E. HAZARDS AND HAZARDOUS MATERIALS

The discussion in this section examines hazardous materials and hazards-related impacts that could result from implementation of the proposed project. Development and operation of the project could cause a temporary and permanent increase in hazardous materials use, expose demolition workers to hazardous building materials or other subsurface hazards including ordnance and explosives, and expose additional people or structures to grassland fire hazards. These issues are addressed in the following impact analysis. Water quality impacts that would not directly affect human health are addressed in Section IV.D, Hydrology and Water Quality.

Analysis of current hazardous materials conditions that is available now is based on documentation addressing the project site and adjoining sites, site reconnaissance visits completed in 1999 and 2005, review of historical aerial photographs for the project site, and a review of regulatory agency database lists for hazardous materials releases at and near the site.

1. Setting

This existing context for hazards and hazardous materials is complex, covering the following topics: regulatory framework; onsite and off-site hazardous materials uses and investigations; wildland fires; emergency response and evacuation plans; and goals, policies and programs in the City of Benicia General Plan.

a. Regulatory Framework. The following section describes the regulatory framework that affects the management of hazardous materials (including site investigation and remediation), worker health and safety, and lead/asbestos and other hazardous building materials.

(1) Site Investigation and Remedial Regulation Requirements. A myriad of laws and regulations at the federal, State, and local levels affect the management of hazardous materials, including site investigation and remedial actions. In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency's (Cal/EPA) offices, boards, and departments. The Department of Toxic Substances Control (DTSC) or San Francisco Bay Regional Water Quality Control Board (RWQCB) may provide oversight on investigation and remediation of sites affected by hazardous materials releases in Benicia. Alternatively, oversight may be provided on the County level by the Solano County Environmental Health Services (SCEHS).

(2) Hazardous Materials Management and Worker Health and Safety Requirements. As described above, several local, State, and federal requirements pertain to hazardous materials management, including use, storage, disposal, and training of workers handling hazardous materials. Generally, State requirements mirror federal requirements, and in some cases are more stringent. State requirements, which can be implemented through the adoption of local ordinances, are often enforced by the local administering agency, such as the fire department or county environmental health department.

There are specific requirements for storage of hazardous materials in excess of threshold limits. For example, the State Office of Emergency Services requires a Hazardous Materials Business Plan

(Business Plan)[1] for storage of quantities of hazardous materials equal to or greater than 55 gallons of liquid hazardous materials (including hazardous wastes), 500 pounds of solids, or 200 cubic feet of compressed gases. Although future tenants at the project site have not yet been identified, based on proposed commercial and light industrial land uses, some examples of hazardous materials that could be stored during operation of the proposed project in quantities subject to the Business Plan requirements include petroleum hydrocarbons (e.g., gasoline, diesel, motor oil, grease, lubricants), paints, and compressed gases, acids, and pesticides/herbicides for landscape management. In Benicia, the requirements for Business Plans are administered by the SCEHS. The Business Plan is required to contain facility maps, up-to-date inventories of all hazardous materials equal to or above the threshold limits above, emergency response procedures, equipment, and an employee training program.

Generators of hazardous waste (e.g., waste oil, waste antifreeze) are subject to Business Plan and Contingency Plan requirements, if these wastes are generated in quantities equal to or greater than the threshold requirements above. Contingency Plan[2] requirements include identification of an emergency coordinator, identification and location of emergency response equipment, and reporting procedures in the event of a spill or other emergency. Hazardous wastes must be properly packaged, stored, manifested, and disposed of at a permitted off-site facility in accordance with local, State, and federal requirements; generators of hazardous wastes much be registered by the U.S. EPA.[3] Requirements for hazardous waste management are regulated by DTSC and the U.S. EPA, as described above.

In addition to the Business Plan and Contingency Plan requirements, preparation of Accidental Release Prevention Plans (ARPP) for acutely hazardous materials may be required by future tenants if there is a significant likelihood that tenants' use of hazardous materials could pose an accidental risk for acutely hazardous materials stored above threshold quantities.[4] Facilities with aboveground or underground tanks are also required to be permitted.[5] Other plans, such as Spill Prevention Control and Countermeasures Plans[6] may also be required for aboveground tanks, depending on the tank size, location and contents. Some facilities located within the project site may also be required to prepare Process Safety Management Plans for their operations. The purpose of these plans is to eliminate, to a substantial degree, the risks to which employees are exposed to hazardous materials in facility processes.[7]

Worker training programs and establishment of employer programs for worker health and safety training related to hazardous materials uses are also likely to be required for tenants at the project site.

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[1] California Health and Safety Code, Chapter 6.95, Section 25500 et seq; 19 CCR 2620 et seq.

[2] Title 22, California Code of Regulations (CCR) Section 66265.50-66265.56.

[3] Title 22, CCR; 40 Code of Federal Regulations (CFR).

[4] California Health and Safety Code, Section 25531 et seq; 40 CFR Part 68.

[5] California Health and Safety Code, Section 25270 et seq.; California Health and Safety Code Section, Section 25280 et seq.; Uniform Fire Code; 3 United States Code (USC) 1251; 42 USC 6991; Title 23 CCR Section 2610-2873; 40 CFR Part 112 et seq.; 40 CFR Parts 112.3 and 112.7; 40 CFR Part 280.

[6] 40 CFR Parts 112.3 and 112.7.

[7] Title 8, CCR Section 5189 and 40 CFR Part 1910.119.

Some of these requirements include: Hazard Communications and worker training,[8] Injury and Illness Prevention Plan and training,[9] Emergency Action Plan and training,[10] Fire Prevention Plan and training,[11] Permissible Exposure Limits for hazardous materials,[12] and other applicable programs, based on the work to be performed and the hazardous material used.

Workers at hazardous waste sites (or persons working with hazardous wastes that are encountered during excavation of contaminated soils) must also receive specialized training and medical supervision according to the Hazardous Waste Operation and Emergency Response (HAZWOPER) regulations.[13] Regulations have also been developed for workers potentially exposed to lead[14] and asbestos.[15] Cal/Occupational Safety and Health Administration (OSHA) conducts on-site evaluations to identify non-compliance with the requirements above and issues notices of violation to enforce necessary health and safety practices.

(3) Lead, Asbestos and Other Hazardous Building Materials. Prior to 1978, lead compounds were commonly used in interior and exterior paints. Prior to the 1980s, building materials often contained asbestos fibers, which were used to provide strength and fire resistance to the materials. If maintained in good condition, lead-based paint and asbestos-containing materials are not expected to present a health risk; however, demolition, renovation, or removal of buildings containing these materials has the potential to release lead particles and/or asbestos fibers to the air, where they may be inhaled by construction workers and the general public. In addition, other common items, such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats can contain hazardous materials, which may pose a risk if not handled and disposed of properly.

Lead is a suspected human carcinogen, a known teratogen (i.e., causes birth defects), and a reproductive toxin. Asbestos is a known human carcinogen. Federal, State, and local requirements govern the abatement requirements for lead based paint and removal of asbestos or suspected asbestos containing materials (ACM), including special construction worker health and safety standards for sites where lead and/or asbestos may be present. For example, the U.S. EPA and DTSC require that lead-based paint with lead concentrations equal to or greater than the U.S. Department of Housing and Urban Development (HUD) definition of lead-based paints (greater or equal to 1 mg/cm^2 or 0.5 percent lead by weight) be removed prior to demolition if the paint is loose and peeling. If the paint is securely adhering to the substrate, the entire material may be disposed of as demolition debris, which is a non-hazardous waste. Loose and peeling paint must be disposed of as a State and/or federal hazardous waste, if the concentration of lead exceeds applicable waste thresholds. Hazardous wastes must be

[8] Title 8, CCR Section 5194.

[9] Title 8, CCR Section 1509 and 3203.

[10] Title 8, CCR Section 3220.

[11] Title 8, CCR Section 3221.

[12] Title 8, CCR Section 5155.

[13] Title 8, CCR Section 5192.

[14] 29 CFR Part 1926.62; Title 8, CCR Section 532.1; CDHS Training, Certification and Workpractices Rule.

[15] 29 CFR Part 1926.1101; 40 CFR Part 61 and 152; Title 8, CCR Section 1529; Bay Area Air Quality Management District Regulation 11, Rule 2.

appropriately managed, labeled, transported, and disposed of in accordance with local requirements by trained workers, as described above. State and federal construction worker health and safety regulations, described above, require air monitoring and other protective measures during demolition or renovation activities where lead-based paint is present.

