternatives, and are described in detail in Section 3A.8 "Hazards and Hazardous Materials – Land:"

- Hazardous Material Handling – California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act);
- Worker Safety Requirements, California OSHA (Cal-OSHA);
- Hazardous Materials Transport, California Department of Transportation (Caltrans);
- Government Code Section 65962.5 (Cortese List);
- Asbestos Abatement, Sacramento Metropolitan Air Quality Management District, Rule 902; and
- California Public Resources Code Section 21151.4.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

The following regional and local plans, policies, regulations, and laws related to hazards and hazardous materials are relevant to the Off-site Water Facilities alternatives, and are described in detail in Section 3A.8 "Hazards and Hazardous Materials – Land:"

- Sacramento County Multi-Hazard Mitigation Plan

Unified Hazardous Waste and Hazardous Management Regulatory Program

The Unified Hazardous Waste and Hazardous Management Regulatory Program (SB 1082, 1993) is a state and local effort to consolidate, coordinate, and make consistent existing programs regulating hazardous waste and hazardous materials management. Cal/EPA adopted implementing regulations for the Unified Program (CCR, Title 27, Division 1, Subdivision 4, Chapter 1) in January 1996. The Unified Program is implemented at the local level by Certified Unified Program Agencies (CUPAs).

Sacramento County General Plan

The Sacramento County General Plan Hazardous Materials Element (Sacramento County 1993) provides a hazardous materials policy plan to manage hazardous materials and minimize their effects on humans and the environment. The General Plan policies include measures to educate and inform the public about hazardous waste management, implement public health and safety programs, and coordinate with other agencies to enforce hazardous materials regulations. The General Plan also provides details on emergency response plans for responding to hazardous material spills and other emergency actions.

In addition to the County General Plan policies identified in Section 3A.8, "Hazards and Hazardous Materials – Land," the following General Plan policies, are relevant to the Off-site Water Facilities alternatives:

- **Policy SA-22:** The County shall require that all new development meets the local fire district standards for adequate water supply and pressure, fire hydrants, and access to structures by fire fighting equipment and personnel.

- **Policy SA-23:** The County shall require, unless it is deemed infeasible to do so, the use of mechanical vegetation control in lieu of burning or the use of chemicals in areas where hazards from natural cover must be eliminated, such as levees and vacant lots.

- **Policy SA-25:** During the Development Plan Review process, the County shall require, where appropriate, the use of fire resistant landscaping and building materials for new developments that are cost effective.

- **Policy SA-26:** The County shall require, to the maximum extent feasible, on-site fire suppression systems for all new commercial and industrial development to reduce the dependence on fire department equipment and personnel.

- **Policy SA-28:** The County shall continue its coordinative efforts, including evacuation planning, with service agencies, the cities within the County, and cities within surrounding counties.

Area Plan for Emergency Response to Hazardous Materials Incidents in Sacramento County

In 2003, the County adopted the Area Plan for Emergency Response to Hazardous Materials Incidents in Sacramento County (Sacramento County 2003). This plan provides information on the response protocol by governmental agencies and other response organizations in a hazardous materials incident and provides details on the hazardous materials response plans in the County.

Sacramento County Environmental Management Department

The Sacramento County Environmental Management Department (EMD) is responsible for enforcing state regulations governing hazardous waste generators, hazardous waste storage, hazardous waste disposal, and underground storage tanks. The Sacramento County Department of Waste Management and Recycling is responsible for implementing the County's solid waste management and recycling programs.

City of Rancho Cordova

Applicable policies of the City of Rancho Cordova's General Plan relating to hazards and hazardous materials are provided below.

- **Policy S.1.5:** The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation will specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.

- **Policy S.5.2:** Consider the potential impact of hazardous facilities on the public and/or adjacent or nearby properties posed by reasonably foreseeable events. The City considers an event to be "reasonably foreseeable" when the probability of the event occurring is greater than one in one million per year.

- **Policy S.5.3:** Regulate the storage of hazardous materials and waste consistent with State and Federal law.

- **Policy S.5.5:** Separate hazardous or toxic materials from the public.

- **Policy S.5.6:** Ensure that procedures are in place to reduce the chance of accidents in the transport of hazardous materials.

- **Policy S.9.1:** Cooperate with the Sacramento Metropolitan Fire District (SMFD) to reduce fire hazards, assist in fire suppression, and ensure efficient emergency medical response.

