

1 **4.7 HAZARDOUS MATERIALS**

2 Redevelopment as proposed would result in less than significant and potentially significant
3 impacts related to a variety of issues regarding hazardous materials. With implementation of
4 measures recommended in this document, all potentially significant impacts would be reduced
5 to a level that is less than significant.

6 **4.7.1 Study Area**

7 The study area for hazardous materials is the approximately 1,800-acre redevelopment project
8 area.

9 **4.7.2 Regulatory Setting**

10 This section first discusses the general federal, state and local agency regulatory oversight by
11 category of hazardous materials applicable to the study area as a whole. It then discusses
12 regulatory oversight for remediation at the OARB in particular. As a former military base, the
13 OARB is subject to environmental legal requirements that differ from the non-military areas of
14 the redevelopment project area. Prior to conveyance of a base to a non-federal entity, it is
15 regulated primarily by federal environmental laws, many of which are administered directly by
16 the Department of Defense. Following conveyance of OARB to non-federal entities, this
17 property will fall within the jurisdiction of the generally applicable federal, state and local
18 environmental laws administered by federal, state and local environmental oversight agencies.
19 See discussion in Section 4.7.2.2, below.

20 **4.7.2.1 Regulatory Oversight by Category of Hazardous Materials**

21 As discussed in this EIR, hazardous materials fall into four categories: hazardous materials,
22 hazardous wastes, contaminated soil and groundwater, and regulated building materials and
23 components.

24 **Hazardous materials** include chemicals and products that may be harmful if improperly
25 released to the environment or improperly handled by people. These include a broad spectrum
26 of products, including for example pesticides, petroleum fuel products, paints and other
27 coatings, and common household materials such as cleansers and other cleaning products.

28 **Hazardous wastes** are produced when hazardous materials are used or ready to be discarded,
29 and may also be produced by manufacturing or other processes. These include, for example,
30 used oil products, containers of hazardous materials that are ready to be discarded, and spent
31 solvents or other materials from manufacturing, coating, or other hazardous materials handling
32 activities.

33 **Contaminated soil and groundwater** is caused by land uses that included prior releases of
34 hazardous materials or hazardous wastes into soil or sewer systems. Leaking underground

1 storage tanks (USTs) and sumps are common causes of such contaminated conditions, as are
 2 historic industrial activities that routinely included spills of hazardous materials or waste onto
 3 soils.

4 **Regulated building materials and components** include asbestos, electric transformers
 5 containing polychlorinated biphenyls, underground- and aboveground storage tanks (ASTs),
 6 and lead-based paints (LBP). Because the hazards associated with these building materials
 7 have generally been identified after the buildings were constructed, applicable legal
 8 requirements generally relate to the safe maintenance and removal of these materials.

9 These categories are all regulated under one or more federal, state or local laws. In California,
 10 federal environmental laws generally establish minimum applicable standards; more stringent
 11 state and local standards may apply. For example, California regulates a broader array of
 12 wastes as “hazardous wastes” than those regulated under federal law.

13 Some environmental regulatory requirements apply to all categories of hazardous materials. For
 14 example, the Occupational Health and Safety Administration (OSHA) has regulations that apply
 15 to employees working with hazardous materials and hazardous waste; to workers conducting
 16 cleanup of contaminated soil and groundwater; and to workers exposed to regulated building
 17 materials. Similarly, hazardous materials transportation requirements apply to all four categories
 18 of hazardous materials. In contrast, there are numerous environmental regulatory requirements
 19 that apply to some, but not all, four categories. For example, the regulation of products
 20 containing hazardous materials may emphasize consumer disclosure and proper handling
 21 procedures. The regulation of contamination in soil and groundwater, in contrast, may
 22 emphasize restrictions on the types of future site uses that are appropriate in a given area, or
 23 may require special construction methods, or both. Other hazardous materials laws apply
 24 depending on the nature and quantity of hazardous materials being handled.

25 The following sections discuss the major federal, state and local environmental legal programs
 26 relevant to each category. When a law applies to more than one category, it is not necessarily
 27 discussed in every one. Table 4.7-1 provides a list of these laws and the applicable categories.

**Table 4.7-1
 Hazardous Materials Laws and Regulations**

Law/Regulation	Hazardous Materials	Hazardous Waste	Contaminated Soil and Groundwater	Regulated Building Materials and Components
Federal				
Emergency Planning and Community Right to Know Act (EPCRA) 42 USC § 11001 <i>et seq.</i>	U	U		U
Hazardous Materials Transportation Act (HMTA), 49 USC § 1800 <i>et seq.</i>	U	U	U	U

**Table 4.7-1
Hazardous Materials Laws and Regulations**

Law/Regulation	Hazardous Materials	Hazardous Waste	Contaminated Soil and Groundwater	Regulated Building Materials and Components
Toxic Substances Control Act (TSCA), 15 USC § 2601 <i>et seq.</i>	U	U		U
Clean Air Act (CAA), 42 USC § 7401 <i>et seq.</i>	U	U		U
Resource Conservation Recovery Act (RCRA), 42 USC § 6901 <i>et seq.</i>		U	U	U
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC § 9601 <i>et seq.</i>	U	U	U	U
Defense Environmental Restoration Program (DERP), 10 USC § 2701 <i>et seq.</i>	U	U	U	
Asbestos Hazard Emergency Response Act (AHERA), 15 USC § 2641 <i>et seq.</i>	U			U
Occupation Safety and Health Act (OSH Act), 29 USC § 651 <i>et seq.</i>	U	U	U	U
Clean Water Act, 33 USC § 1251 <i>et seq.</i>	U	U	U	U
Residential Lead-Based Paint Hazard Reduction Act, 15 USC 2681 <i>et seq.</i>	U			U
Oil Pollution Act, 33 USC 2701 <i>et seq.</i>	U	U	U	U
State				
Hazardous Materials Release Response Plans and Inventory Act, Cal. Health & Safety Code § 25500 <i>et seq.</i>	U	U		U
Emergency Services Act, Cal. Government Code § 8550 <i>et seq.</i>	U	U		
Safe Drinking Water and Toxic Enforcement Act (Proposition 65), Cal. Health & Safety Code § 25249.5 <i>et seq.</i>	U			
Hazardous Waste Control Act, Cal. Health & Safety Code § 25100 <i>et seq.</i>		U	U	U
Hazardous Substances Account Act, Cal. Health & Safety Code § 25300 <i>et seq.</i>	U	U	U	U
Porter-Cologne Water Quality Control Act, California Water Code § 13000 <i>et seq.</i>	U	U	U	U

**Table 4.7-1
Hazardous Materials Laws and Regulations**

Law/Regulation	Hazardous Materials	Hazardous Waste	Contaminated Soil and Groundwater	Regulated Building Materials and Components
Asbestos Notification Act, Cal. Health & Safety Code § 25915(a)	U			U
Lead poisoning protection, California Health & Safety Code §§ 105250, 124160, 124165				U
PCB use, Cal. Health & Safety Code § 25122.7				U
Underground storage of hazardous substances and wastes, Cal. §§ 25280-25299.7; 25123.3; 25205.1-25205.4; 25205.6; and 25205.16.				U
Aboveground Petroleum Storage Act, Cal. Health & Safety Code § 25270 <i>et seq.</i>	U	U		U
Cal. Health & Safety Code Section 39000 <i>et seq.</i> , Bay Area Air Quality Management District regulations				U
California Occupational Safety and Health Act (Cal/OSH Act), Cal. Labor Code § 6300 <i>et seq.</i>	U	U	U	U
Local				
Oakland Municipal Code § 15.12, Cal. Fire Code	U	U	U	U
Oakland Municipal Code § 15.04, Cal. Building Code	U			U
Certified Unified Agency Programs (CUPA)	U	U	U	U

1 **Hazardous Materials**

2 **Federal**

3 The Emergency Planning and Community Right to Know Act (EPCRA, 42 USC § 11001 *et seq.*)
 4 requires facilities that store, use, or produce certain amounts of hazardous chemicals to provide
 5 state and local authorities with material safety data sheets, or alternatively, a list of chemicals.
 6 EPCRA also requires reporting of permitted and accidental releases of hazardous substances,
 7 and requires certain facilities to complete and submit to EPA a Toxic Chemical Release
 8 Inventory form annually.

9 The Hazardous Materials Transportation Act (HMTA, 49 USC § 1800 *et seq.*) governs
 10 transportation of hazardous materials. HMTA regulates any person who transports a hazardous
 11 material, or anyone who manufactures, fabricates, marks, maintains, reconditions, repairs, or

1 tests a package or container which is represented, marked, certified, or sold by such person for
2 use in the transportation in commerce of certain hazardous materials.

3 The Toxic Substances Control Act (TSCA, 15 USC § 2601 *et seq.*) controls use and disposal of
4 polychlorinated biphenyls (PCBs), asbestos, and LBP, and is discussed below in “Regulatory
5 Setting, Regulated Building Materials and Components.”

6 The Clean Air Act (42 USC § 7401 *et seq.*) Section 112(r) requires facilities that use listed
7 substances in any single process above the threshold quantity to maintain a Risk Management
8 Program and submit a risk management plan (RMP). The list of substances and associated
9 thresholds are published at 40 Code of Federal Regulations Section 68.