Removal of asbestos or suspect ACM, including removal as part of building demolition, is regulated by the U.S. EPA, federal and State OSHA, DTSC, and the Bay Area Air Quality Management District (BAAQMD). All friable (crushable by hand) ACM, or non-friable ACM subject to damage, must be abated prior to demolition in accordance with applicable requirements. Friable ACM must be disposed of as an asbestos waste at an approved facility. Non-friable ACM may be disposed of as a non-hazardous waste at landfills that accept such wastes. Workers conducting asbestos abatement must be trained in accordance with State and federal OSHA requirements, described above.

Fluorescent lighting tubes and ballast, computer displays, and several other common items containing hazardous materials are regulated as "universal wastes" by the State. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules, as described above.

b. Hazardous Materials Setting. The following discussion includes a description of hazardous materials issues in and around the project site.

(1) On-Site Hazardous Materials Uses. A site reconnaissance was conducted by Baseline Environmental Consulting (Baseline) in June 1999 for the purpose of identifying current land uses and the presence of any hazardous materials within the project site and adjacent sites. Observations were made from those areas of the site accessible by vehicle. A second site reconnaissance was completed in November 2005 by LSA Associates, and photographs from this site visit and recent aerial photographs were reviewed by Baseline to ascertain any land use changes from observations made during the 1999 site visit. Observations related to the potential presence of hazardous materials within the project site and adjacent sites are noted below.

Three structures were observed in the northwestern portion of the project site; none appeared to be currently in use during the 2005 site visit. One of these structures appeared to be a barn, while the other two structures may have been used for farming operations and a residence. Pipelines were observed on the side of the barn and may have been used as a water source. The barn appeared to have been constructed with a corrugated metal roof with a wooden and concrete exterior. Two of the smaller single-story wooden structures appeared to have peeling paint on the building exterior.[16]

In the northern portion of the property, one 55-gallon drum was observed to be stored on its side in 1999, just south of Lake Herman Road. The drum was rusty and appeared to be damaged; the label on the drum could not be read. The contents of the drum, if any, did not appear to be leaking. A few additional containers of presumably hazardous materials were also observed by LSA personnel during the 2005 site reconnaissance of the property. Also, cathodic protection markers were observed along

[16] It is possible that these structures are some of the farm structures that were reportedly constructed prior to the Arsenal's acquisition of area; these structures were reportedly used by the Arsenal as a temporary housing camp. Jacobs Engineering, 1999. *Records Research Report, Benicia Arsenal*, Final, April. p. 2R-19.

the northern site boundary in 2005. These markers may be associated with the raw water line identified along Lake Herman Road associated with the Benicia Water Treatment Plant (Plant).[17] According to current City utility mapping information, two raw water lines and one water-distribution main cross the project site from the Plant southward towards East 2nd Street.[18]

The site is composed largely of grasslands, and was observed to have been recently disked near the boundary of the site with Lake Herman Road during the 1999 and 2005 site reconnaissance. No grazing of livestock was observed on the site during either the 1999 or 2005 site reconnaissance.

A single-story cement and wood structure, which was not painted, was also observed in the south-eastern portion of the project site in 1999, as viewed from Industrial Way. The same structure was observed in photographs taken during the 2005 site reconnaissance.

(2) On-Site Hazardous Materials Uses and Investigations. The on-line databases that comprise the CORTESE list[19] were reviewed to ascertain whether the project site was identified on any list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5. In addition, aerial photographs for the project site for 1937, 1965 and 1970[20] were reviewed for land uses that could be associated with hazardous materials uses.

No hazardous materials releases or uses were identified for the project site in the regulatory agency databases reviewed or in the aerial photographs reviewed, although only the eastern portion of the project site was included in the photographs reviewed. Based on a review of historical aerial photo-graphs for the eastern portion of the project site, the site remained undeveloped from 1937 to 1970. Some agricultural uses immediately adjacent to the site, at the approximate location of the Benicia Water Treatment Plant, were identified in the photographs reviewed.

The central to western portion of the project site was indicated as being located within property that was leased by the Benicia Arsenal Revetment Area or "Area R."[21] (see Figure IV.E-1). The former Benicia Arsenal was established by the U.S. Army in 1849 and functioned as a site for testing gun-powder; for storing, issuing and repairing Army ordnance;[22] as principal ordnance and stores

[17] City of Benicia, 1999. *Benicia General Plan, From 1847 Into the 21st Century*. Adopted June 15. p. 155.

[18] Schiada, Dan, 2007. Director of Public Works Department. Memorandum to Charlie Knox, Community Development Director. January 2.

[19] State Water Resources Control Board (SWRCB) Geotracker Database, 2006. Website: geotracker.swrcb.ca.gov. September 25. The Geotracker database includes: leaking underground storage tank sites (LUST), registered underground storage tank sites (UST), and sites within the spills, leaks and investigation cleanups program (SLIC).

DTSC Hazardous Waste and Substance Site List. Website: www.envirostor.dtsc.ca.gov. The DTSC list includes Federal Superfund National Priority List (NPL) sites, State response sites, voluntary cleanup sites, and school cleanup sites.

[20] Environmental Data Resources (EDR), 1999. The EDR-Aerial Photography Print Service, Benicia Business Park, property bounded by Lake Herman Road, E. 2nd Street, Industrial Way, Benicia, California. June 2.

[21] Jacobs Engineering, 1999. Site Map of the Benicia Arsenal of the Benicia Arsenal (Figure 1.1) and 1997 Aerial Overlay (Figure 1.2). April. Website: www.benicia-arsenal.net.htrw/profile/docs/index.htm (Records Research Report).

[22] Ordnance is defined as weapons of all kinds including bombs, artillery projectiles, rockets and other munitions, military chemicals, bulk explosives, chemical warfare agents, pyrotechnics, explosive waste, boosters, and fuses. Benicia Arsenal Website, 2006. Website: .benicia-arsenal.net/oe/profile/glossary/index.htm. September.

repository and distribution point for the Pacific Coast; and as a transshipment depot for holding and storing ammunition and explosives for the Port of San Francisco.[23]

The Revetment Area (Area R) was incorporated by 1944 by the U.S. Army and was used for 20 years as an explosives holding yard. The area was designed to control or contain damage from explosions, and its features included seven railroad spurs, a perimeter road around the railroad tracks, burn cages, and drainage channels leading from each revetment to Sulphur Springs Creek.[24] Ammunition was piled throughout the Revetment Area during 1946 to 1947. According to eye witness accounts from former arsenal employees, a fire also burned in the revetment area at this time which caused the explosion of countless rounds of 0.50 caliber ammunition and scattered shell casings.[25]

The U.S. Army has initiated actions at the former Arsenal to remove ordnance and explosives (OE)[26] and other hazardous materials (described below). For each area of the former Arsenal, an Engineering Evaluation/Cost Analysis (EE/CA) was prepared for OE which considered the following alternatives: 1) no Department of Defense (DOD) Action; 2) institutional controls to limit access and community education; 3) surface clearance of OE by locating and removing ordnance from the ground surface; and 4) detection and clearance of OE to depth, including subsurface excavation and clearance of all detectable OE items using geophysical instrumentation. The alternative selected for each area of the former Arsenal was supported by field investigations. The central and western portions of the project site is within an area defined by this EE/CA as requiring Alternative 1, "no DOD action indicated."[27]

The Army also completed a Preliminary Assessment of the Benicia Arsenal for the presence of other hazardous materials besides OE. Based on this investigation, 13 sites were identified in Area R as requiring no DOD action, and no sites requiring an immediate response were identified. Three sites were identified as being recommended for further action. These include Spur A, which was used as a revetment and burn cage area and an area where hydrazine[28] burned in 1958 and 1959 following an accidental release. Spur E, and Spur G, which were also revetment and burn cage areas, were also identified as requiring further investigation.[29] The locations identified in Revetment R do not appear to be within the project site, but the project site is within the vicinity of these former land use areas

[23] Jacobs Engineering, 1999. op. cit. p 1-1.

[24] Jacobs Engineering, 1999. op. cit. p. 2R-3.