Drinking Water Regulations

Enhanced Surface Water Treatment Rule

The Enhanced Surface Water Treatment Rule (ESWTR) is an EPA regulation that protects against microbial organisms in drinking water, particularly Cryptosporidium, and health threats from disinfection by-products. This rule includes a set of requirements aimed at reducing effects from these threats. Specifically, the rules address acceptable limits for Cryptosporidium methods for reducing potential for presence of Cryptosporidium, and techniques to reduce risks associated with disinfection byproducts. Implementation of the Rule was required by January 1, 2002 (EPA 2007b).

California Department of Health Services' Drinking Water Program

The California Department of Public Health's (CDPH) Drinking Water Program regulates public water systems, provides permits for water treatment devices, certifies drinking water treatment and distribution operators, and supports and promotes water system security. CDPH enforces the California Safe Drinking Water Acts including field inspections of water systems, issuance of operating permits, reviewing plans and specifications for new facilities, taking enforcement actions for non-compliance, and reviewing water quality results.

Local

The Sacramento County Health and Human Services Department is responsible for implementing policies and procedures within Sacramento County related to drinking water quality. These include: (1) oversight of groundwater well construction and abandonment in order to prevent groundwater contamination, (2) water quality testing and regulation of procedures to remove coliform bacteria from public and private water supplies, (3) oversight of sewage disposal in order to prevent water contamination and the spread of disease, and underground/aboveground storage tank permitting, inspection, and compliance.

3B.8.3 Environmental Consequences and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. For the purposes of this analysis, an impact related to hazards and hazardous materials would be considered significant if the Off-site Water Facilities 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 likely release of hazardous materials into the environment;

- create a significant public health risk through the introduction of contaminants to the drinking water supply at concentrations with known adverse effect;

- 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 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;

- 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 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;

- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

- 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.

ANALYSIS METHODOLOGY

To evaluate the potential for encountering existing hazards and hazardous waste, this analysis used a combination of field reconnaissance of Zone 4 by RMC Water and Environment in November 2008, a review of aerial photographs for Zone 4, and a search of state and Federal databases TrackInfo Services (TrackInfo Services 2008). Site-specific documents used in the impact analysis are included in Appendix M-VII of this EIR/EIS. Issues related to existing hazards within the SPA, include the Island Operating Unit (OU) of the Aerojet Superfund site are discussed in Section 3A.8, "Hazards and Hazardous Materials – Land," of this EIR/EIS.

In order to evaluate the use of water supplies from the Sacramento River as a public drinking water supply and determine whether the use of this supply could result in a significant impact to public health, numerous surface water constituents were considered within this analysis. These include compounds for which primary or secondary MCLs have been established, total organic carbon, agriculture-related constituents including pesticides, industrial organic pollutants, chemicals derived from urban runoff, and endocrine disrupting compounds and pharmaceuticals/personal care products found in urban wastewater effluent.

Concentrations of regulated constituents from treated water from the Bryte Bend WTP in West Sacramento, located upstream of, but in the same vicinity of, the Off-site Water Facilities was compared to applicable drinking water standards. Until operation of the Freeport Project, West Sacramento's WTP raw and treated water provides the best characterization as to the quality of this surface water supply. For the purposes of this analysis, it was assumed that the Off-site Water Facilities WTP would operate similar to or better than the Bryte Bend WTP. This analysis also considers the potential for unregulated constituents to occur at levels relevant to human health within the proposed water supplies.

ISSUES NOT DISCUSSED FURTHER IN THIS EIR/EIS

Safety Issues Related to Proximity to Airports—The Off-site Water Facilities would not involve the construction of habitable structures within an adopted ALUP or within two miles of a public airport or public use airport. Although NCMWC's service area includes lands within the Sacramento International Airport ALUP boundary, the Off-site Water Facility Alternatives would not involve physical changes to NCMWC's service area (or Zone 1 of the Off-site Water Facilities Study Area) and, therefore, would not increase or create new safety hazards for people residing or working the ALUP area. Similarly, Zone 4 of the "Water" Study Area is located to the south of the Mather Airfield and borders the southern portion of that airfield's ALUP area.