10 **State**

11 The Hazardous Materials Release Response Plans and Inventory Act, also known as the
12 Business Plan Act (California Health & Safety Code § 25500 *et seq.*), requires businesses using
13 hazardous materials to prepare a plan that describes their facilities, chemical inventories,
14 emergency response plans, and training programs.

15 The Emergency Services Act (California Government Code § 8550 *et seq.*) requires the state to
16 develop an emergency response plan to coordinate emergency services provided by federal,
17 state, and local agencies. This plan is administered by the California Office of Emergency
18 Services.

19 The Safe Drinking Water and Toxic Enforcement Act (Proposition 65, California Health & Safety
20 Code § 25249.5 *et seq.*) requires that any person with ten or more employees operating within
21 the State or selling products in California (1) be prohibited from knowingly discharging listed
22 chemicals into sources of drinking water; and (2) be required to provide a "clear and
23 reasonable" warning before knowingly and intentionally exposing anyone to a listed chemical.
24 This warning can be given by a variety of means, such as by labeling a consumer product, by
25 posting signs at the workplace, or by publishing notices in a newspaper.

26 **Local**

27 Section 15.12 of the Oakland Municipal Code (OMC) adopts the California Fire Code (24 CCR
28 Part 9). The Fire Code regulates storage and use of hazardous materials at commercial and
29 industrial facilities.

30 Section 15.04 of the OMC adopts the California Building Code (24 CCR Part 1). The Building
31 Code regulates how protective measures within a structure will be built and implemented.

32 Certified Unified Program Agencies (CUPAs) are responsible for Local regulation and
33 enforcement of hazardous materials laws and regulations. The City of Oakland is the CUPA for
34 the entire study area. The City’s CUPA has been certified by California Environmental

1 Protection Agency (Cal/EPA) to implement six state environmental programs within the local
2 agency's jurisdiction: the hazardous materials business plan/emergency response plans and
3 inventories program; the hazardous waste program, California accidental release prevention
4 program, the underground storage tank program, the aboveground storage tank program, and
5 the uniform hazardous materials management plan program.

6 **Hazardous Waste**

7 **Federal**

8 The Resource Conservation and Recovery Act (RCRA, 42 USC § 6901 *et seq.*) regulates
9 handling and tracking of hazardous waste from generation to disposal. Under RCRA, hazardous
10 waste generators must comply with regulations concerning record keeping and reporting; waste
11 storage; proper treatment and disposal; and the use of a manifest system. In California, the
12 Department of Toxic Substances Control (DTSC) has been authorized by EPA to administer the
13 RCRA program.

14 **State**

15 California's Hazardous Waste Control Act (HWCA, California Health & Safety Code § 25100 *et*
16 *seq.*) is similar to, but is more stringent than, the federal RCRA program. The HWCA provides
17 authority for the DTSC to regulate the transportation and disposal of hazardous wastes, and
18 establishes standards for hazardous waste facilities. The HWCA regulates more materials as
19 hazardous waste than the federal program and also is more stringent with regards to disposal.

20 **Local**

21 The City of Oakland, as CUPA, implements the hazardous waste program at the study area.

22 **Contaminated Soil and Groundwater**

23 **Federal**

24 CERCLA (42 USC § 9601 *et seq.*) requires cleanup of inactive or abandoned sites that are
25 contaminated with hazardous substances. CERCLA hazardous substances are defined as
26 those substances either specifically designated as hazardous under CERCLA, or those
27 substances identified as hazardous under certain other laws. (42 USC § 9601(14).) The
28 procedures required by CERCLA for responding to hazardous substance releases are detailed
29 in the National Contingency Plan ("NCP," at 40 CFR Part 300.) CERCLA also governs the
30 process of identifying and prioritizing the cleanup of sites contaminated by the release of
31 hazardous substances to the environment. Through its CERCLA authority, EPA compiles the
32 National Priorities List (NPL), a list of sites that appear to pose the most serious threats to public
33 health or the environment. The OARB is not on the NPL list.

1 CERCLA specifically applies to federal facilities, and the Community Environmental Response
2 Facilities Act (CERFA) amendments in 1992 include provisions to facilitate reuse and
3 redevelopment of property within closed federal facilities. Generally, under CERCLA, a federal
4 agency must take all necessary remedial actions before it can convey property because the
5 deed must include the Section 120(h)(3) covenant that “all remedial action necessary to protect
6 human health and the environment with respect to any [hazardous] substances remaining on
7 the property have been taken.” Transferring such clean property requires a Finding of Suitability
8 to Transfer (FOST) before it is transferred. However, with the approval of the state governor of a
9 Covenant Deferral Request (for property not on the NPL), the federal agency may undertake
10 “early transfer” and issue a warranty that satisfies the covenant requirement. Such an early
11 transfer process requires a Finding of Suitability for Early Transfer (FOSET). Finally, CERCLA
12 also provides that state laws concerning removal and remedial action shall apply to those
13 actions at federal facilities (42 USC § 9620(a)(4).). In California, DTSC works with the federal
14 agency to implement CERCLA for Department of Defense facilities. See discussion regarding
15 the HSAA, below, and in Section 4.7.2.2, below.

16 CERCLA was recently amended to provide \$200 million a year in grants to eligible entities for
17 inventorying, characterizing, assessing, remediating, and conducting planning related to
18 brownfield sites (Senate Bill 350 2001). The amendment defines “brownfield site” as certain real
19 property for which the expansion, redevelopment, or reuse is complicated by the presence or
20 potential presence of a hazardous substance or pollutant.

21 The Defense Environmental Restoration Program (DERP, 10 USC § 2701) requires that the
22 Secretary of Defense carry out environmental restoration at facilities under its jurisdiction. DERP
23 requires the Secretary to carry out all response actions consistent with CERCLA with respect to
24 release of hazardous substances from facilities owned by the United States, or that were owned
25 by the United States at the time hazardous substances contaminated the site.

26 RCRA dictates the cleanup and closure of hazardous waste sites through its Corrective Action
27 Program. Contaminated soils may be classified as hazardous waste once excavated or
28 otherwise handled during the cleanup process. RCRA’s land disposal restrictions prohibit the
29 placement of hazardous waste in or on the land without appropriate treatment. RCRA also
30 includes hazardous waste underground storage tank standards, including tank closure and
31 removal (42 USC § 6924).

32 **State**

33 The California Hazardous Substances Account Act (HSAA, California Health & Safety Code
34 § 25300 *et seq.*) is similar to CERCLA. The HSAA authorizes the Cal/EPA Department of Toxic
35 Substances Control (DTSC) to order and/or oversee the clean up contaminated sites and
36 hazardous substances releases. The DTSC has oversight of the remediation required at the
37 OARB and makes a recommendation to the Governor regarding the federal government’s early
38 transfer (FOSET transfer) process. DTSC must review and approve remediation proposed for

1 the OARB pursuant to the requirements of the HSAA, including as referenced requirements that
2 are also imposed under CERCLA. In particular, DTSC must review and approve a Remedial
3 Action Plan/Risk Management Plan (RAP/RMP), which defines the remediation goals,
4 establishes remediation actions and describes health protective measures. The remedy
5 selection process is guided by the NCP under CERCLA. See discussion regarding CERCLA,
6 above, and in Section 4.7.2.2, below.

7 The Porter-Cologne Act (California Water Code § 13163) authorizes the State Water Resources
8 Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) to
9 coordinate water-quality related investigations of state agencies. The SWRCB and the
10 RWQCBs also have jurisdiction to engage in site cleanups (California Health & Safety Code
11 § 25355). The redevelopment project area is within the jurisdiction of RWQCB Region 2.

12 California Government Code Section 65962.5 requires the Office of Permit Assistance to
13 compile a list of potentially contaminated sites throughout the state. The project area
14 encompasses sites included on the list (the Cortese List).

15 **Local**

16 **Regulated Building Materials and Components**

17 The City of Oakland Urban Land Redevelopment (ULR) Program Guidance Document (City of
18 Oakland 2000) includes a three-tiered risk-based corrective action process. Tiers 1 and 2
19 consist of numerical cleanup levels in “look-up” tables that are applicable to properties that
20 involve particular land uses, types of chemical releases, and geologic and hydrogeologic
21 conditions. Tier 3 of the ULR program outlines a methodology for calculating site-specific
22 remediation goals that incorporate human health exposure parameters that are specific to
23 Oakland. The ULR program also provides for a computerized system to track and enforce land
24 use restrictions. The Community and Economic Development Agency (CEDA) is responsible for
25 implementation of the ULR Program. See discussion under Section 4.7.2.2, below.

26 **Federal**

27 **Asbestos**

28 The Occupational Safety and Health Act (OSH Act, 29 USC § 651 *et seq.*) authorizes the
29 Secretary of Labor to issue occupational health and safety standards that apply to every
30 employer in the private sector. The administering agency, the OSHA, creates rules for
31 workplace safety and health, and enforces the standards. OSHA has promulgated health
32 standards and control requirements for asbestos (29 CFR § 1910.1001).