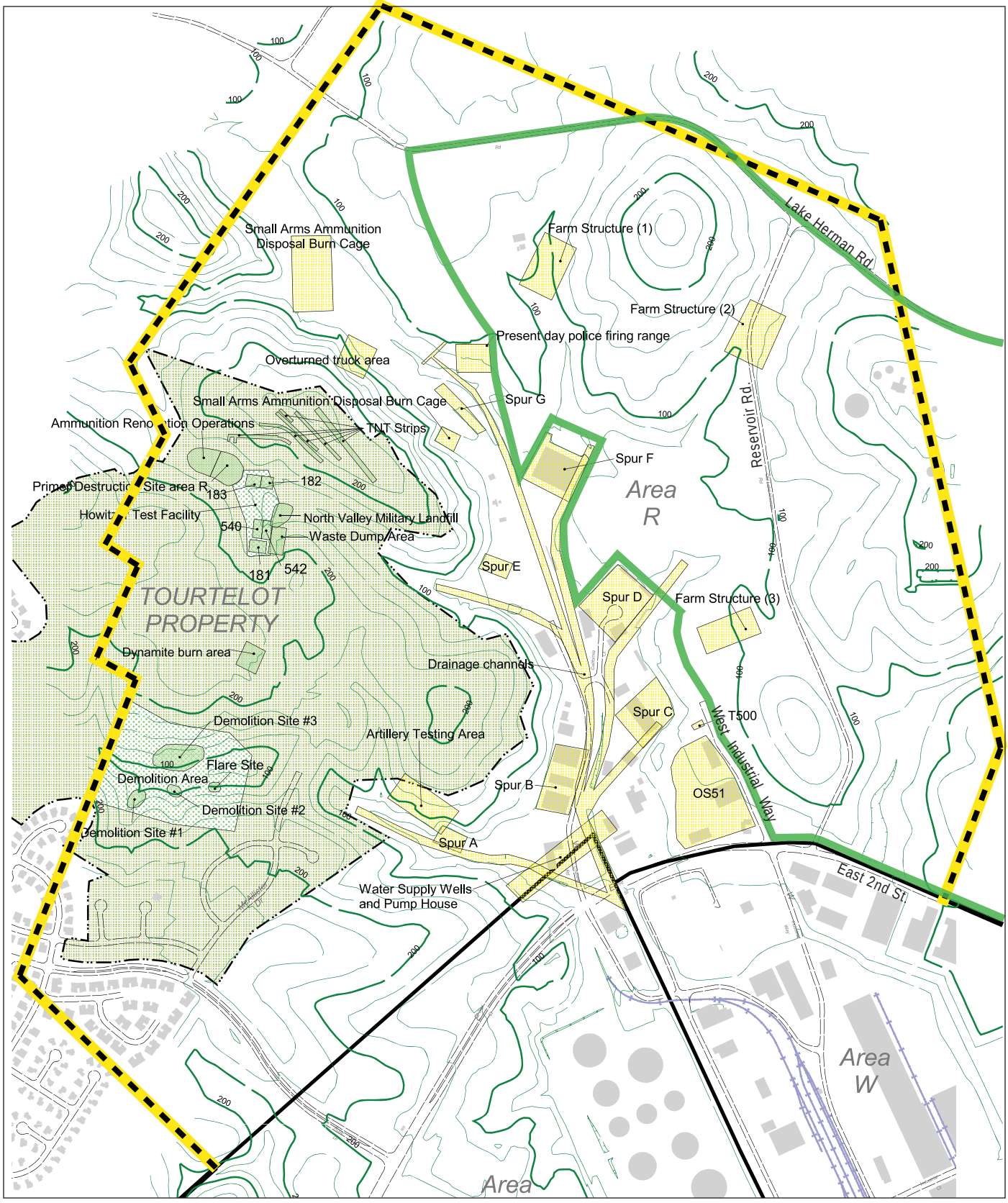
[25] Jacobs Engineering, 1999. op. cit. p. 2R-3.

[26] The removal actions included those ordnance and explosives that have been abandoned, expelled from demolition pits, lost, discarded, buried or fired.

[27] Ibid.

[28] Hydrazine is a highly reactive base and reducing agent. Some of the uses of this material are as a high-energy rocket propellant, as a reactant in military fuel cells. Office of Environmental Health Hazard Assessment (OEHHA), California Environmental Protection Agency, 2000. *Determination of Noncancer Chronic Reference Exposure Levels, Batch 2A, Hydrazine*, December. Website: www.oehha.ca.gov/air/chronic_rels/pdf/302012.pdf.

[29] Forsgren Associates/Brown and Caldwell, 2004. *Final Preliminary Assessment, for Environmental Investigation at the Formerly Used Defense Site (FUDS) at the Benicia Arsenal, Benicia, California*, FUDS Site Number: J09CA075600, prepared for the Department of Defense, U.S. Army Corps of Engineers, March, p. 51 and 52. www.benicia-arsenal.net/-htrw/profile/docs/index.htm (Preliminary Assessment).



LSA

LEGEND

- PRELIMINARY ASSESSMENT SITES AND NAMES
- TOURTELOT SITES AND NAMES
- PROJECT SITE BOUNDARY
- ESTIMATED BOUNDARY OF THE TOURTELOT PROPERTY
- LEASED PROPERTY BOUNDARY (ARSENAL)
- 100 ELEVATION CONTOUR (INTERVAL = 25 FEET)
- INVESTIGATION BOUNDARIES
- MAIN ROADS
- RAIL ROAD
- BUILDINGS

N

0 600 1200

FEET

FIGURE IV.E-1

Benicia Business Park EIR

Map of Hazardous Materials Sites

SOURCE: FOSGREN ASSOCIATES/BROWN & CALDWELL, 2004

I:\CIB530 Benicia Bus Park\figures\Fig_IVE1.ai (10/16/06)

(Figure IV.E-1). In another investigation completed, metals were also identified as chemicals of concern for the revetment area for the former Arsenal.[30]

A project-wide Removal Action Workplan and Remedial Design Implementation Plan for the Arsenal is due in 2007 to DTSC, and is expected to include removal measures for metal contamination in the area.[31]

c. Off-Site Hazardous Materials Uses and Investigations. Off-site land uses with hazardous materials concerns include the former hazardous waste landfill owned by International Technology (IT) to the north of the site, the Benicia Water Treatment Plant along Lake Herman Road adjoining the project site, an existing commercial area to the northeast, and light industrial/commercial land uses to the east and south-southwest of the site, including the Benicia Valero Refinery (Valero). The former Benicia Arsenal Tourtelot property, Lake Herman, and open space uses are to the northwest and southwest of the project site.

These land uses in the project vicinity currently contain hazardous materials or have historically used, stored, generated, and disposed of hazardous materials. If releases of hazardous materials have occurred from these sites, there could be a potential for the releases to migrate and affect soil, groundwater, air and/or any surface water within the project site. The primary transport mechanisms for contaminants would be via shallow groundwater, surface water, or the air.

The local shallow groundwater and surface water flow direction is presumed to be toward the south, based on regional topography. Prevailing winds within the vicinity of the project site are generally from the northwest to the southwest. However, during the fall and winter, winds can also be from the east-northeast.[32] Therefore, sites with releases of hazardous materials affecting groundwater or surface water north of the project site, and sites emitting airborne contaminants southwest to northwest of the project site (and to a lesser extent sites to the east-northeast), could potentially release hazardous materials that could affect soil, groundwater, air, and/or any surface water conditions at the project site.

The International Technology Corporation Panoche Facility, Valero, and the City of Benicia Water Treatment Plant are three adjacent or nearby facilities that have the potential to affect surface and subsurface conditions and air quality within the project site based on the conditions described above. The nearby Tourtelot property at the former Benicia Arsenal (part of the Revetment Area, or Area R), to the west, which recently completed a site cleanup (and is not expected to pose a health or safety risk to the project site), is also discussed in this section. No other off-site locations that could potentially affect groundwater underlying the project site were identified, based on the assumed

[30] Brown and Caldwell, 1998. *Conceptual Workplan for Environmental Investigation at the Formerly Used Defense Site (FUDS), Benicia Arsenal, Benicia*, California, FUDS Site#: J09CA075600, prepared for the Department of the Army, United States Army District, Sacramento, Corps of Engineers, Contract number DACW05-97-D-0035. April. P. 4-3. Website: www.benicia-arsenal.net/htrw/profile/docs/index.htm (Conceptual Workplan).