Only underground facilities (e.g., pipeline) would be installed within the vicinity of the ALUP. The locations of the two WTP under evaluation are both situated at distances of greater than 2 miles from the ALUP and, based on these findings, it is reasonable to conclude that all the Off-site Water Facility Alternatives would have no impacts on existing and future airport operations. For reasons identified above, the Off-site Water Facility Alternatives would not be expected to result in an increased or new safety hazard for people residing or working within the vicinity of a private airstrip. No impact is expected. Therefore, this issue area is not discussed further this EIR/EIS.

IMPACT ANALYSIS

Impacts that would occur under each of the Off-site Water Facility Alternatives are identified as follows:

NCP (No USACE Permit Alternative)

PA (Proposed Off-site Water Facility Alternative)

1 (Off-site Water Facility Alternative 1 – Raw Water Conveyance – Gerber/Grant Line Road Alignment and White Rock WTP)

1A (Off-site Water Facility Alternative 1A Raw Water Conveyance – Gerber/Grant Line Road Alignment Variation and White Rock WTP)

2 (Off-site Water Facility Alternative 2 Treated Water Conveyance – Douglas Road Alignment and Vineyard SWTP)

2A (Off-site Water Facility Alternative 2A Treated Water Conveyance – Excelsior Road Alignment Variation and Vineyard SWTP)

2B (Off-site Water Facility Alternative 2B Treated Water Conveyance – North Douglas Tanks Variation and Vineyard SWTP)

3 (Off-site Water Facility Alternative 3 Raw Water Conveyance – Excelsior Road Alignment and White Rock WTP)

3A (Off-site Water Facility Alternative 3A Raw Water Conveyance – Excelsior Road Alignment Variation and White Rock WTP)

4 (Off-site Water Facility Alternative 4 Raw Water Conveyance – Easton Valley Parkway Alignment and Folsom Boulevard WTP)

4A (Off-site Water Facility Alternative 4A Raw Water Conveyance – Easton Valley Parkway Alignment Variation and Folsom Boulevard WTP).

The impacts for each alternative are compared relative to the PA at the end of each impact conclusion (i.e., similar, greater, lesser).

IMPACT 3B.8-1 **Accidental Spill from Routine Transport, Use, or Disposal of Hazardous Materials.** *Accidental spills of hazardous materials could result during routine transport, use, or disposal activities as part of the implementation of the Off-site Water Facility Alternatives.*

NCP, PA, 1, 1A, 3, 3A, 4, and 4A

Construction of the Off-site Water Facilities would routinely involve the use of fuels, oils, and/or solvents, which could be accidentally spilled or released from containment. Such release could expose individuals and the environment to hazardous materials. During excavation and construction activities, it is anticipated that gasoline, diesel fuel, and hydraulic fluid would be handled on the construction site. Equipment fueling and maintenance requirements would likely use temporary aboveground bulk storage tanks as well as storage in sheds or trailers.

The potential for an accidental release exists during handling and transfer of these materials. If a significant spill were to occur, the accidental release could pose a hazard both to construction employees and the environment, depending on the relative hazard of the material released. Although typical construction management practices limit and often eliminate the impact of such accidental releases, there is a possibility of a spill or a release with the temporary on-site storage of hazardous materials. Therefore, construction-related **direct** and **indirect** impacts are considered **potentially significant**. ***[Similar]***

Operation of the proposed WTP would involve routine transport, use, or disposal of hazardous or potentially hazardous materials. The materials described in the setting discussion would be utilized at the WTP to help remove suspended solids, control and adjust pH, and disinfect untreated surface water, in order to consistently achieve mandated drinking water limitations (primary and secondary drinking water standards) and provide customers with a quality drinking water product. In addition to the chemicals listed in the setting discussion, paints, paint thinners, waste oils, miscellaneous lubricating oils, laboratory solvents, compressed acetylene and oxygen gas, and diesel fuel would be stored in various small quantities at the WTP site. Additionally, proprietary polymers would be stored in bulk and may include: cationic polymer used as a coagulation agent, anionic polymer used as a flocculation agent, and nonionic polymer used as a filter aid.

Chlorine or liquid sodium hypochlorite would be used for disinfection of the drinking water and to comply with state laws requiring residual chlorine within water distribution systems. Identical to common household bleach except with regards to concentration of the active ingredient (sodium hypochlorite), liquid sodium hypochlorite would be delivered to the site in tank trucks as a 12.5% (trade) solution. Liquid sodium hypochlorite is inherently safer and far less hazardous than compressed chlorine gas, commonly used in the drinking water treatment industry. Liquid sodium hypochlorite is moderately corrosive. However, liquid sodium hypochlorite in its natural liquid state poses far less severe inhalation hazard than chlorine gas.