33 Title II of TSCA, the Asbestos Hazard Emergency Response Act (AHERA, 15 USC § 2641 *et*
34 *seq.*), requires EPA to set standards for responding to the presence of asbestos in schools.
35 AHERA also requires asbestos contractors and analytical laboratories to be certified, and

1 schools to use certified persons for abatement work. Training and accreditation requirements
2 also apply to inspectors, contractors, and workers performing asbestos abatement work in all
3 public and commercial buildings.

4 The Clean Air Act (42 USC § 7401 *et seq.*) regulates asbestos as a hazardous air pollutant.
5 Under authority of the Clean Air Act, EPA regulates the demolition and renovation of asbestos-
6 containing buildings and disposal of asbestos-containing waste. (40 CFR § 61.140.)

7 ***PCBs***

8 TSCA (15 USC § 2605 *et seq.*) regulates PCBs. Transformers containing oil with 500 or greater
9 parts per million (ppm) PCBs are defined as PCB transformers. Transformers containing
10 between 50 and 500 ppm PCBs are classified as PCB contaminated (40 CFR § 761.2). Storage
11 and disposal of PCBs must be in accordance with disposal requirements published at 40 CFR
12 Section 761.60. PCB spills must be dealt with in accordance with EPA regulations, found at 40
13 CFR Section 761.120 *et seq.* EPA requires all owners of PCB transformers to register the
14 transformers with EPA's Office of Pollution Prevention and Toxics.

15 ***Lead-Based Paint***

16 Title IV of TSCA, the Residential Lead-Based Paint Hazard Reduction Act of 1992 (15 USC
17 § 2681 *et seq.*), requires identification of LBP hazards, defining levels of lead allowed in various
18 products, and establishing state programs for the monitoring and abatement of lead exposure
19 levels, including training and certification for lead abatement workers.

20 RCRA regulates the management and disposal of hazardous waste, including LBP debris (42
21 USC § 6901). RCRA requires that generators of LBP debris test the debris for toxicity
22 characteristics. LBP debris is any component, fixture, or portion of a residence or other building
23 coated wholly or partly with LBP. EPA has promulgated guidelines for the renovation and
24 remodeling of buildings or other structures when these activities might create a hazard.
25 Guidelines are found at 40 CFR Section 745.227.

26 OSHA regulations require that workers not be exposed to lead in concentrations greater than
27 the permissible exposure limit, listed at 29 CFR Section 1910.1025.

28 ***Underground Storage Tanks***

29 RCRA Subtitle I (42 USC § 6991) regulates USTs containing petroleum products and those
30 hazardous substances included in CERCLA. The statute and associated regulations require
31 owners and operators to comply with technical design and construction requirements, corrective
32 action requirements, and financial responsibility requirements.

33 RCRA Sections 6903(33), 6922, and 6924 also regulate USTs containing hazardous waste.
34 Owners and operators must comply with the federal tank design, construction, secondary
35 containment, operating, inspection, closure, and post-closure requirements.

1 **Aboveground Storage Tanks**

2 Federal laws that regulate ASTs include the Clean Water Act (33 USC § 1251 *et seq.*), the Oil
3 Pollution Act (33 USC § 2701 *et seq.*), the Clean Air Act (42 USC § 7401 *et seq.*), and RCRA.

4 **State**

5 **Asbestos**

6 In California, the Asbestos Notification Act (California Health & Safety Code § 25915(a))
7 requires any building owner who knows that asbestos-containing materials are present in the
8 building to provide written notices to the owner's employees and to other owners. California
9 laws generally follow the federal requirements for asbestos removal and asbestos air
10 monitoring. Hazardous substance removal criteria for asbestos are found at Health & Safety
11 Code Sections 25914.1 through 25914.3.

12 The California Occupational Safety and Health Act (Cal/OSH Act, California Labor Code § 6300
13 *et seq.*) governs occupational safety and health in both the public and private sectors
14 workplaces. The California plan is federally approved, and generally adopts the standards of the
15 federal OSH Act. The Cal/OSH Act includes some additional standards, which are generally
16 more stringent than the federal requirements, and governs occupational safety and health in the
17 workplace. The California Department of Industrial Relations Division of Occupational Safety
18 and Health (Cal/OSHA) has promulgated asbestos standards, found in Title 8 of the California
19 Code of Regulations (CCR): Section 1529 discusses asbestos exposure in construction work;
20 Section 5208 applies to occupational exposure in all industries; and Section 341.6 *et seq.*
21 discusses the requirement that an employer engaging in asbestos work must apply for and
22 obtain a registration prior to commencement of the work.

23 **PCBs**

24 In California, the Hazardous Waste Control Act (California Health & Safety Code § 25122.7)
25 regulates disposal of PCBs. In California, PCBs are regulated by both federal and state rules.
26 EPA enforces the federal regulations for PCB disposal and storage in California, and Cal/EPA
27 administers and enforces the state's additional requirements for PCBs as hazardous waste
28 under the state's hazardous waste regulations. Liquid hazardous wastes containing PCBs at
29 concentrations equal or greater than 50 milligrams per liter are subject to the state's land
30 disposal restrictions.

31 **Lead-Based Paint**

32 The California Health & Safety Code authorizes promulgation of regulations to protect against
33 lead poisoning in residential buildings (California Health & Safety Code §§ 105250, 124160,
34 124165). California regulations require that lead hazard evaluations of residential buildings be
35 conducted by a certified lead inspector/assessor (17 CCR § 36000). Similarly, abatement for

1 residential buildings must be conducted by a certified lead supervisor or a certified lead worker
2 (17 CCR § 36100).

3 Under the Cal/OSH Act governing occupational health and safety in the workplace, Cal/OSHA
4 has promulgated standards for lead in construction (8 CCR § 1532.1).

5 ***Underground Storage Tanks***

6 Underground storage of hazardous substances is regulated by California Health & Safety Code
7 Sections 25280 to 25299.7. The chapter establishes standards for the construction of USTs
8 containing hazardous substances and establishes a program for inspection, testing, and
9 upgrading existing USTs. California's underground storage tank rules cover petroleum and
10 hazardous substance underground tanks, including heating oil tanks and farm tanks with
11 capacities over 1,100 gallons.

12 Underground storage of hazardous waste in California includes the federal rules, and several
13 more stringent state standards (California Health & Safety Code § 25123.3; 25205.1 to 25205.4;
14 25205.6; and 25205.16).

15 ***Aboveground Storage Tanks***

16 The Aboveground Petroleum Storage Act (California Health & Safety Code § 25270 to
17 25270.13) regulates aboveground tanks used to store crude oil and petroleum products in liquid
18 form.

19 ***Local***

20 ***Asbestos***

21 The California Health & Safety Code Section 39000 *et seq.* authorizes the Bay Area Air Quality
22 Management District (BAAQMD) to promulgate regulations for control of air pollution of all
23 sources, other than emissions from motor vehicles. BAAQMD has promulgated requirements for
24 renovation and demolition of buildings with asbestos-containing materials. Regulation 11-2-
25 303.8 requires that a survey be performed prior to demolition to determine the presence of
26 regulated asbestos containing material. BAAQMD Regulation 11, Rule 2 requires notifying
27 BAAQMD at least 10 working days prior to commencement of any demolition or renovation
28 involving removal of 100 square feet per linear foot or greater of regulated asbestos containing
29 material.

30 ***Underground and Aboveground Storage Tanks***

31 The City of Oakland CUPA administers California's USTs and ASTs laws.

4.7.2.2 Regulatory Oversight for Remediation of the OARB

The ORA, as successor-in-interest to the OBRA, will assume responsibility from the Army for addressing most environmental matters that remain at the OARB after transfer, including implementing remediation required under CERCLA, the HSAA, and other applicable laws and regulations. It is anticipated that the Army will retain responsibility for radiologic compounds, unexploded ordnance, and chemical and biologic warfare agents, although the presence of these materials is not expected at the OARB.¹ The Army and the OBRA are presently in discussions regarding responsibility for completing the investigation and remediation of submerged lands and lands not being transferred to the OBRA, and it is anticipated the Army will retain responsibility for the environmental condition of these areas; in the alternative, these areas will be addressed as part of the DTSC oversight and review process which is applicable to the remainder of the OARB property being transferred to the OBRA. Under the Defense Base Closure and Realignment Act, the Army also still retains ultimate liability under CERCLA for hazardous substance releases to the extent that unknown or significant liabilities attributed to the Army are identified in the future at the OARB.

The DTSC is the primary state agency overseeing investigation and cleanup of the OARB. Representatives of the OBRA and the ORA have held many discussions, meetings, and negotiations with the DTSC and the Army regarding the remediation process to be followed after transfer of the OARB is completed. These efforts have culminated in a proposed RAP/RMP proposed by the OBRA that recognizes the planned future commercial/industrial uses of the OARB, and provides for risk-based remediation of soil and groundwater for the portion of the base that will be transferred to the OBRA, the ORA, and ultimately to the Port and other Developers. The RAP/RMP must be reviewed and approved by the DTSC, with a public participation process, under the HSAA. Implementation of the RAP/RMP will be required by a Consent Agreement between the DTSC, the OBRA, and the ORA.

The Consent Agreement prescribes a binding legal process by which all required remedial actions will be completed under the oversight of the DTSC. In order to achieve transfer before all remediation is complete and to satisfy the Army's Covenant responsibility under CERCLA, this Consent Agreement and RAP/RMP along with the associated federal documents must then go to the Governor with a request to approve the Army's CERCLA Covenant Deferral Request. The Governor's approval is required for the transfer (FOSET transfer) of the OARB.