[31] DTSC, 2006. EnviroStor. http://ww.envirostor.dtsc.ca.gov. September 25.

[32] California Environmental Protection Agency, Air Resources Board, 2002. *Review of Current Ambient Air Monitoring Activities Related to California Bay Area and South Coast Refineries*, March, Attachment B-4: Seasonal Wind Roses at Valero (Benicia) Oil Refinery, year 2000. Website: http://www.arb.ca.gov/

shallow groundwater and surface water flow direction.[33] Each of these four nearby facilities is addressed below.

(1) IT Corporation Panoche Facility (IT Site). The IT Site, located more than 3,000 feet north[34] of Lake Herman Road, was a Class I hazardous waste disposal facility, which operated north of the project site from 1968 to 1986. While in operation, an estimated 80,000 to 200,000 tons of hazardous waste were disposed of annually.[35] The facility stopped receiving hazardous waste in 1987 and completed closure in 2000 under the oversight of DTSC. As part of the closure of the former landfill, the following activities were completed: 1) removal and relocation of wastes from certain waste management units and drum burial areas; 2) placement of final closure covers over all areas where wastes were located; 3) construction of surface water drainage ditches and erosion control measures; and 4) implementation of a contaminated groundwater removal, and management program.[36]

The former hazardous waste landfill completed a post-closure permit application in February 2003 and has finalized designs for remaining on-site groundwater remediation efforts. The post-closure permit application was issued by DTSC in June 2003 and will expire in 2013.[37] Post-closure activities will include: 1) groundwater monitoring; 2) managing leachate and contaminated groundwater by extraction and treatment; 3) managing landfill gas and vapors by collecting, treating, and venting; 4) monitoring groundwater contamination downgradient from the central drainage at the facility; 5) inspecting, maintaining, and repairing on-site structures; and 6) providing a financial mechanism to fund the activities through the closure period.[38]

In 2013, the IT Site will be re-evaluated by DTSC to assess whether it still poses a threat to public health and the environment. If it is found to continue to pose a threat to public health and the environment, permitting will continue. Quarterly and annual groundwater and surface water monitoring, as described above, would be required throughout the duration of the post-closure permit and would be enforced by DTSC.[39]

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[33] SWRCB, Geotracker Database, op. cit.

[34] The greater than 3,000 foot distance between the nearest boundary of the IT facility and the Project site is in excess of a 2,000 foot required buffer zone. The Hazardous Waste Property and Border Zone Property Law (California Health and Safety Code, Article 11, Section 25220 through 25241) requires a property owner that is proposing to build residential buildings, a school, a hospital, and/or a day care facility within 2,000 feet of a significant disposal of hazardous waste to apply for determination from DTSC regarding whether the property should be designated a Border Zone Property or a Hazardous Waste Property.

[35] California Environmental Protection Agency, Department of Toxic Substances Control, 2004. *News Release, Environmental* Trust *Created to Manage International Technology Landfills*, T-21-04. May 12. Website: http://www.dtsc.ca.gov/PressRoom/upload/NEWS_2004_T-21-04.pdf

[36] Department of Toxic Substances Control, 2003a. Public Comment Period on Draft Post-Closure Permit, IT Corporation Panoche Hazardous Waste Facility, April, AND DTSC, 2003b, Notice of Exemption, Post-Closure Permit for IT Panoche Hazardous Waste Management Facility. April 4. DTSC Website: www.dtsc.ca.gov.

[37] State of California, Environmental Protection Agency, DTSC, 2006. *In the Matter of IT Environmental Liquidating Trust, Corrective Action Consent Order*, Docket No. HWCA P1-03/04-011. DTSC Website: www.dtsc.ca.gov.

[38] DTSC, 2003b. op. cit.

[39] Lecler, Ray, DTSC, 1999. Personal communication with Baseline. August 19.

Based on the post-closure monitoring status of the IT Site, including completion of all cleanup activities, it is unlikely that any releases from this off-site location would have the potential to significantly affect groundwater or surface water at the project site[40]. However, if any adverse change in groundwater or surface water quality were to occur at the IT Site, this change would trigger a response from the DTSC to enforce a corrective action to be implemented to protect the health and well being of the public,[41] including potential land uses downgradient from the IT Site.

(2) Benicia Valero Refinery. The Benicia Valero Refinery, located to the southwest of the project site, operates a variety of processes to produce petroleum products from raw crude oil. The facility is permitted by the Bay Area Air Quality Management District (BAAQMD) for emissions to air and must maintain emissions below permitted thresholds using best available control technology. Air monitoring to ensure emissions are below these permitted thresholds is required at the refinery by BAAQMD.[42] Permitted releases from the Valero refinery would not be expected to pose an unacceptable health risk to future users of the Benicia Business Park project site due to this permitting and regulatory oversight.

The refinery processes several regulated flammables, such as propane and butane, and uses or processes other regulated substances such as anhydrous ammonia and aqueous ammonia. Six processes are covered by a Process Safety Management Plan (PSM) and Risk Management Plan (RMP) for the Valero site. The most recent RMP available for review was dated April 2005.[43] The refinery also maintains a comprehensive Emergency Response Program (described in further detail below) for responding to emergencies that could occur, including fire/explosions and hazardous materials releases. Unpermitted releases to air could potentially affect the project site, since it is downwind of the refinery. Any releases to soil from this facility would be expected to migrate to the south with shallow groundwater flow, away from the project site.

The objectives of the PSM and RMP are to prevent foreseeable releases of regulated substances through training of workers, and by considering safety in design, installation, operation and maintenance, including safety features on equipment to detect releases, contain/control releases, and mitigation of releases. If a release does occur, trained Valero personnel are expected to respond, contain, and mitigate the release. All incidents are investigated to prevent recurrence and compliance audits are conducted every three years to ensure that the accident prevention program is functioning properly to prevent emergencies from occurring. During the five years preceding the preparation of the RMP plan, only one unpermitted accidental release incident was reported.[44]

The overall Emergency Response Program for Valero is coordinated through the Solano County Local Emergency Planning Committee (LEPC). This coordination includes periodic meetings of the

[40] Note that in addition to the hazardous waste landfill-post closure status, the IT Site was also identified on the SWRCB Geotracker's spills, leaks and investigations cleanup list (SLIC), but no details were provided regarding the listing. SWRCB Geotracker, op. cit.

[41] Lecler, 1999. op. cit.

[42] Bay Area Air Quality Management District (BAAQMD), 2006. Website: www.baaqmd.gov. September 26.

[43] Valero Energy Corporation, 2005. *Risk Management Plan Executive Summary, Valero Refining Company, Benicia, California*. submission date June 14, 2004 (updated information submitted April 28, 2005), RMP Facility ID 100000087871. Website: www.rtknet.org/rmp/CA.php.

[44] Details on the incident were not specified in the documentation reviewed.

committee, which includes local emergency response officials, local government officials, and industry representatives. The refinery has 24-hour communications ability with appropriate LEPC officials and emergency response organizations (e.g., City of Benicia Fire Department). This provides a means of notifying the public of a release as wells as facilitating quick response. Periodic emergency drills that involve the Fire Department are also conducted at the refinery.[45]

In the event of an airborne accidental release at the facility, health effects to future users of the proposed Benicia Business Park are possible, but would be minimized by response of the on-site Valero hazardous materials team, and notification to LEPC officials and emergency response organizations. These groups would then operate the Community Alert and Notification System (described below in further detail under subsection e., Emergency Response and Evacuation Plans) to alert future users at the project site, as needed.

(3) Benicia Water Treatment Plant. The Benicia Water Treatment Plant stores gaseous chlorine[46] and other hazardous materials (i.e., aluminum sulfate,[47] caustic soda,[48] hydrofluosilicic acid[49]) for water treatment. The Benicia Water Treatment Plant reportedly receives weekly deliveries of aluminum sulfate and caustic soda and less frequent deliveries of chlorine gas and hydrofluosilicic acid via Lake Herman Road.[50] These hazardous materials are stored on-site.