Because there is a possibility of a spill or a release with the on-site storage of hazardous materials, this **direct** impact is considered **potentially significant**. **No indirect** impacts would occur. ***[Similar]***

> Mitigation Measure 3B.8-1a: Transport, Store, and Handle Construction-Related Hazardous Materials in Compliance with Relevant Regulations and Guidelines.
>
> The City shall ensure, through the enforcement of contractual obligations, that all contractors transport, store, and handle construction-related hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by Caltrans, Central Valley RWQCB, local fire departments, and the County environmental health department.
>
> Recommendations shall include as appropriate transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using applicable Federal, state and/or local regulatory agency protocols. In addition, all precautions required by the Central Valley RWQCB-issued NPDES construction activity stormwater permits shall be taken to ensure that no hazardous materials enter any nearby waterways.
>
> In the event of a spill, the City shall ensure, through the enforcement of contractual obligations, that all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by the local fire departments, the local environmental health department, or any other regulatory agency, contaminated media shall be collected and disposed of at an off-site facility approved to accept such media.
>
> The storage, handling, and use of the construction-related hazardous materials shall be in accordance with applicable Federal, state, and local laws. Construction-related hazardous materials and hazardous wastes (e.g., fuels and waste oils) shall be stored away from stream channels and steep banks to prevent these materials from entering surface waters in the event of an accidental release. These materials shall be kept

at sufficient distance (at least 500 feet) from nearby residences or other sensitive land uses. This includes materials stored for expected use, materials in equipment and vehicles, and waste materials.

Implementation: City of Folsom Utilities Department

Timing: Prior to construction and operation of all Off-site Water Facilities

Enforcement:

1. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.

2. For the off-site water facilities constructed within Sacramento County or the City of Rancho Cordova: Sacramento County Environmental Management Department.

3. Other regulatory agencies, such as California Department of Toxic Substances Control, or Central Valley Regional Water Quality Control Board, as appropriate.

Mitigation Measure 3B.8-1b: Prepare and Implement a Hazardous Materials Management Plan.

The City shall prepare a Hazardous Materials Management Plan (HMMP) for the proposed WTP. The HMMP shall provide for safe storage, containment, and disposal of chemicals and hazardous materials related to WTP operations, including waste materials. The plan shall include, but shall not be limited to, the following:

- a description of hazardous materials and hazardous wastes;
- a description of handling, transport, treatment, and disposal procedures, as relevant for each hazardous material or hazardous waste;
- preparedness, prevention, contingency, and emergency procedures, including emergency contact information;
- A description of personnel training including, but not limited to: (1) recognition of existing or potential hazards resulting from accidental spills or other releases; (2) implementation of evacuation, notification, and other emergency response procedures; (3) management, awareness, and handling of hazardous materials and hazardous wastes, as required by their level of responsibility;
- Instructions on keeping Materials Safety and Data Sheets (MSDS) on-site for each on-site, hazardous chemical;
- Identification of the locations of hazardous material storage areas, including temporary storage areas, which shall be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank; and
- A description of equipment maintenance procedures.

The HMMP shall be made a condition of contractual obligation and shall be available for review by construction inspectors and implementation compliance shall be monitored.

Implementation: City of Folsom Utilities Department

Timing: Prior to construction and operation of all Off-site Water Facilities

Enforcement:

1. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.

2. For the off-site water facilities constructed within Sacramento County or the City of Rancho Cordova: Sacramento County Environmental Management Department.

3. Other regulatory agencies, such as California Department of Toxic Substances Control, or Central Valley Regional Water Quality Control Board, as appropriate.

2, 2A, and 2B

Construction-related impacts associated with Off-site Water Facility Alternatives 2, 2A, and 3B would be similar to the alternatives listed above. Although typical construction management practices limit and often eliminate the impact of such accidental releases, there is a possibility of a spill or a release with the temporary on-site storage of hazardous materials. Therefore, construction-related **direct** and **indirect** impacts are considered **potentially significant**. ***[Similar]***

The main difference between Off-site Water Facility Alternatives 2, 2A, and 2B is relation to those listed above is that these alternatives would involve the purchasing of capacity within SCWA's Vineyard SWTP and, therefore, would not require the construction of a new WTP. For this reason, the operational impacts identified for the alternatives listed above would not apply to Off-site Water Facility Alternatives 2, 2A, and 2B and a **less-than-significant direct** operational impact would occur. **No indirect** impacts would occur. ***[Lesser]***

Mitigation Measure: Implement Mitigation Measure 3B.8-1a.