The Army must also review and approve the FOSET transfer in conformance with its own CERCLA compliance obligations. It is anticipated the Army will fund, in full or in part, remediation required under CERCLA at the OARB, and that remediation funding will be provided on a reimbursement basis pursuant to an Environmental Services Cooperative Agreement entered into by the Army, the OBRA and the ORA. It is also anticipated that "cost cap" and environmental liability insurance will be obtained to protect the OBRA and other City

¹ Additionally, the Army may retain liability for remedial activities at the East Bay Regional Park District (EBRPD) Gateway Park and for any contaminated marine sediments located near the storm drain outfalls at the OARB.

1 entities, as well as the Army, from the risks of environmental cleanup cost exceedences and
2 other covered claims.

3 **Remedial Action Plan/Risk Management Plan Process**

4 The RAP/RMP is the heart of the early transfer procedure of the OARB. The understanding of
5 environmental conditions, establishment of remediation goals, and selection of remedial actions
6 are accomplished in the RAP. The RMP is a companion document to the RAP. The RMP
7 describes the health protective measures to be implemented in the future, during and after
8 redevelopment, for identified chemical release sites, land uses and potential exposure
9 pathways. The use of a RMP is typically included in Brownfields projects where
10 commercial/industrial uses are planned — like those for the OARB. The RMP includes
11 obligations on property owners and tenants to always perform the measures prescribed in the
12 document to mitigate potential exposures to residual contamination in soil or groundwater. The
13 property owner must also update information and modify the measures in the RMP based on
14 whether changes in conditions are encountered, or if changes in property use, statutes, or
15 available chemical toxicity information occur. For the OARB, there are both RAP Sites and RMP
16 Implementation Area categories.

17 The RAP/RMP defines the target risk-based remediation goals for use during and after
18 redevelopment of the OARB and establishes the remedial actions for identified and reasonably
19 anticipated locations where releases have occurred that necessitate response when compared
20 with the agency-approved remediation goals. The RAP/RMP approach adopted by the OBRA,
21 consistent with the City of Oakland ULR program and other applicable requirements, allows for
22 the phasing of the investigation and remediation of most locations at the OARB to coincide with
23 implementation of planned infrastructure upgrades and redevelopment activities. This integrated
24 remediation/redevelopment program assures that affected subsurface conditions are fully
25 addressed in conjunction with planned redevelopment uses and allows for substantial
26 economies of scale in completing subsurface earthwork activities for remediation purposes in
27 tandem with site excavation and grading work needed for redevelopment. It is anticipated that
28 residual concentrations of hazardous substances and petroleum constituents that remain after
29 remediation and redevelopment activities are completed are fully protective of human health
30 and the environment.

31 DTSC and other state and local agencies have approved many redevelopment projects in the
32 San Francisco Bay Area for commercial/industrial properties that contain residual
33 concentrations of hazardous substances and petroleum constituents, such as those found on
34 the OARB. These types of redevelopment projects are often referred to as “Brownfields” and are
35 facilitated by the City of Oakland’s ULR program and its associated guidance document.

36 Brownfields redevelopment projects incorporate a range of techniques (e.g., institutional
37 controls such as restrictions on groundwater usage and restrictions on residential
38 redevelopment, removal actions requiring the excavation and removal of impacted soils or

1 groundwater, and engineering controls such as maintenance of caps or cover materials over
2 deeper impacted soils or building design features such as vapor barriers) that comprise the
3 remedial actions to be implemented at particular locations or applied to the property as a whole.
4 The remedial actions can consist of tasks that are conducted in the near term to abate known,
5 significant impacts to soil and groundwater, or the remedial actions can include health-protective
6 measures to be implemented over time, including institutional controls, like restrictions on land
7 or groundwater uses. Such remedial actions are implemented to achieve agency pre-approved,
8 site-specific remediation goals that are supported by human health risk analysis and, if
9 appropriate, ecological risk analysis.

10 The remedy selection process is guided by the National Contingency Plan (40 CFR § 300 *et*
11 *seq.*) (NCP), which explains that the goals of remedy selection under CERCLA are to develop
12 and implement remedial actions that protect human health and the environment, maintain
13 protection over time, and minimize untreated waste (40 CFR § 300.430(a)(1)(i)). To help meet
14 these goals, remedies for contaminated are selected that will achieve medium-specific remedial
15 action objectives (RAOs). Because protectiveness may be achieved by preventing exposure
16 (such as capping an area or limiting access) as well as by reducing contaminant levels, RAOs
17 should consider both risk-based remediation goals and potential exposure pathways (U.S. EPA
18 1988). RAOs should reflect the reasonably anticipated future land uses because this leads to
19 practicable and cost-effective remedial alternatives (U.S. EPA 2001b). In addition, U.S. EPA
20 (2001b) has found that integrating realistic assumptions of future land use into remedial actions
21 is an important step toward encouraging cleanup and redevelopment of contaminated
22 properties.

23 **OARB Remedial Action Plan Sites**

24 In the draft RAP/RMP submitted by the OBRA for DTSC and Army consideration, RAP Sites are
25 defined as those locations with known or potential chemical releases that may not be sufficiently
26 characterized or remediated as part of activities performed during or after redevelopment.
27 Examples of RAP Sites include the tarry residue beneath much of Building No. 1 and the
28 adjacent parking lot, as well as VOC-impacted groundwater at Building No. 807, Buildings No.
29 808 and 823, and Building No. 99. See discussion in Section 4.7.4, below. Full integration of
30 remediation and redevelopment activities at these RAP Sites is not generally feasible because
31 of the greater time required to complete required remediation activities. For example, greater
32 amounts of time are potentially needed to implement active remediation measures that are
33 capable of reducing VOCs in groundwater to concentrations that achieve applicable remediation
34 goals. Alternatively, if active measures are not selected as remedies to reduce VOCs
35 concentrations in areas with impacted groundwater, engineering controls can be designed and
36 incorporated into new building construction to mitigate the vapor intrusion exposure pathway
37 that potentially exists at locations near Building No. 807, Buildings Nos. 808 and 823, and
38 Building No. 99.

1 A range of remedial alternatives was evaluated for RAP Sites in the RAP/RMP. Recommended
2 remedies range from excavation and offsite disposal of impacted soils, to active remediation of
3 groundwater conditions, to monitoring or maintenance of existing conditions. The RMP also
4 includes health and safety requirements and other ongoing measures to address post-
5 remediation environmental conditions. Appendix 4.7 provides a comparative summary of
6 remedial alternatives for seven RAP sites.

7 **Risk Management Plan Implementation Area**

8 The RMP Implementation Area consists of the remainder of the OARB, including, for example,
9 numerous locations which involve documented or suspected small releases of petroleum
10 hydrocarbons to soil. Petroleum releases have impacted groundwater to a minor extent at some
11 of these sites. In response, routine groundwater monitoring is being conducted to fulfill closure
12 requirements imposed by RWQCB. Such sites are common at former industrial properties
13 undergoing redevelopment (*i.e.*, Brownfields) in the San Francisco Bay Area. Developers,
14 contractors, and governmental agencies have found that these types of releases can be easily
15 managed during new construction through application of a RMP.

16 A RMP is sometimes referred to as a Contingency Plan, Soil Management Plan, or a
17 Remediation and Risk Management Plan. Irrespective of the name given to the document, the
18 RMP can be considered analogous to an Operation and Maintenance Plan under CERCLA. The
19 Operation and Maintenance Plan is a typical component of remedial actions and includes
20 protocols for conducting inspections, performing routine sampling, maintaining institutional (*e.g.*,
21 covenants, groundwater use restrictions) and engineering controls (*e.g.*, cover integrity, wells),
22 and fulfilling reporting obligations (U.S. EPA 2001c). The objectives and contents of the RMP
23 are similar. The RMP for the OARB will describe the health protective measures to be
24 implemented in the future, during and after redevelopment, for identified chemical release sites,
25 land uses, and potential exposure pathways. Institutional controls will obligate owners and
26 tenants of the OARB to update information in the RMP based on conditions encountered, or
27 changes in land uses, environmental statutes, or chemical toxicity information.

28 The NCP at 40 CFR § 300.430(a)(1)(iii)(B) makes clear that containment or use of covers is an
29 appropriate remedial action for these kinds of releases (*i.e.*, low-level threat sites). Buildings,
30 asphalt roadways, concrete pavement, imported clean soil, and other cover types existing and
31 planned at the OARB adequately protect human health against direct contact with petroleum
32 hydrocarbons and other contaminants of concern identified at RMP locations. This fact, coupled
33 with available use history information and environmental data that indicate the RMP sites
34 identified at the OARB consist primarily of petroleum hydrocarbon releases that have affected a
35 small quantity of soil, makes the RMP sites relatively straightforward to address as they are
36 encountered during or after redevelopment. For example, properly trained workers can be
37 mobilized to excavate identified areas of contaminated soil for subsequent reuse or disposal at
38 an off-site, permitted waste management facility.