The Benicia Water Treatment Plant is capable of treating 12 million gallons of water per day. A Risk Management Plan has been submitted by the plant in accordance with the requirements of 40 CFR 68 and Article 2, Chapter 6.95 of the California Health and Safety Code. The water treatment plant chlorine disinfection process involves a maximum of 8,000 pounds of chlorine contained in the chlorination process and storage cylinders. The latest plan available for review was completed April 2005. The water treatment plant is also reportedly in compliance with PSM requirements.[51] Similar to the Valero refinery, the water treatment plant has a comprehensive accidental release prevention program that includes design (including secondary containment) and installation measures, operation procedures, maintenance procedures, and employee training in facility processes. A worst

[45] Valero Energy Corporation, 2005. op. cit.

[46] Chlorine is a corrosive material widely used for water disinfection. It may enter the body by inhalation or ingestion. The effects of chlorine on human health depend on the amount of chlorine that is present, and the length and frequency of exposure. Chlorine exposure causes skin, eye, and respiratory system irritation. Lenntech, 2006. Chlorine. Website: lenntech.com/Periodic-chart-elements/Cl-en.htm. December 12.

[47] Aluminum sulfate (alum) is used in water purification. It is a corrosive material; and contact with liquid aluminum sulfate can case skin and eye irritation, rash, or a burning feeling. Breathing aluminum sulfate can cause nose, throat and lung irritation, coughing, wheezing, and/or shortness of breath. New Jersey Department of Health and Senior Services, 2006. Right to Know Program, Aluminum Sulfate. Website: state.nj.us/health/eoh/rtkweb/0068.pdf. December 12.

[48] Caustic soda (also known as sodium hydroxide or lye) is used in water treatment. It is highly corrosive and reactive, and can be irritating or cause burning to the skin, eyes, and gastrointestinal tract with contact. Dow, 2006. Product Safety Assessment (PSA): Caustic Soda. Website: dow.com/productsafety/finder/caustic.htm. December 12.

[49] Hydrofluosilicic acid is used in water fluoridation. Poly Processing Company, 2005. Technical Bulletin, Hydrofluosilicic Acid. Website: polyprocessing.com/pdf/literature/PositionStatements/Hydrofluosilicic_Acid.pdf. August. Hydrofluosilicic acid is corrosive to the eyes, skin, gastrointestinal system, and respiratory system. Industrial Resources Group, Inc., 2000. Hydrofluosilicic Acid Safety Procedures. Website: www.indresgroup.com/safety-hydacid.htm.

[50] Schiada, Dan, 2006. Director of Public Works. Memorandum to Charlie Knox, Community Development Director. November 17.

[51] 29 CFR Part 1910.119.

case release scenario for off-site receptors has been prepared, as a required RMP plan element.[52] Compliance audits and incident investigation are undertaken following emergencies, as described for the Valero refinery above. No accidental releases have reportedly taken place at the Benicia Water Treatment Plant (during the five years prior to preparation of the latest plan available for review) that have caused any known off-site death, injury, property damage, environmental damage, or evacuations.

Written emergency response procedures to address accidental releases have been prepared, and were updated in December 2004. These procedures include all aspects of emergency response including evacuation, notification of local emergency response agencies and the public, and post incident procedures.[53] Preparation and implementation of the RMP, PSC, and emergency response procedures, in combination with plant containment systems, would minimize any potential releases of hazardous materials to the air from this upwind source or to any surface water that could migrate to the project site.

(4) Tourtelot Property. The Tourtelot property at the former Benicia Arsenal Site is located west of the project site. This location was within the former Revetment Area at the Arsenal (see other discussions of the Revetment Area, above, for the project site). This property was used by the U.S. Army for test firing howitzer (cannons) to test the barrel, disposal of 2,4,6-trinitrotoluene (TNT) and dynamite, open burning of flares and primers, open detonation of excess ordnance, Nike Missile test cell, and potential testing of chemical warfare materials. On June 1, 1999, DTSC issued an Imminent and/or Substantial Endangerment Determination and Remedial Action Order requiring remediation of the property, for ordnance and explosives (OE), TNT, and lead.

DTSC has since overseen remedial activities conducted at the site and has determined that all appropriate response actions have been completed. Engineering practices have been implemented at the site and no further removal/remediation is required under DTSC oversight. The cleanup allows for unrestricted uses for residential purposes, a park site, and an open space access path. Institutional controls have been required for restricted open space and some additional specified locations at this property. The institutional controls are set forth in an Operations and Maintenance Plan, Maintenance Agreement, a Covenant to Restrict Property, and a Contingency Action Plan.[54] With completion of these cleanup activities, the Tourtelot property does not present a health and safety hazard to development of the proposed project site.

d. Wildland Fires. The project site is designated a Brush/Grasslands/Wildlands Fire Hazard Area[55] and has also been identified as having a moderate to high fire threat by California Department of Forestry and Fire Protection.[56] The City of Benicia Fire Department administers a vegetation con-

[52] This component of the RMP was deleted from public review in accordance with 2004 regulatory updates to address homeland security. Benicia Water Treatment Plant, 2005, *Risk Management Plan Executive Summary*, Benicia Water Treatment Plant, Benicia, California, RMP Facility ID 100000112497, submission date 30 September 2004 (with updated information. April 2005) Website: www.rtknet.org/rmp

[53] Benicia Water Treatment Plant, 2005. op. cit

[54] DTSC, 2006. EnvirStor Database. www.envirostor.dtsc.ca.gov. September 26.

[55] City of Benicia, 1999, op. cit.

[56] California Department of Forestry and Fire Protection, 2006. www.abag.ca.gov/bayarea/eqmaps/wildfire/. September 22.

trol program to reduce open space fire hazards in accordance with the requirements of the General Plan; the program includes annual inspections of open space areas.[57] Commercial and residential property owners who do not meet setback requirements (30 feet) from wildland vegetation are notified to remove adjacent vegetation. In addition, 30- to 40-foot fire breaks are disked annually on open space slopes in Benicia.[58] Evidence of disking was observed at the project site, just south of Lake Herman Road, at the time of the June 1999 and 2005 site reconnaissance; the disking was likely undertaken for vegetation/fire control.

Fire protection is also afforded by construction in accordance with the Uniform Fire Code (enforced by the Benicia Fire Department). The Fire and Life Safety Division of the Benicia Fire Department conducts built-in fire protection system plan reviews and inspections, fire and life safety inspections, plan review and construction inspections, and fire inspections required by the State.[59]

e. Emergency Response and Evacuation Plans. The Benicia Fire Department is also responsible for maintaining the City's Emergency Operations Plan (EOP), in accordance with the General Plan.[60] The EOP is a multi-hazard plan that identifies procedures for various types of emergencies. It is intended to ensure that City government can continue to function in the event of a disaster.

In an emergency, major arterials would serve as principal routes for evacuating people from the disaster. These arterials would also serve as routes for moving emergency equipment and supplies. Major identified arterials that could serve the project site include Lake Herman Road to the north and East 2nd Street to the east and south of the site.[61] The extension of Industrial Way, proposed as part of the project, was identified in the General Plan as a future new arterial. This arterial on the west side of the project site could also be used as a principal evacuation route and route for moving emergency equipment and supplies in the event of an emergency.

The City of Benicia has also implemented the Community Alert and Notification System (CANS), a network of safety sirens and media links to warn and inform the community of potential hazards to public health and safety.[62] The project site is within the area that is covered by the sirens in the CANS.[63] Upon activation of CANS, citizens would tune into the appropriate television or radio station to obtain further information in the event of the emergency. New businesses that would be located within the project site would receive information with their business license on what to do during the activation of CANS.[64]

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[57] City of Benicia, 1999, op. cit.

[58] Carlson, Phil, Assistant Fire Marshall, Benicia Fire Department, 1999. Personal communication with Baseline Environmental Consulting. June 15.

[59] City of Benicia Fire Department, 2006. www.ci.benicia.ca.us/fire-safety.php. September 27.

[60] City of Benicia, 1999. op. cit. Chapter 4, Community Health and Safety, p. 158.

[61] City of Benicia, 1999. op. cit. Figure 2-5 Circulation Diagram, Chapter 2, p. 56.

[62] California Asthma Partners, 2006. www.asthmapartners.org/resources/show_resource/798/. September 26.

[63] Fiori, Pete, Emergency Response Coordinator, City of Benicia, 1999. Personal communication with Baseline Environmental Consulting. August.