Implementation of Mitigation Measure 3B.8-1a would reduce potentially significant impacts under the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A to a **less-than-significant** level by ensuring the transport, storage, and use of construction-related hazardous materials complies with applicable Federal, state, and local regulations. Implementation of Mitigation Measure 3B.8-1b would reduce potentially significant impacts under the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 3, 3A, 4, and 4A to a **less-than-significant** level through preparation of an HMMP for the WTP.

IMPACT 3B.8-2 Create Accident Conditions Involving Potential Release of Hazardous Materials. *Construction and operation of the Off-site Water Facilities could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.*

NCP, PA, 1, 1A, 3, 3A, 4, and 4A

As previously indicated in Impact 3B.8-1, construction and operation of the proposed WTP under the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 3, 3A, 4, and 4A would involve the use of a variety of hazardous materials such as fuels, motor oils, paints, compressed gases, and chemicals. In addition, construction of the Off-site Water Facilities has the potential to disrupt existing utilities and infrastructure (e.g., natural gas). As provided in Section 3B.16, "Utilities and Service Systems – Water," high-pressure natural gas pipelines are housed in major roadways including Mather Boulevard, Sunrise Boulevard, Douglas Road, and Florin Road. Because there is a possibility of a hazardous spill or a release of hazardous substances (e.g., natural gas) during the construction and on-site storage of hazardous materials at the WTP, this **direct** impact is considered **potentially significant**. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3B.8-1b, 3B.16-3a, and 3B.16-3b.

2, 2A, and 2B

Under Alternatives 2, 2A, and 2B, the Off-site Water Facilities would likely involve a minor increase in the use and transport of hazardous materials at the Vineyard SWTP. However, this increase is not considered to be significant in relation to existing conditions and this **direct** impact would be **less than significant**. **No indirect** impacts would occur. ***[Lesser]***

However, similar, to the Proposed Alternative, these alternatives could result in a hazardous spill or release during construction, and therefore, these **direct** impacts could be **potentially significant**. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3B.8-1b, 3B.16-3a, and 3B.16-3b.

Implementation of Mitigation Measure 3B.8-1b would reduce potentially significant impacts under the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A to a **less-than-significant** level through preparation of an HMMP for the WTP and coordination with utility providers. Implementation of Mitigation Measures 3B.16-3a and 3B.16-3b would minimize risks related to the potential for rupturing high-pressure natural gas lines during construction and, therefore, this impact would be reduced to a **less-than-significant** level following mitigation implementation.

IMPACT 3B.8-3 Introduction of Drinking Water Contaminants. *Operation of the Off-site Water Facility Alternatives would not create a significant public health risk through the introduction of contaminants into a drinking water supply at concentrations with known adverse health effects.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

Surface Water Supplies

A review of water data from West Sacramento's Bryte Bend WTP, which treats Sacramento River water upstream of the Freeport Project intake, shows no exceedance of drinking water standards. Table 3B.9-2 in Section 3B.9, "Hydrology and Water Quality – Water," shows the water quality parameter concentrations grouped by regulations, along with primary and secondary MCLs. At Bryte Bend WTP, the concentration of regulated constituents in treated water has not exceeded the applicable MCLs. None of the regulated or unregulated VOCs or synthetic organic chemicals were detected in treated water. While the THMs bromodichloromethane and chloroform were detected, the concentrations detected were low ($\leq$ 20 µg/L), and did not exceed the applicable MCL. Similarly, pesticides were not detected within treated water from the Bryte Bend WTP.

The primary water quality constituents of concern in the untreated Sacramento River water were turbidity and TOC, and only turbidity exceeded the State Primary MCL. EDCs and PCPPs are not commonly measured constituents, and have not been measured by the City of West Sacramento at the Bryte Bend WTP. It is therefore unknown to what extent EDCs and PCPPs would be present within treated Sacramento River water. However, because the three EDC/PCPP compounds that have been detected in untreated water in the Sacramento River were at levels far below their effective doses (Table 3B.11-3), their effects on public health would be very limited, if any. The issue of emerging contaminants in drinking water has received increasing attention nationally; however, given that these constituents are not routinely tested and, that even if they were, there is no formal Federal or state standard for the City to consider the data against.