1 For these reasons, the OBRA proposes to address RMP locations in a phased manner that is
2 consistent with the schedule for redevelopment of the OARB. In the event that the nature and
3 extent of the releases at RMP locations are found to differ significantly from the conditions
4 described in the RAP, the appropriateness of response measures contained in the RAP will be
5 re-evaluated for such specific RMP locations. The RMP, which is provided as a companion
6 document to the RAP, specifies the situations under which response measures will be re-
7 evaluated in consultation with DTSC.

8 A range of remedial alternatives was evaluated for RMP Implementation Areas in the
9 RAP/RMP. Recommended remedies range from excavation and offsite disposal of impacted
10 soils, to monitoring or maintenance of existing conditions, to no further action. The RMP also
11 includes health and safety requirements and other ongoing measures to address post-
12 remediation environmental conditions. Appendix 4.7 provides a comparative summary of
13 remedial alternatives for RMP Implementation Areas.

14 **Soil Remediation Action Objectives**

15 Proposed soil RAOs for the OARB are as follows:

- 16 • Maintain existing conditions at the OARB to prevent direct contact with known or potentially
17 impacted soil prior to implementation of remedial actions or redevelopment.
- 18 • Remove, or remove and treat, tarry residue at ORP/Building No. 1 area to eliminate hazards
19 associated with this source material and to allow planned land uses consistent with the
20 Amended Reuse Plan.
- 21 • Remove or treat impacted soil that interferes with planned land uses, or is encountered
22 during redevelopment or through post-redevelopment activities, or otherwise to the extent
23 necessary to achieve site-specific, soil remediation goals designated in the RAP.
- 24 • Contain impacted soil that will not unreasonably interfere with planned land uses by
25 maintaining existing cover or constructing new cover.

26 **Groundwater Remediation Action Objectives**

27 Proposed groundwater RAOs for the OARB are as follows:

- 28 • Implement institutional controls, alone or in combination with site-specific engineering
29 controls, to prevent incidental ingestion or dermal contact with impacted groundwater under
30 existing and planned land uses consistent with the Reuse Plan.
- 31 • Treat VOC-impacted groundwater that interferes with planned land uses or as otherwise
32 needed to achieve site-specific, groundwater remediation goals, or apply engineering
33 controls to new structures such that hypothetical exposure posed by vapor intrusion is not
34 greater than remediation goals designated in the RAP or as otherwise necessary to allow
35 planned redevelopment.

- Prevent further significant increases of metals and other non-volatile COC concentrations in groundwater.

Determination of Acceptable Risk-based Soil Cleanup Goals Under the Urban Land Redevelopment Program

With the exception of the RAP Sites, which will be remediated on an accelerated basis independent of redevelopment, remediation at the OARB sub-district is expected to occur as existing structures and paved surfaces are demolished for new construction and contaminated soil is subsequently exposed. Achieving consensus among stakeholders on what degree of contamination constitutes an acceptable risk is a primary factor in determining the concentrations of contaminants that are permissible to leave in cleaned soil at the OARB. Through the ULR program, the City of Oakland has explored the issue of acceptable risk with members of the community, and representatives of federal, state, and local regulatory agencies charged with enforcing environmental regulations. The ULR program is fully funded by U.S. EPA Region 9, included extensive involvement from the community as well as state regulatory agencies including the DTSC and the RWQCB, and is intended to facilitate the cleanup and redevelopment of Oakland's contaminated properties, which are often referred to as "Brownfields."

As background, in 1996, staff from the City of Oakland Environmental Services Division met with representatives of the West Oakland Environmental Justice Pilot Project, the Mayor's office, and the Rose Foundation. The purpose of this meeting was to determine what kind of feedback was desired from the community and which types of individuals and organizations should convene the Community Review Panel to evaluate the objectives of the ULR program. On the basis of the meeting, several organizations were contacted directly, and a public notice soliciting applications for membership on the panel was published in the *Oakland Tribune* on July 31, 1996. Members of the Community Review Panel ultimately included individuals from the African American Development Association, GEI Consultants, People United for a Better Oakland, Northern California Minority Business Opportunity Community, Sierra Club, Urban Habitat Program, and Uribe & Associates. The panel met twelve times between September 1996 and July 1997 and presented its recommendations in the Community Review Panel report, dated August 7, 1997, entitled *Consensus Recommendations for Implementing the Oakland Urban Land Redevelopment Program*.

Although the panel expressed that the ideal would be the removal of all contaminants from Oakland communities, the panel recognized that the resources to achieve this ideal simply do not exist. The panel concluded that stalling redevelopment will likely result in a greater public health threat, and larger environmental, social, and economic costs to the affected community than implementation of risk-based cleanup. The Community Review Panel therefore recommended that the ULR program adopt cleanup levels based upon conservative assumptions that do not result in an incremental lifetime cancer risk greater than 10^{-5} .

1 The recommendations of the Community Review Panel ultimately led the City of Oakland to
2 include a set of tiered cleanup levels into the ULR program. Tier 1 presents a conservative,
3 health protective set of cleanup levels that are based on an individual COC “target” risk of 10^{-6} .
4 Tier 1 cleanup levels apply to properties where information on environmental conditions is
5 limited. Tier 2 cleanup levels are based on a target risk of 10^{-5} . Tier 2 cleanup levels generally
6 apply to properties where geologic and hydrogeologic conditions and uses are better
7 understood.

8 U.S. EPA has stated that remediation is generally not warranted for contaminated property if the
9 cancer risk to an individual is less than 10^{-4} . However, if remediation is undertaken at such a
10 site, U.S. EPA has expressed a preference for cleanups that achieve a 10^{-4} to 10^{-6} “target” risk
11 range, with 10^{-5} risk level being the midpoint of this target range. Additionally, the State of
12 California has adopted 10^{-5} as the “no significant risk” level for protecting persons from
13 contaminants in drinking water, and exposure to contaminants in consumer products and
14 commercial establishments under the Safe Drinking Water and Toxic Enforcement Act of 1986,
15 which is better known as “Proposition 65.” The DTSC, in implementing the HSAA, has the legal
16 authority to require cleanups that achieve a 10^{-4} to 10^{-6} “target” risk range.

17 Given the precedents set by the City of Oakland, U.S. EPA, and the State of California, the
18 OBRA has decided to establish a media-specific individual remediation goal that corresponds to
19 a 10^{-6} incremental lifetime cancer risk for each potential carcinogenic COC identified at the
20 OARB. Remedial actions implemented at each OARB location are planned to achieve these
21 individual carcinogenic COC remediation goals for the proposed uses at the OARB. The
22 cumulative carcinogenic risk of COCs (associated with potentially complete exposure pathways)
23 remaining in soil and groundwater at each OARB location after implementation of remedial
24 actions will not exceed a cumulative, incremental lifetime human health risk of 10^{-5} .

25 If this remediation goal is approved by the DTSC under the HSSA in a Draft RAP/RMP process,
26 achieving these requirements would then become enforceable in the Consent Agreement put in
27 place prior to transfer of the OARB. Any changes to these remediation requirements would be
28 subject to review and approval by the DTSC, and would trigger further public participation and
29 processing requirements under the HSAA and CEQA.

30 **Determination of Acceptable Risk-based Groundwater Cleanup Goals Under the Urban**
31 **Land Redevelopment Program**

32 The area comprising the OARB was primarily marshland before 1916. Much of the area was
33 filled to construct the OARB beginning in 1941. Gravelly sand fill, reportedly imported from
34 quarries near Lake Temescal and Oak Knoll Naval Hospital, is encountered below buildings and
35 paved surfaces on the OARB and extends to a depth of approximately 5 feet below ground
36 surface (bgs). A second fill layer exists between approximately 5 to 15 feet bgs. This second
37 layer of fill consists of fine-grained sand that was hydraulically dredged from San Francisco Bay.
38 Groundwater is generally encountered between 5 to 7 feet bgs in these fill layers, which

1 comprise the shallow water-bearing zone at OARB. Beginning at approximately 15 feet bgs, a
2 sequence of clay on the order of 10-feet thick, referred to as Young Bay Mud, underlies the
3 shallow water-bearing zone. The Young Bay Mud clay is not very permeable and restricts
4 downward movement of groundwater to the next deeper water-bearing zone that is located at a
5 depth of approximately 25 feet bgs. This deeper water-bearing zone is referred to as the Merritt
6 Sand.

7 Groundwater at the OARB is of poor quality due to the proximity of the base to San Francisco
8 Bay. Although no hazardous substances have been detected in water samples collected from
9 the five monitoring wells completed into the Merritt Sand beneath the OARB, seawater intrusion
10 results in total dissolved solids (TDS) concentrations that are greater than 10,000 mg/L in
11 groundwater in the Merritt Sand. Seawater has also impacted the shallow water-bearing zone.
12 The mean TDS concentration is reported to be 4,600 mg/L for 43 monitoring wells completed
13 into the shallow water-bearing zone at the OARB (IT Corp. 2000). The TDS concentrations in
14 the shallow water-bearing zone and Merritt Sand make the groundwater unsuitable for potable
15 use.