[64] Fiori, 1999. op. cit.

f. City of Benicia General Plan. Applicable goals, policies, and programs related to hazardous materials management, groundwater and surface water contamination, fire hazards, emergency response and other safety hazards, from the City of Benicia General Plan are presented below.

Responses to Hazards

- *Community Hazards Goal 4.7:* Ensure that existing and future neighborhoods are safe from risks to public health that could result from exposure to hazardous materials.
  - *Community Hazards Policy 4.7.1:* Actively recruit industries and businesses that sustain environmental quality and have sound, responsible environmental practices and policies, such as best available control technology (BACT), source reduction, reduced use of hazardous materials in production, and reduced waste.
  - *Community Hazards Policy 4.7.2:* Establish a "Community Right-to-know" program to promote general public understanding of Benicia's toxic problems as they affect current and future generations.
  - *Community Hazards Policy 4.7.3:* Protect existing and future development from contaminated sites, hazardous landfill waste and debris, chemical spills, and other hazards including unexploded ordnance and explosive waste.
  - *Community Hazards Policy 4.7.4:* Promote enforcement of regulatory requirements over the entire term of monitoring of identified hazardous sites within the City limits, especially sites located in residential neighborhoods and near school playing fields and parks.
  - *Community Hazards Policy 4.7.5:* Require that all sites known or suspected to have unexploded ordnance and/or a toxic history be tested and remediate before any development can occur.
  - *Community Hazards Policy 4.7.7:* Where environmental testing has been required by State regulatory agencies but is not yet completed, withhold City approvals for site grading and other construction activities until a site evaluation is available that provides a reasonable basis for determining that it is safe to commence such activities.
- *Community Hazards Goal 4.14:* Prevent ground and surface water contamination.
  - *Community Hazards Policy 4.14.1:* Implement non-point source pollution strategies.
    - *Community Hazards Program 4.14.C:* Provide information to the public on provisions of the City's Stormwater Pollution Prevention Plan (SWPPP) program and preparation of SWPPPs for all construction projects of five acres or more. Implement Best Management Practices (BMPs) for stormwater runoff and erosion controls for all development.
- *Community Hazards Goal 4.15:* Reduce fire hazards.
  - *Community Hazards Policy 4.15.1:* Promote the creation and maintenance of natural and artificially constructed firebreaks between development and open space areas through the use of fire resistive landscaping, weed abatement, disking, and other methods.
    - *Community Hazards Program 4.15.A:* Develop a Fire Hazards Response Plan for the urban wild land interface area.
    - *Community Hazards Program 4.15.C:* Continue and expand routine fire inspections for businesses for compliance with the Uniform Fire Code and California Fire Code.
    - *Community Hazards Program 4.15.D:* Continue the yearly weed abatement program.
  - *Community Hazards Policy 4.15.2:* Promote the use of fire-resistant landscaping in public and private developments.
- *Community Hazards Goal 4.16:* Require hazardous materials and hazardous waste management handling and disposal procedures that are protective of human health and the environment.
  - *Community Hazards Policy 4.16.1:* Support the Solano County Hazardous Waste Management Plan and its goals, policies, and implementation guidelines for hazardous waste reduction, hazardous waste facility siting, hazardous waste handling and disposal, public education and involvement, and program coordination with regulatory requirements.

        - *Community Hazards Program 4.16A:* As part of the permitting process, ensure that the County reviews the design and operating plans for handling and disposal of hazardous wastes for existing and proposed new businesses.
        - *Community Hazards Program 4.16B:* Contact the Solano County Environmental Management Department annually to confirm that hazardous waste generators in Benicia have been granted permits for handling hazardous substances in compliance with federal and State laws, that they dispose of their wastes in accordance with applicable laws, and that they have filed Hazardous Materials Management Plans and Risk Management and Prevention Plans.
    - *Community Hazards Policy 4.16.3:* Control water runoff that comes from hazardous substance handling or that enters hazardous substance handling areas.
- *Community Hazards Goal 4.17:* Minimize hazardous waste generation.
    - *Community Hazards Policy 4.17.1:* Ensure enforcement of Title 22 California Code of Regulations (CCR) Section 67100 regarding implementation of source reduction plans by hazardous waste generators.
        - *Community Hazards Program 4.17.A:* Contact the Solano County Environmental Management Department each September to confirm that new businesses have filed their source reduction plans, if applicable.
        - *Community Hazards Program 4.17.B:* Situate all new hazardous materials storage and handling area to minimize the possibility of environmental contamination in the event of an accidental spill.
        - *Community Hazards Program 4.17.C:* Enclose areas where hazardous liquids are handled to minimize any rain or moisture coming into contact with hazardous substances.
- *Community Hazards Goal 4.20:* Reduce health and safety hazards associated with hazardous materials users, hazardous waste generators, and hazardous waste disposal sites and toxic air contaminants.
    - *Community Hazards Policy 4.20.1:* Establish buffer zones between sensitive land uses and those land uses which involve the significant use, storage, or disposal or hazardous materials, hazardous waste, or toxic air contaminants.
        - *Community Hazards Program 4.20.E:* Coordinate with the Solano County Environmental Management Department to ensure enforcement of community right-to-know laws (Chapter 6.95 of the Health and Safety Code, Section 25500 et seq.)
        - *Community Hazards Program 4.20.F:* Enforce the Hazardous Waste Property and Border Zone Property Law (Health and Safety Code, Article 11, Section 25520 through 25241).
- *Community Hazards Goal 4.22:* Update and maintain the City's Emergency Response Plan.
    - *Community Hazards Policy 4.22.1:* Provide an early community alert and notification system and safe evacuation plan for emergency incidents.
        - *Community Hazards Program 4.22.B:* Develop a siren system to alert and notify the community in an emergency.
        - *Community Hazards Program 4.22.D:* Consider a City radio station to inform residents in the event of an emergency.
    - *Community Hazards Policy 4.22.2:* Develop at least two exit routes, where feasible, for new developments. One of the exits could be a pedestrian route.
    - *Community Hazards Policy 4.22.3:* Provide the public with information on specified emergency evacuation routes.

2. Impacts and Mitigation Measures

This section analyzes the impacts related to hazards that could result from implementation of the proposed project. The section begins with criteria of significance, which establish the thresholds for determining whether a project impact is significant. The latter part of this section presents the potential hazards impacts associated with the proposed project. Mitigation measures are provided, as appropriate.

a. Criteria of Significance. The proposed project would have a significant impact on public health and safety from hazards and hazardous materials if it would:

- Create a significant hazard to the public or environment through the transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or environment;
- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or
- Result in an increased risk of exposure to wildland or urban fire hazards.

b. Less-than-Significant Hazards and Hazardous Materials Impacts. There are no airports or private airstrips within 2 miles of the project site[65] and the site is not within any airport land use plans. The project would not result in safety hazards related to airports and airfields for people working in project area.

Development within the project site would not emit hazardous air pollutants or result in the use of hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school. There are no schools or proposed schools within ¼-mile of the project site.[66]

Proposed site development activities for commercial and light industrial uses would increase the volumes and types of hazardous materials transported, stored, used, and disposed within the project site and possible risk of upset and accidents involving the release of these materials. However, compliance with the General Plan (specifically Goals 4.7, 4.16, 4.17, 4.20 and associated policies and programs), and applicable local, State, and federal regulations for hazardous materials and hazardous waste (including worker training), described above, would protect against significant hazardous materials impacts from project operations.

The project site is not 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 not create a significant hazard to the public or the environment.
The proposed project would include development in an area that is currently undeveloped. Development of the project site would include the construction of internal streets to provide access to the industrial and commercial areas. The construction of streets would include an extension of Industrial Way from East 2nd Street to Lake Herman Road, which has been identified in the Benicia General

[65] *San Francisco Aeronautical Chart*, 2006. 77th Edition. Approved by the Department of Defense and Federal Aviation Administration. http://skyvector.com. September 22.

[66] Benicia Unified School District, 2006. http://www.benicia.k12.ca.us. Great Schools, 2006. http://www.greatschools.net/city/Benicia/CA. September 22.