The concentrations of other non-regulated chemical compounds, including agricultural, industrial, and urban-related pollutants, remain largely unknown. It is also unknown to what extent these chemicals could affect human

health. However, treated Sacramento River water from the Bryte Bend WTP does not exceed any MCLs. Therefore, adverse impacts to public health and safety resulting from the introduction of a new drinking water supply source are not anticipated to occur. This **indirect** impact is considered **less than significant**. **No direct** impact would occur. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

IMPACT 3B.8-4 Use of Hazardous Materials within One-Quarter Mile of Schools. *Operation of the Off-site Water Facilities could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.*

NCP, PA, 1, and 1A

The proposed WTP site under these alternatives would be sited to the south of White Rock Road and would be located over 3/4 mile to the south of an elementary school and Country Day School planned within the southern portion of the SPA. Similarly, the On-site WTP would be sited according to the requirements of the Folsom Specific Plan, which is required to comply with state law. Likewise, the conveyance pipeline alignment under these alternatives would not be constructed within a quarter mile of an existing or planned school facility. Based on these findings, **no direct** or **indirect** impacts associated with the handling of hazards or acutely hazardous materials, substances, or wastes near a school would occur under these alternatives. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

2, 2A, 2B, 3, and 3A

Under these alternatives, the City would either construct a new WTP at the same location as the White Rock WTP or purchase capacity within the Vineyard WTP. **No direct** or **indirect** impact would be expected in relation to water treatment facilities for any of these alternatives.

In relation to the conveyance pipeline alignments for these alternatives, the portion of the alignments along Douglas Road would be constructed within one quarter of a mile of the Sunrise Elementary School. Additionally, the conveyance pipeline alignments for Off-site Water Facility Alternatives 2A and 3A would pass within a quarter mile of the Mather Youth Academy and Mather Heights Elementary Schools along Excelsior Road. As previously indicated in Impact 3B.8-1, construction activities would involve the routine use of fuels, oils, and solvents which could be accidentally spilled or released from containment. Although unlikely, if any of these materials were accidentally released, they could pose a hazard to the nearby school. Therefore, this **indirect** impact is considered **potentially significant**. **No direct** impact would occur. ***[Greater]***

Mitigation Measure: Implement Mitigation Measure 3B.8-1a and 3B.8-1b.

4 and 4A

Under Off-site Water Facility Alternatives 4 and 4A, the WTP would be located at a location south of Folsom Boulevard, east of Sunrise Boulevard. No existing or planned educational facilities are located within a quarter mile of the Folsom Boulevard WTP site. Therefore, **no direct** or **indirect** impact from the WTP would occur. ***[Similar]***

Off-site Water Facility Alternative 4A would follow the same initial route as Off-site Water Facility Alternative 2A and 3A, and therefore, carries the potential to release hazardous materials or substances during construction within 1/4 mile of the Mather Youth Academy and Mather Heights Elementary Schools. Therefore, this **indirect** impact is considered **potentially significant**. **No direct** impact would occur. ***[Greater]***

Mitigation Measure: Implement Mitigation Measure 3B.8-1a and 3B.8-1b.

Implementation of Mitigation Measures 3B.8-1a and 3B.8-1b would reduce potentially significant impacts under Off-site Water Facility Alternatives 2, 2A, 3, 3A, and 4A to a **less-than-significant** level by ensuring the transport, storage, and use of construction-related hazardous materials complies with applicable Federal, state, and local regulations.

IMPACT 3B.8-5 Create a Significant Hazard to the Public or the Environment. *Construction of the Off-site Water Facilities could encounter one or more sites listed as containing hazardous materials or wastes and, as a result, could create a significant hazard to the public or the environment.*

NCP, PA, 1, and 1A

The Off-site Water Facility Alternatives 1 and 1A would be constructed in a rural portion of the County where the conveyance pipeline alignment would not directly cross a site which is known to be included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 (TrackInfo Services 2008). As indicated in Table 3B.8-1, six listed sites were identified within a quarter-mile of the alignment in the database search; however, these sites are located at a sufficient distance (e.g., greater than 100 feet) away from the actual roadway where construction activities would occur. Nonetheless, as Off-site Water Facilities construction commences, it is possible that contaminated soil or groundwater could be encountered during excavation thereby posing a health threat to construction workers, the public, and the environment. Therefore, this **indirect** impact is considered **potentially significant**. **No direct** impact would occur. ***[Similar]***

Mitigation Measure 3B.8-5a: Conduct Phase 1 Environmental Site Assessment for Selected Alignment.