16 For TDS in drinking water, the State of California Department of Health Services (DHS) has
17 promulgated a recommended secondary Maximum Contaminant Level (MCL) of 500 mg/L and
18 a short-term secondary MCL of 1,500 mg/L (22 CCR § 64449). Although DHS recommends that
19 TDS concentrations in drinking water be below 500 mg/L, TDS concentrations as high as 1,000
20 mg/L are acceptable if DHS considers it “neither reasonable nor feasible to provide more
21 suitable waters” (22 CCR § 64449). Excursions to the short-term level of 1,500 mg/L are
22 acceptable only if on a temporary basis pending construction of new treatment facilities or
23 development of acceptable new water sources.

24 The RWQCB, Region 2, acknowledges the poor quality of groundwater near the OARB and has
25 proposed a formal determination that groundwater along the Oakland shoreline, including
26 groundwater under the OARB, cannot be used for drinking water supply. The RWQCB based
27 this determination on the fact that groundwater is brackish and meets the exemption criteria
28 under SWRCB Resolution No. 88-63. Under this resolution, SWRCB considers water with a
29 TDS greater than 3,000 mg/L to “be unsuitable, or potentially unsuitable, for municipal or
30 domestic water supply.” The RWQCB (1998) specifically stated in a letter to the Army that the
31 exemption criteria contained in Resolution No. 88-63 applies to the shallow water-bearing zone
32 at the OARB. The ULR Community Review Panel (1997) supports the RWQCB findings.

33 Given the widespread recognition that TDS renders groundwater at the OARB nonpotable,
34 proposed cleanup levels for hazardous substances in the shallow water-bearing zone will not
35 consider MCLs for drinking water. Instead, groundwater cleanup goals for the OARB are
36 proposed to be governed by the protection of indoor commercial workers and outdoor industrial
37 workers from inhalation of volatile organic chemicals (VOCs) that may escape from groundwater
38 and migrate upward through soil into ambient air. In connection with remedies to reduce VOC
39 concentrations in the shallow water-bearing zone so VOCs do not pose a potential inhalation

1 threat, institutional controls will be implemented to prohibit extraction of groundwater for drinking
2 water supply at the OARB.

3 Institutional controls are non-engineering measures designed to limit exposure to hazardous
4 substances left in-place or to ensure the effectiveness of the chosen remedy. Institutional
5 controls include land use restrictions, which can also be referred to as deed restrictions. Deed
6 restrictions and land use restrictions are catchall phrases for legal controls such as easements,
7 restrictive covenants, and zoning ordinances. These controls either prohibit certain kinds of site
8 uses or notify potential owners or tenants of the presence of hazardous substances remaining
9 on-site at concentrations that are not protective of all uses.

10 The City of Oakland ULR program has established a computerized system that ensures land
11 use restrictions are enforced so properties with residual contamination are not redeveloped for
12 unintended uses unless additional cleanup is performed. The computerized system tracks
13 permits from filing to issuance and provides the user with a permitting and inspection history.
14 The CEDA maintains the system. CEDA is responsible for operations related to development,
15 inspection, and enforcement of zoning, planning, building, and housing codes within the City of
16 Oakland. The computerized system allows permits to be properly routed and held, if necessary.
17 The purpose of these procedures is to provide the appropriate City of Oakland staff with the
18 opportunity to review permit applications for work that may either conflict with land use
19 restrictions or trigger further cleanup under an approved remedial action plan.

20 **4.7.3 Regional Setting**

21 The study area is located within a developed area that includes residential, recreational, and
22 commercial/industrial areas. Hazardous materials are transported into the region by truck, rail,
23 and ship, and are used by industrial and service businesses throughout the region.
24 Contaminated property is found throughout the region. Contaminated property in the region has
25 resulted from prior industrial activity and improper management of hazardous substances.

26 **4.7.4 Local Setting**

27 This section discusses each sub-district with respect to hazardous materials issues, hazardous
28 waste issues, contaminated soil and groundwater issues and regulated building materials issues
29 at the study area. Figures 4.7-1 illustrates the environmental conditions on the OARB sub-
30 district, Figure 4.7-2 depicts the environmental conditions on the Maritime and 16th/Wood sub-
31 districts.

32 Environmental conditions and the site history of the OARB sub-district have been identified in
33 previous investigations and studies, as set forth in Appendix 4.7 and discussed relative to the
34 OARB sub-district below. For the Maritime and 16th/Wood sub-districts, an environmental
35 database search was performed by Environmental Data Resources, Inc. (EDR 2002). These

36

1 insert

2 Figure 4.7-1 Locations of Potential Environmental Concern on OARB

3

1 insert

2 Figure 4.7-2 Potential soil and Groundwater Contamination, Maritime and 16th/Wood Sub-
3 Districts

4

1 types of database searches query a wide range of federal, state, and local databases to identify
2 sites that pose potential hazardous materials, hazardous wastes, or contaminated soil and
3 groundwater concerns. The mere presence of a site/property on one or more of these lists does
4 not mean that an impact exists; the potential concern(s) posed by a site identified by the
5 database search must be evaluated individually. For example, a site may be identified on an
6 underground storage tank (UST) list, but may already have been remediated. These types of
7 database searches focus on potential contamination concerns; hazardous materials storage and
8 hazardous waste generation information is provided only because releases of hazardous
9 materials/wastes can result in soil and/or groundwater contamination.

10 The database search for the Maritime and 16th/Wood sub-districts centered at the intersection of
11 Maritime and 14th Streets and covered all of the 16th/Wood sub-district and most of the Maritime
12 sub-district. Approximately 68 sites that had associated database records were identified. Of
13 these, 44 were located within the Maritime or 16th/Wood sub-districts. An additional 223
14 “orphan” sites, listed in the databases but either missing information or having addresses that
15 could not be located by EDR, were also identified. Of these, further research indicated that 37
16 are located within the Maritime or 16th/Wood sub-districts, numerous others were located well
17 outside of the two sub-districts, nine were vessels, and 18 addresses could not be located
18 during the additional research. Two of the 37 located within the study area were appropriately
19 remediated. Specific sites are discussed relative to the Maritime and 16th/Wood sub-districts
20 below.

21 **OARB Sub-District, Hazardous Materials**

22 Hazardous materials currently present at the OARB are most likely limited to those associated
23 with the industrial and commercial activities occurring in the sub-district. These materials may
24 include such items as paints, oils, solvents, automotive fluids, compressed gases, ammonia for
25 refrigeration, and lead-acid batteries. These materials are typically present in small quantities,
26 as required to support the tenant activities. The existing interim leases require tenants to comply
27 with all applicable laws and regulations pertaining to hazardous materials management. The
28 Oakland Fire Department (OFD) provides hazardous materials spill response services in
29 Oakland. The OFD's primary hazardous materials response team is based in Station No. 3 on
30 14th Street.

31 **OARB Sub-District, Hazardous Wastes**

32 Hazardous wastes are generated from many common industrial and commercial activities. In
33 addition, contaminated soil and/or groundwater could be classified as a hazardous waste once
34 removed from the ground, if it meets any of the regulatory criteria for hazardous waste.
35 Currently, due to the limited level of activity at the OARB, the amount of hazardous waste
36 present is expected to be minimal. Hazardous wastes currently present at the OARB are likely
37 to include waste oil, and other maintenance-related chemicals and wastes. In addition, due to
38 the age of the OARB, asbestos-containing materials (ACM) and LBP may be present. ACM and

1 LBP issues are discussed in the section entitled “regulated building materials.” It is anticipated
2 that some amount of volume of hazardous soil requiring off-site removal and/or on-site
3 management will be regulated hazardous waste and must be managed as such.

4 **OARB Sub-District, Contaminated Soil and Groundwater**

5 In most instances, contamination of soil and groundwater at the OARB is limited because Army
6 operations involved mostly warehousing and shipping of cargo overseas as opposed to
7 manufacturing activities. Identified chemical impacts derive mostly from the use of petroleum
8 products for activities that supported the OARB’s primary military mission as a distribution
9 center. Other support activities that may have resulted in chemical releases included
10 maintaining and fueling railroad locomotive engines and trucks that transported cargo, draining
11 fluids from vehicles for overseas shipment, and repairing and servicing vehicles, equipment, and
12 base facilities (IT 2001a)².

13 The most significant subsurface contamination found at the OARB is evidently due to operation
14 of the oil reclaiming plant (ORP) that was active in the 1920s and 1930s. The ORP was
15 demolished prior to Army occupancy. (IT 2000d.) The ORP was situated below and adjacent to
16 the current Building No. 1 site. Oily residue from the ORP was deposited in an area near where
17 Building 1 now stands. See further discussion below under RAP Site 1 for Building No. 1.
18 Additionally, there appears to be a landfill area and VOC-impacted area on the Gateway Park
19 site, which is to be transferred to the EBRPD as well as possible contaminated marine
20 sediments near the sanitary sewer outfalls. Currently, these areas are not part of the OARB
21 RAP/RMP, since the Army may retain liability.

22 The draft RAP/RMP prepared by the OBRA identifies known or possible chemical release areas
23 (*i.e.*, hazardous substances, and petroleum hydrocarbons and related constituents). As noted
24 above, the identified areas on the OARB are divided into RAP Sites and the RMP
25 Implementation Area. Both RAP Sites and the RMP Implementation Area are discussed below.
26 The RAP Site discussion examines the issues surrounding each of the seven RAP sites. The
27 RMP Implementation Area discussion examines the use history, and nature and extent of
28 contamination for each of the eight types or groups of RMP locations.