Plan as a future major arterial that could be used in the event of an evacuation. Other arterials immediately adjacent to the project site, Lake Herman Road and East 2nd Street, have been identified as evacuation routes.[67] The proposed project would not interfere with an existing emergency response or evacuation plan, given the accomplishment of the following City goals/programs: 1) updating of the existing Emergency Operations Plan by the Benicia Fire Department, as required by the General Plan (Goal 4.22 and associated policies and programs); 2) the City's notification to new businesses of the CANS as part of obtaining a business license;[68] and 3) construction of the Industrial Way extension that could be used for evacuation.

c. Significant Hazards and Hazardous Materials Impacts and Mitigation Measures. Four potentially significant impacts have been identified and are discussed below.

Impact HAZ-1: Transport, storage, or handling of fuels, lubricants, and other chemicals for heavy machinery operation/maintenance during site development activities could result in hazardous materials releases. (S)

Grading activities would be conducted within the project site during the early stages of construction using diesel-powered equipment. It is possible that onsite fueling and maintenance of this equipment would occur. Fueling and vehicle maintenance would involve the use of fuels, degreasing agents and other hazardous materials that would be temporarily stored on-site. Other hazardous materials (e.g., paints, curing agents) would also be brought into the project site during construction activities as part of site development. Transport, storage, or handling of these materials could result in releases to the environment and associated adverse human health effects. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

> Mitigation Measure HAZ-1: The contractor overseeing grading and project site development shall prepare and implement a spill prevention plan for potentially hazardous materials to be used during site development activities. The plan shall be prepared and submitted to the City for review and approval by the Planning and Building Divisions of the Community Development Department and the Engineering Division of the Public Works Department prior to the issuance of a grading permit. The plan shall designate an on-site employee responsible for plan implementation and include types and quantities of hazardous materials, anticipated equipment needs and maintenance, temporary hazardous materials storage areas, emergency response procedures for hazardous materials releases (including the provision for spill kits), and procedures for contacting regulatory agencies in the event of a hazardous materials release. The plan shall specify that all equipment be inspected for leaks immediately prior to construction and regularly inspected thereafter, and shall prohibit equipment cleaning and repair (other than emer-gency repairs) within the project site. The spill prevention plan may be included as part of a Storm Water Pollution Prevention Plan and implementation of Best Management Practices (see Mitigation Measure HYDRO-2). (LTS)

Impact HAZ-2: Site workers involved in demolition activities within the project site could be exposed to lead-based paint and asbestos-containing building materials, or other hazardous materials. (S)

[67] City of Benicia, 1999. op. cit.

[68] Fiori, 1999. op. cit.

The proposed project would result in the demolition of the farm buildings in the site. At least two of the structures are painted, and the paint is in poor condition. The structures were constructed prior to 1978, before the federal government banned the use of lead-based paint in housing. These structures may therefore have been painted with lead-based paint and/or may contain asbestos-containing materials, which could be a health hazard for workers involved in demolition activities.

Workers involved in site development activities could be exposed to potentially hazardous materials that may be present in the drum that was observed near Lake Herman Road during the 1999 site reconnaissance. The drum was observed to be damaged and not stored in an upright position. The contents of the drum are unknown. Additional containers of what are presumably hazardous materials were also identified during a 2005 site reconnaissance.

Exposure to lead and asbestos by demolition workers would primarily be via inhalation due to disturbance of building materials containing asbestos and/or lead during demolition activities. Exposure to hazardous materials, if present in the containers encountered during site development activities, could pose a health hazard to workers. The primary routes of exposure would be by inhalation and/or dermal contact. The type of health effects would be based on the hazardous properties of the material, if present, and the duration of exposure.

Federal and State regulations govern the demolition or renovation of structures where lead or materials containing lead are present. All loose or peeling lead-based paint would require removal prior to demolition. Federal, State, and local regulations also require the removal and proper disposal of asbestos or suspect asbestos-containing materials prior to demolition. All lead-based paint and asbestos removal activities are required to be conducted by trained workers under direction of an appropriate health and safety plan to minimize potential exposure. Following removal and demolition of these structures, there would be no exposure by workers or the surrounding public to hazardous building materials. Federal and State regulations also govern the management, transport, and disposal of hazardous materials (including hazardous wastes). Implementation of the following four-part mitigation measure would reduce lead and asbestos hazards and hazards associated with presumed hazardous materials containers at the project site to a less-than-significant level:

> Mitigation Measure HAZ-2a: The project sponsor shall ensure that a lead-based paint and asbestos survey (including the analysis of suspect materials, as appropriate) is prepared by a qualified environmental professional for all buildings to be demolished. This survey shall be submitted to the City prior to the issuance of any demolition permit. If asbestos-containing materials are determined to be present, the materials shall be abated prior to demolition by a certified asbestos abatement contractor in accordance with the regulations and notification requirements of the Bay Area Air Quality Management District (BAAQMD). If lead-based paint is identified, the paint shall be removed by a qualified lead abatement contractor. Specifications developed for the demolition activities shall include the proper packaging, manifesting, and transport of demolition wastes by trained workers to a permitted facility for disposal, in accordance with local, State, and federal requirements.
>
> Mitigation Measure HAZ-2b: The project sponsor shall ensure that a health and safety plan is prepared and implemented by a qualified environmental professional for all workers involved in building removal or demolition activities. The purpose of the health and safety plan shall be

to mitigate potential exposure of workers to asbestos, lead-based paint, or other hazardous building materials, if present. The plan shall specify training and certification requirements, air monitoring requirements, personal protective equipment for workers, engineering controls and work practices, housekeeping procedures, hygiene facilities, medical surveillance requirements, project monitoring/supervision, required permits, and other items for protection of workers involved in demolition activities, and public health protection as required by local, State, and federal requirements. The health and safety plan shall be included in the demolition specifications prepared as part of Mitigation Measure HAZ-2a.

Mitigation Measure HAZ-2c: Containers of potentially hazardous materials identified during the site reconnaissance visits shall be removed prior to site development activities. Prior to removal, the containers shall be examined by a qualified environmental professional, and if the containers are found to contain material, samples of the material shall be collected by environmental personnel for purpose of profiling the material prior to transport. Analysis of samples shall be conducted by a California-certified laboratory, under chain-of-custody procedures. Once the contents of the containers have been profiled, the container with its contents shall be removed from the site by an environmental professional and transported to an appropriate facility for recycling or disposal, as appropriate, in accordance with local, State, and federal requirements for hazardous waste management. The project sponsor shall ensure that documentation regarding the removal of any containers of hazardous materials from the project site is reviewed by the City of Benicia Planning and Building Department, prior to issuance of a grading permit.

Mitigation Measure HAZ-2d: Other hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes and computer displays, shall be managed and disposed of by the demolition contractor in accordance with the applicable hazardous waste regulations. The demolition specifications (see Mitigation Measure HAZ-2a) shall include provisions for appropriate off-site disposal of these materials in accordance with applicable regulations. (LTS)

Impact HAZ-3: Proposed development within the project site would attract additional people to light industrial/commercial areas located near grassland areas, potentially contributing to an increased fire hazard. (S)

Site development activities would take place in areas that include open grassland. The project site has been designated as a potential fire hazard by the City of Benicia and has a moderate to high fire threat according to the California Department of Forestry and Fire Protection. During site development activities, a fire emergency at this location could expose people and/or structures, both on and off-site, to a significant risk of loss, injury or death.

Following site development activities, irrigated landscaping and paved surfaces would act to reduce potential fire hazards, although wildland grasses would be located north and west of the project site. Owners/operators of structures built at the project site would be required to comply with applicable requirements for maintaining fire breaks (in accordance with the General Plan) and other applicable Uniform Fire Code regulations. The City Fire Department would also continue to manage fuel in open space areas and fire inspections, in accordance with the General Plan, as previously described.