Prior to construction, the City shall conduct a Phase 1 Environmental Site Assessment according to American Society for Testing and Materials (ASTM) protocol for the selected conveyance pipeline alignment, pump station, well, and WTP site. If any hazardous materials or waste sites are identified during the Phase 1 Environmental Site Assessment, the City shall implement Mitigation Measure 3.8-5b.

Implementation: City of Folsom Utilities Department

Timing: Prior to construction of all Off-site Water Facilities

Enforcement:

1. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
2. For the off-site water facilities constructed within Sacramento County or the City of Rancho Cordova: Sacramento County Environmental Management Department.
3. Other regulatory agencies, such as California Department of Toxic Substances Control, or Central Valley Regional Water Quality Control Board, as appropriate

Mitigation Measure 3B.8-5b: Develop and Implement a Remediation Plan.

If determined necessary to mitigate for potential hazards resulting from disturbance of existing contaminated areas based on the results of the Phase 1 Environmental Site Assessment, the extent of contamination from hazardous materials sites within or adjacent to the Off-site Water Facilities construction area shall be delineated during final design. Disturbance to contaminated areas during Off-site Water Facilities construction shall be avoided, or any work done within contaminated areas shall be undertaken in compliance with standards approved by the DTSC or Sacramento County Department of

Environmental Health to ensure that hazardous materials will not be released as a result of the ground disturbance.

Additionally, if unidentified contaminated soil or groundwater are encountered, or if suspected contamination is encountered during any construction activities, work shall be halted in the area of potential exposure, and the type and extent of contamination shall be identified. A qualified professional, in consultation with appropriate regulatory agencies, will then develop and implement a plan to remediate the contamination and properly dispose of the contaminated material.

Implementation: City of Folsom Utilities Department

Timing: Prior to construction of all Off-site Water Facilities

Enforcement:

1. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.

2. For the off-site water facilities constructed within Sacramento County or the City of Rancho Cordova: Sacramento County Environmental Management Department.

3. Other regulatory agencies, such as California Department of Toxic Substances Control, or Central Valley Regional Water Quality Control Board, as appropriate

2, 2A, 2B, 3, 3A, 4, and 4A

Construction of the conveyance pipelines under each of these alternatives would involve excavation, soil stockpiling, grading, installation of the pipelines, and backfilling. These alternatives would be constructed in urbanizing portions of Rancho Cordova and along developing roadway corridors. Various forms of soil and groundwater contamination have been documented along portions of Florin, Excelsior, and Douglas Roads, Sunrise Boulevard, and Folsom Boulevard. Table 3B.8-1 provides a summary of the listed sites for each alternative. The types of contamination along these roadways range from minor spills of gasoline or diesel to more extensive spills of industrial chemicals, including PAHs, polychlorinated by-phenols (PCBs), and VOCs. In addition, agricultural uses of Sunrise Avenue and, Douglas Boulevard could have also resulted in soil or groundwater contamination from pesticides or other chemicals extending beneath the portions of the construction area.

If contaminated soil and groundwater were encountered without taking proper precautions, construction workers could be exposed to hazards that would potentially cause significant adverse health effects. Further, dewatering during construction would lead to extraction of contaminated groundwater. The quality of the groundwater would pose a concern if the water were discharged into a storm drain, sanitary sewer system, or surface water without treatment. Section 3B.17, "Groundwater Resources – Water," provides a further discussion of discharged groundwater. Human health risks include exposure of on-site workers to chemicals in surface soil through incidental contact with the skin, ingestion of soil, inhalation of soil particles, or fumes during construction activities at contaminated sites, or adjacent property occupants or trespassers who come in contact with contaminated soil. This would be a **potentially significant indirect** impact. **No direct** impact would occur. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3B.8-5a and 3B.8-5b.

Implementation of Mitigation Measures 3B.8-5a and 3B.8-5b would reduce potentially significant impacts associated with the accidental discovery of hazardous materials or wastes under the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 2, 2A,

2B, 3, 3A, 4, and 4A to a **less-than-significant** level through preparation of an environmental site assessment and development and implementation of a remediation plan, where appropriate.