² Contamination issues at the OARB discussed herein were identified primarily from the Basewide Environmental Baseline Survey for Oakland Army Base (EBS), by Foster Wheeler Environmental Corp., September 1996, the Preliminary Assessment/Site Inspection (PA/SI) by Kleinfelder, Inc., February 1998, remedial investigations, studies and activities undertaken by the Army, and various other investigations undertaken by other entities. See Appendix 4.7 for a summary of these documents. In those documents, the Army divided the OARB into 26 areas, which were referred to as BRAC parcels. The Army also organized the BRAC parcels by seven operable units (OUs) for purposes of consolidating investigative and remedial actions at the base. OU 6 was reserved for future use and no BRAC parcels were ever placed there. However, BRAC parcels and OUs have no current significance as the corresponding property boundaries or subdivisions were not surveyed or recorded. Therefore, contaminated sites at the OARB are referenced herein by the designations assigned on Army maps and facility records to the tank, structure, or building that was involved with a given release. In addition to the surveys, studies and reports listed above, the Army and EKI plan to perform a Phase II investigation.

1 **Remedial Action Plan Sites.** The following discussion identifies the seven OARB RAP sites,
2 and describes conditions at each site.

3 **RAP Site 1: Former ORP/Building No. 1 Area.** The former ORP consisted of a building and
4 several aboveground tanks. Review of historical aerial photographs taken in 1931 and 1939
5 show the ground to be stained around the building and tanks. IT (2001e) has postulated that
6 dumping of oily residue from waste oil recovery operations caused the staining observed in the
7 historical photographs. The oily residue was apparently covered by fill imported by the Army to
8 construct Building No. 1 in 1941.

9 A portion of the oily residue is a pliable, acidic semi-solid that demonstrates some mobility in the
10 subsurface. In 1994, the asphalt parking lot between Wings 1 and 2 of Building No. 1 buckled
11 due to oily residue that flowed to the surface. The Army removed the material and repaired the
12 parking lot. Four years later, in 1998, the Army excavated this same area in an effort to
13 eliminate the oily residue. The oily residue could not be completely excavated because it
14 extended under Wing 2 of Building No. 1.

15 In 2000, a video camera inspection of a sanitary sewer line that runs through the parking lot
16 found oily residue had infiltrated the sewer line through joints in the pipe. Also in 2000, oily
17 residue was observed to have migrated to the surface beneath the crawl space of Wing 1 of
18 Building No. 1, approximately 120 feet to the southwest where the oily residue was first noted in
19 the parking lot in 1994. The oily residue seemed to have exuded through a small gap between a
20 wooden piling that supports the building and an edge of the concrete slab that exists below the
21 building to discourage habitation by burrowing rodents and other vermin. The oily residue was
22 removed. Army representatives have indicated that the oily residue has again been observed
23 beneath the crawl space of Building No. 1 in March 2002. IT (2001e) described the physical
24 appearance of oily residue found beneath the crawl space of Building No. 1 as the following:

25 *The substance had a black skin that was stiff and slightly resilient, appearing to*
26 *be an oxidized layer over a softer interior. When the outer layer was penetrated,*
27 *a clear watery liquid welled up in the hole and bubbled and squirted out if under*
28 *sufficient pressure. The clear liquid reacted with the concrete slab, producing a*
29 *faint hissing and bubbling. A test with pH paper indicated a very strong acid (pH*
30 *near zero). Faint traces of sulfurous and nitrous gases were noted.*

31 Laboratory analysis (IT 2000d) of the oily residue has confirmed its acidic nature. Lead has
32 been measured at a concentration as high as 11,800 mg/kg in the oily residue. The material
33 also contains polycyclic aromatic hydrocarbons (PAHs), PCBs, polychlorinated dibenzodioxins
34 (PCDDs), and polychlorinated dibenzofurans (PCDFs) at concentrations of concern. The oily
35 residue does not appear to be contaminated with VOCs, although one sample of fill that overlies
36 the oily residue contained 5.4 µg/kg of 1,2,3-trichloropropane (TCP).

1 IT (2001e) describes the oily residue that has migrated to the surface as a “tar-like substance”
2 or “soft, pliable, non-viscous black solid.” However, the most common form of the oily residue
3 observed in soil samples collected from borings and trenches is a material that is characterized
4 as a “dark to light brown fluid with the consistency and look of motor oil.” The thickness of oily
5 residue in the subsurface varies from less than 0.5 feet to at least 3 feet. The full depth of oily
6 residue has not been determined at all locations. In the draft feasibility study that considered the
7 former ORP/Building No. 1 area, IT (2001e) estimated the in-situ volume of oily residue to be
8 approximately 6,000 cubic yards (cy) that exists primarily between 3.5 to 5.5 feet bgs. IT also
9 estimated the in-situ volume of TCP-impacted fill overlying the oily residue to be roughly 2,000
10 cy distributed from ground surface to a depth of 3.5 feet bgs over an approximate 13,700 square
11 foot (sf) area. The volume estimates by IT are uncertain and the actual quantities of oily residue
12 and any TCP-impacted soil that must be addressed by remedial actions may be greater or less
13 than estimates by IT.

14 **RAP Site 2: VOCs in Groundwater at the Eastern End of Building No. 807.** VOCs in the
15 shallow water-bearing zone at the eastern end of Building No. 807 were discovered in 1992
16 during the drilling of foundation piers for a prefabricated building (Camp Dresser & McKee
17 1996). Detected VOCs in groundwater in this area consist primarily of vinyl chloride,
18 cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), trichloroethene
19 (TCE), and 1,1,2,2-tetrachloroethane. The VOCs are believed to be have been released as a
20 result of the Army’s past practice of allowing drums of solvent, paint, or other chemicals that
21 were damaged during shipping to drain along the railroad tracks in this area of the Knight
22 Railyard. The Army’s Preliminary Assessment/Site Inspection (PA/SI) attributes the following
23 statement to an environmental assessment of the OARB conducted by the United States Army
24 Toxic and Hazardous Materials Agency (USATHMA) in 1988:

25 *In the past, damaged containers were placed adjacent to the tracks at the Knight*
26 *Railyard. The containers were allowed to drain on the railroad ballast rock in this*
27 *area, and any material which did not drain eventually was placed inside other*
28 *containers for transport and disposal at authorized disposal sites. OARB*
29 *changed this procedure after it was identified to management personnel as a*
30 *potential problem. The installation then provided lined drums throughout the*
31 *warehouses to receive any leaking or damaged containers.*

32 (Kleinfelder 1998.) The location where VOC-impacted groundwater was encountered at the
33 eastern end of Building No. 807 is, however, approximately 200 feet northeast of the area
34 identified by USATHMA in its 1988 assessment as the location where the Army reportedly
35 drained damaged containers.

36 Maximum VOC concentrations detected in shallow groundwater at the eastern end of Building
37 No. 807 are vinyl chloride at 442 µg/L, cis-1,2-DCE at 2,020 µg/L, trans-1,2-DCE at 300 µg/L,
38 TCE at 363 µg/L, and 1,1,2,2-tetrachloroethane at 200 µg/L in water samples collected from
39 monitoring well ICFMW202. Nine monitoring wells in the shallow water-bearing zone define the

1 lateral extent of VOC-impacted groundwater. Review of water level and analytical data for these
2 wells indicates that VOCs are not migrating. The limited extent of VOC migration in groundwater
3 may reflect the fact that the hydraulic gradient in the shallow water-bearing zone is essentially
4 flat (IT 2000b). Investigations by the Army do not indicate that a significant chemical source
5 remains in soil at this area.

6 **RAP Site 3: VOCs in Groundwater Near Buildings Nos. 808 and 823.** Vinyl chloride and
7 lesser concentrations of other VOCs are present in shallow groundwater in an area north of
8 Building No. 808 and south of Building No. 823. No significant soil contamination has been
9 identified and the source of the VOCs is not known. Possible sources include Building No. 823,
10 and storm drains and sanitary sewers that run through the area. Building No. 823, and storm
11 drains and sanitary sewers are identified as potential chemical release sites and are discussed
12 below as RMP Implementation Area Group 6 and 7, respectively.

13 Maximum VOC concentrations detected in shallow groundwater near Buildings Nos. 808 and
14 823 are vinyl chloride at 267 µg/L, cis-1,2 DCE at 13 µg/L, trans-1,2 DCE at 3.6 µg/L, TCE at
15 4.1 µg/L, and 1,1-dichloroethene ("1,1-DCE") at 2 µg/L. These VOCs in shallow groundwater
16 are not migrating. Except for the southern edge of VOC-impacted groundwater in this area, the
17 lateral extent of contamination in the shallow water-bearing zone has been delineated. OBRA
18 will define the southern edge of VOC-impacted groundwater in this area as part of its planned
19 Phase II investigation.

20 **RAP Site 4: VOCs in Groundwater Near Building No. 99.** An area of the shallow water-
21 bearing zone near Building No. 99 is impacted with VOCs. The predominant VOCs detected in
22 groundwater are vinyl chloride and cis-1,2-DCE. No significant soil contamination has been
23 identified and the source of the VOCs is not known. Possible sources include Building No. 99
24 and storm drains and sanitary sewers, discussed below as RMP Implementation Area Group 6
25 and 7, respectively.