Implementation of the following two-part mitigation measure would reduce risks associated with wildland fires to a less-than-significant level:

> Mitigation Measure HAZ-3a: The contractor shall prepare and implement a fire prevention and preparedness plan during site development activities. The plan shall be prepared prior to the start of earth working activities at the site and shall be reviewed and approved by the City of Benicia Fire Department prior to issuance of a building permit. The plan shall designate an on-site employee responsible for plan implementation and include potential fire hazards, on-site fire prevention measures during construction (e.g., parking of vehicles away from flammable materials, availability of fire extinguishers, preventing idling of vehicles, use of spark arrestors on heavy equipment), emergency response procedures for fires, including evacuation routes and places of safe refuge, and procedures for contacting emergency responders in the event of a fire. Workers involved in site development activities shall receive training in these procedures at the start of site development activities. The fire prevention and preparedness plan may be prepared as part of other required plans.
>
> Mitigation Measure HAZ-3b: The project sponsor shall comply with requirements for maintaining fire breaks, and other fire protection regulations of the Uniform Fire Code. (LTS)

Impact HAZ-4: Workers involved in site grading, earthwork or demolition activities could encounter hazardous materials within the project site, including ordnance, explosives, or other chemicals or safety hazards that could cause physical injuries, death, or other adverse health effects. (S)

The western portion of the project site is located within an area that was leased by the former Benicia Arsenal for the former Revetment Area. Explosives were temporarily stored, tested and destroyed at the Revetment Area.

Sampling within the project site has been conducted for OE. OE is potentially hazardous to humans if disrupted, and may cause physical injuries or death. Investigation of the areas within the project site for 0.50 caliber rounds that may have been stored in railcars that may have burned in a 1946/1947 fire within the former Benicia Arsenal Revetment Area has also been conducted.

Based on the results of this field investigation, no DOD actions for OE were recommended for areas within the central and western portion of the project site. However, it is possible that OE, or other hazardous materials associated with former land uses, could be encountered during site earthwork activities within the project site based on past land uses, potentially causing injury or death to on-site workers involved in these activities.

If potential OE is encountered on any public or private lands, the local emergency responders initially respond, through the 911 emergency system. Alternatively, reporting can be made to the police department non-emergency number or by directly contacting the U.S. Army Corps of Engineers Sacramento Division. A community safety program has been implemented by the U.S. Army Corps of Engineers Sacramento District (Corps) to train emergency responders (police and fire departments) in identifying potential ordnance and appropriate action if ordnance is discovered. Information has also been provided to the public on steps to take if OE is encountered.

In addition to the investigation described above, the Sacramento District of the Corps has investigated hazardous material sites at the former Benicia Arsenal, including areas within the project site. No hazardous materials uses requiring further investigation at the project site were identified by the Corps as part of this work. However, some rail spurs located within the vicinity of the project site require additional sampling and characterization for hazardous materials, and metals were identified as a chemical of concern for the Revetment Area in another study. A project-wide Removal Action Workplan and a Remedial Design and Implementation Plan for the Arsenal are due in 2007 to DTSC. Health effects could be experienced by workers involved in earth-moving activities if exposed to hazardous materials, if present. The type and severity of health effects would be based on the type of material encountered and duration of exposure.

No environmental investigations are known to have been completed for the eastern portion of the project site. A review of historical aerial photographs for this portion of the project site indicates that this area was undeveloped from 1937 to 1970. However, some agricultural uses were identified in the aerial photographs at the approximate location of the Benicia Water Treatment Plant. The eastern portion of the site was historically undeveloped.

In addition to OE and hazardous materials described above, on-site construction workers could also face health and safety risks if underground or aboveground utilities are encountered and disrupted during the course of site development activities. The severity of effects would be based on the extent of the disruption and the type of utility disrupted. Implementation of the following four-part mitigation measure would reduce impacts associated with explosives, contaminated soil, and underground utilities to a less-than-significant level:

> Mitigation Measure HAZ-4a: The project sponsor shall ensure that the entire project site has been fully characterized for the presence of OE and hazardous materials prior to the start of earthwork activities and site development activities (in accordance with General Plan policies 4.7.3 and 4.7.5). The site characterization may be based on previous investigations completed and/or new investigations completed by a qualified environmental professional. Past land uses of the property with potential hazardous materials or OE uses shall be considered in characterizing the site. The site characterization shall occur under the oversight of a regulatory agency (e.g., SCEHS or DTSC), and shall demonstrate that the site will not pose an unacceptable human health or safety risk to construction workers or future site occupants based on the proposed land use (e.g., Cal/EPA California Human Health Screening Levels for hazardous materials for commercial/industrial uses,[69] or risk-based Benicia Screening Levels for soil).[70] Criteria for determining whether the site poses an unacceptable human health or safety risk shall be approved by the regulatory oversight agency. A report documenting characterization of the site shall be prepared by a qualified environmental professional and submitted to the regulatory oversight agency and City prior to acquiring a site grading permit.

[69] Cal/EPA, 2005. California Human Health Screening Levels for Hazardous Materials for Commercial/Industrial Uses. Website: www.calepa.ca.gov/Brownfields/documents/2005/CHHSLsGuide.pdf. January.

[70] Fosgren Associates/Brown and Caldwell, 2002, *Soil Assessment Criteria for the Former Benicia Arsenal, Benicia, California, Final*, FUDS Site Number: J09CA075600, prepared for Department of Defense, U.S. Army Engineer District, Sacramento Corps of Engineers, Contract Number DACW05-97-D-0038, March. Table E-1. Website: www.benicia-arsenal.net/htrw/profile/docs/index.htm (Assessment Criteria).Similar screening levels are not available for OE, and appropriate cleanup actions must be evaluated by the regulatory oversight agency based on available land use controls (including deed restriction), access controls available, extent of nature and extent of contamination, ability for treatment, cost effectiveness of actions, and proposed land use, among other considerations.

Any remediation actions required to achieve the health and safety criteria above shall also be overseen by the selected agency, and shall be completed prior to site development by a qualified environmental professional. Specific remedies would depend on the extent and magnitude of contamination and requirements of the regulatory agency. Requirements of the regulatory oversight agency for site remediation shall also be adhered to, including preparation of a health and safety plan, an assessment of health impacts associated with excavation activities, identification of standards that may be exceeded by any remedial actions (including dust levels), management of wastes removed, and risk of public upset should there be an accident during site remediation activities. Site remediation activities shall be completed and certified by the regulatory oversight agency prior to application for a site grading permit (in accordance with General Plan Policy 4.7.7).

Mitigation Measure HAZ-4b: If any known or suspected ordnance or explosives are encountered during earthwork activities on-site, construction in that area shall be immediately halted and all personnel shall vacate the area. The contractor shall then contact the 911 emergency system to report the emergency and request assistance. Ordnance and explosives discovery procedures shall be documented by the contractor prior to the start of earthwork activities, posted in the work area, and discussed with all on-site personnel prior to work on the site. (These procedures may be developed as part of other required plans, see mitigation measures discussed above).

The local responding agency (e.g., Benicia Police Department or Fire Department) shall contact the Sacramento District of the Army Corps of Engineers and Department of Toxic Substances Control, ~~as needed,~~ to assist in removal of any identified OE, and to determine if further action is needed prior to the time that site development work resumes in the area. Work shall not resume in the affected area until the area it is deemed safe to do so by the local responding agency, and/or the Sacramento District of the Army Corps of Engineers and Department of Toxic Substances Control.

Mitigation Measure HAZ-4c: If contaminated soil is encountered or suspected during site development activities (through soil discoloration or odor), all work shall halt in the immediate area and personnel shall immediately vacate the area and notify Solano County Environmental Health Services (SCEHS). Soil samples shall be collected by a qualified environmental professional (e.g., registered geologist, professional engineer) prior to further work in the area. The samples shall be submitted for laboratory analysis by a State-certified laboratory under chain-of-custody procedures. The analytical methods shall be selected by the environmental professional based on the suspected contamination and consideration of historical land uses of the site and any previous analyses completed for soil samples collected in the areas, if applicable. The analytical results shall be provided to SCEHS and reviewed by a qualified environmental professional. The professional shall provide recommendations, as applicable, regarding soil management, worker health and safety training, and regulatory agency notifications, in accordance with local, State, and Federal requirements. Work shall not resume in this area(s) until these recommendations have been implemented under the oversight of SCEHS.

Mitigation Measure HAZ-4d: The contractor involved in site grading and site development activities shall ensure that underground pipelines (e.g., the water pipelines associated with the

Benicia Water Treatment Plant) or other underground or aboveground utilities within the project site are identified and clearly marked prior to earthworking activities to avoid unexpected contact with these utilities. Emergency procedures that can be implemented in the event utilities are ruptured shall be developed by the contractor; these procedures shall be reviewed and approved by the City Engineering Division of the Public Works Department, prior to implementation. On-site workers shall be trained in how to implement these procedures. (These procedures may be developed as part of other plans required by the mitigation measures discussed above). (LTS)