IMPACT 3B.8-6 Impair or Interfere with an Adopted Emergency Response Plans or Emergency Evacuation Plans. *Implementation of the Off-site Water Facilities would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.*

NCP, PA 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

The Sacramento Metropolitan Fire District provides fire protection and emergency medical services to 417 square miles of Sacramento County, including the Off-site Water Facilities Study Area. The closest fire stations to Zone 4 of the "Water" Study Area are Stations 63 and 58. Station 63 is located in the northern portion of Zone 4 within the "Water" Study Area at 12395 Folsom Boulevard in the City of Rancho Cordova. Station 58 is located just south of Zone 4 of the "Water" Study Area at 7250 Sloughhouse Road in the community of Sloughhouse. Both stations serve as typical response teams with equipment and staffing for two engines, one ladder truck, and seven firefighters, including one battalion chief. Each fire station also provides emergency medical service personnel. Additionally, the City's Fire Department acts as a mutual aid responder for incidents within the northern portion of Zone 4 of the "Water" Study Area.

According to the County's General Plan, the targeted response time is five minutes for fire and emergency response. The long-term operation of the Off-site Water Facilities is not expected to involve any activities that would interfere with existing response times or emergency response plans in place through the California OES and Sacramento County. However, during construction of the Off-site Water Facilities, construction activities could block access to nearby residences for emergency vehicles or result in temporary blockages thereby increasing emergency response times. In most instances, construction equipment could be moved relatively quickly to facilitate the necessary emergency vehicle movements. Based on these considerations, implementation of the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A are not expected to involve any activities that would permanently or substantially interfere with emergency response plans or evacuation plans in place through the California OES or Sacramento County. This **direct** impact is considered **less than significant**. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

IMPACT 3B.8-7 Exposure to Wildland Fire Hazards. *Implementation of the Off-site Water Facilities could expose people or structures to a significant risk of loss, injury or death involving wildland fires.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

Zone 4 of the "Water" Study Area is located in a local responsibility area where the risk of grassland wildfires is moderate. Construction activities, including welding, vehicle refueling, and pipeline installation would occur in close proximity to areas containing dried vegetation or other materials that could serve as fire fuel. Any construction equipment that normally includes a spark arrester would be equipped with an arrester in good working order. Nonetheless, the potential for construction equipment and vehicles to come in contact with heavily vegetated areas, thereby igniting dry vegetation. This is a **potentially significant, direct** impact. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measure 3B.8-7a: Keep Construction Area Clear of Combustible Materials.

The City shall ensure, through the enforcement of contractual obligations that during construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. The contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Implementation: City of Folsom Utilities Department

Timing: Prior to construction and operation of all Off-site Water Facilities

Enforcement:
1. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
2. For the off-site water facilities constructed within Sacramento County or the City of Rancho Cordova: Sacramento County Fire Department

Mitigation Measure 3B.8-7b: Provide Accessible Fire Suppression Equipment.

Work crews shall be required to carry or have sufficient fire suppression equipment to ensure that any fire resulting from construction activities is immediately extinguished. All off-road equipment using internal combustion engines shall be equipped with spark arrestors.

Implementation: City of Folsom Utilities Department

Timing: Prior to construction and operation of all Off-site Water Facilities

Enforcement:
1. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
2. For the off-site water facilities constructed within Sacramento County or the City of Rancho Cordova: Sacramento County Fire Department.

Implementation of Mitigation Measures 3B.8-7a and 3B.8-7b would reduce impacts associated with wildland fire hazards under the No USACE Permit Alternative, Proposed Off-site Water Facility Alternative, and Off-site Water Facility Alternatives 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A to a **less-than-significant** level by requiring that construction areas are cleared of combustible materials and ensuring access to fire suppression equipment.

3B.8.4 RESIDUAL SIGNIFICANT IMPACTS

With the implementation of mitigation, the Off-site Water Facility Alternatives would not result in any residual significant and unavoidable impacts related to risks of upset or accidental release of hazards and hazardous materials. Similarly, with mitigation impacts related to the potential for wildland fires during construction would be minimized to a less-than-significant level. The use of surface water from the Sacramento River for use as a potable water supply within the SPA would not create a public hazard and impacts resulting from the use of this supply are considered less than significant. Therefore, project implementation would not result in any residual significant impacts related to hazards and hazardous materials.