26 Vinyl chloride and cis-1,2-DCE have been detected at maximum concentrations of 29 µg/L and
27 41 µg/L, respectively. The impact of vinyl chloride to shallow groundwater in this area has been
28 fully delineated. The lateral extent of cis-1,2-DCE has been defined except for a portion of the
29 east edge of the area containing cis-1,2-DCE in groundwater. Further delineation of impacts to
30 shallow groundwater near Building No. 99 will be part of the Phase II investigation.

31 **RAP Site 5: Benzene and MTBE in Groundwater near Former USTs 11A/12A/13A.** Building
32 No. 828 was a former Army vehicle service station. Three 5,000-gallon gasoline USTs,
33 designated USTs 11/12/13, were installed west of Building No. 828 in 1969. These tanks were
34 replaced with three 6,000-gallon gasoline USTs, designated 11A/12A/13A, in 1990. The Army
35 removed tanks 11A/12A/13A in 1999. Following the tank removals, significant concentrations of
36 petroleum hydrocarbons, and benzene, toluene, ethylbenzene, and xylenes (BTEX) remain in
37 soil and shallow groundwater near the location of the former tanks. Methyl tertiary butyl ether
38 (MTBE), which is a fuel oxygenate, is also detected in the shallow water-bearing zone near

1 Building No. 828. Results from recent monitoring well sampling (IT 2002c) show MTBE
2 concentrations as high as 10,000 µg/L have been detected in groundwater. Recent maximum
3 concentrations of other fuel constituents include TPH measured as gasoline at 26,400 µg/L,
4 benzene at 1,880 µg/L; toluene at 3,910 µg/L, and xylenes at 3,510 µg/L.

5 **RAP Site 6: Building No. 991 Area.** In 1942, the Army constructed Building No. 991 in the
6 northeastern corner of the OARB. The building was used from 1942 to 1997 to repair, clean,
7 and fuel bcomotive engines (IT 1999). Extensive chemical use and handling has occurred at
8 this area. As a result, petroleum hydrocarbons and lesser concentrations of other contaminants
9 of concern have impacted soil and groundwater in the vicinity of Building No. 991, including
10 wetlands outside of the redevelopment project area.

11 Within the locomotive engine maintenance shop is a lubrication pit and sump. The sump drained
12 to a gravel-filled trench adjacent to the west wall of Building No. 991 and through an oil/water
13 separator (IT 1999). According to the PA/SI, the oil/water separator discharged to an undersized
14 septic tank that caused the associated leach field to clog. A sample of sediment collected from
15 the inside of the drain line from the septic tank contained 7,300 mg/kg of petroleum
16 hydrocarbons measured as motor oil, 190 µg/kg of PCBs, and various metals (IT 1999).

17 A 10,000-gallon AST located outside of Building No. 991 supplied diesel fuel to a dispenser
18 inside the building. In May 1997, an estimated 780 gallons of diesel fuel spilled while a tanker
19 truck was supplying the AST (IT 1999). Over 430 tons of impacted soil was excavated, but
20 contaminated soil was not removed near a railroad trestle because of the potential for
21 weakening its structural integrity.

22 Chemical releases may have occurred near Facility 992, which was formerly located west of
23 Building No. 991. Waste oil and naphtha solvent were stored in this facility. IT (1999) reports
24 that naphtha solvent was used to clean engine parts.

25 From 1984 to 1995, engines were reportedly washed with water and water-based detergent on
26 the railroad tracks in front of Building No. 991. Until the late 1970s, engines had been washed
27 on a concrete slab southeast of Building No. 991. A sump, connected to the slab, discharged
28 wash water to the off-site wetlands situated between the railroad tracks. Besides cleaning
29 engines, pesticide application equipment was occasionally rinsed on the slab (IT 2002b).

30 **RAP Site 7: Building No. 99.** Building No. 99 was constructed in 1918 and used by Union
31 Construction Company for ship manufacturing until the mid 1930s (IT 2000d, 2000f). From the
32 mid 1930s until the Army's acquisition of the property in 1941, Pacific Coast Engineering
33 Company conducted metalworking operations in Building No. 99 that were related to production
34 of structural iron and piping. During that time, the northern portion of the building contained a
35 furnace, and blacksmith and machine shops. The middle portion of the building was used for
36 plate rolling and the southern portion of the building contained a plate shop. Metal plates were
37 marked, cut, shaped, and fastened inside the building (IT 2000d).

1 In 1941, the Army apparently converted Building No. 99 to a vehicle and electrical maintenance
2 shop and installed a metal shop and paint room in the building (IT 2000d). A report by the Army
3 Industrial Hygiene Laboratory, dated December 1944, indicates that Building No. 99 also
4 contained a jitney repair shop; truck repair shop for welding and “metallizing” (i.e., spraying
5 metal); and a shop where hot copper pipe was pickled in a 10 percent by weight sulphuric acid
6 solution, and where metal brazing, silver soldering, and “lead burning” were carried out.
7 According to this Army report, sand blasting was performed outside the building and dust
8 produced by the operation was allowed to blow about without any attempt to control it. The
9 exact location of the sand blasting area is unknown.

10 The Army has advanced four borings beneath Building No. 99 that are identified as ICF10S10,
11 ICF10S11, ICF10S12, and ICF10S13. Soil samples collected from these borings were analyzed
12 for VOCs, PAHs, TPH, and metals. Analytical results of these samples do not suggest
13 significant releases have occurred from the building. Minor concentrations of VOCs, PAHs, and
14 TPH were measured in soil samples collected from borings ICF10S10, ICF10S11, ICF10S12,
15 and ICF10S13. No metals were detected in soil samples collected from the borings at
16 concentrations greater than naturally occurring levels reported for common soil types in
17 Oakland.

18 Groundwater in the Building No. 99 area has been extensively investigated, and VOC and
19 petroleum hydrocarbon impacts to the shallow water-bearing zone are generally well
20 characterized, as discussed above under RAP Site 4. Additional groundwater contamination
21 attributable to Building No. 99 is not anticipated. Given the use history of this building, the
22 OBRA and the Army will conduct sampling as part of Phase II investigations to confirm the
23 findings of available data that show no significant chemical releases in soil are associated with
24 Building No. 99.

25 Other known or potential chemical release sites near Building No. 99 include groundwater
26 impacted by vinyl chloride and cis-1,2-DCE, discussed above under RAP Site 4, boiler debris,
27 Building No. 85 and storm drains and sanitary sewers, discussed below as RMP Implementation
28 Area Groups 6 and 7. USTs B, C, and Q; a paint shop and paint storage shed; and a vehicle
29 washrack (i.e., Facility 98) with an associated oil/water separator were also formerly located by
30 Building No. 99. These former sites are within the RMP Implementation Area, discussed below.

31 **Risk Management Plan Implementation Area.** The following discussion identifies the eight
32 OARB implementation areas, and describes conditions for each.

33 ***RMP Implementation Area Group 1: Washracks, Sumps, Oil/Water Separators, and***
34 ***Miscellaneous Sites.*** A total of 85 washracks, sumps, oil/water separators, and miscellaneous
35 items, such as incinerators, chlorinators and Building No. 590, have been identified at 55 sites
36 on the OARB. The lower number of actual sites is due to the fact that many of the structures are
37 often connected to one another. For example, a washrack is often connected to a sump or
38 oil/water separator. This Group is further divided into four subgroups: (1) sites requiring the

1 removal of an existing subsurface structure, such as petroleum pipelines, prior to
2 redevelopment; (2) sites requiring additional characterization prior to redevelopment; (3) sites
3 where residual, impacted soil will be removed when encountered during infrastructure
4 installation or redevelopment; and (4) sites with no currently identified environmental issues but
5 which will be inspected for undiscovered contamination in accordance with the soil management
6 protocols in the RMP for the OARB. Petroleum hydrocarbons and metals in soil are the known
7 or suspected contaminants of concern at most of these sites.

8 **RMP Implementation Area Group 2: Tanks.** A total of 77 USTs and ASTs have been
9 identified at 44 sites on the OARB. Similar to washracks, sumps, oil/water separators, and
10 miscellaneous items, the lower number of actual sites is due to the fact that certain tanks were
11 clustered together. The tank sites are further divided into three subgroups: (1) tank sites that
12 potentially require the removal of an existing tank prior to redevelopment; (2) former tank sites
13 where residual, impacted soil will be excavated and disposed when encountered during
14 infrastructure installation or redevelopment; and (3) former tank sites with no currently identified
15 environmental issues but which will be inspected for undiscovered contamination in accordance
16 with the soil management protocols in the RMP for the OARB.

17 Petroleum fuels and related constituents in soil are the known or suspected contaminants of
18 concern at the majority of these sites. Most former tank sites have been closed by RWQCB. The
19 natural attenuation of petroleum hydrocarbons in shallow groundwater is being monitored at 7
20 sites under RWQCB supervision. On behalf of the OBRA, Innovative Technical Solutions, Inc.
21 (ITSI) evaluated the potential quantities of contaminated soil that may still remain at the former
22 tank sites. ITSI (2001) estimates that the total volume of petroleum hydrocarbon-containing soil
23 at all tank sites may be on the order of 4,000 cy. These petroleum residuals will be addressed
24 by the soil management protocols in the RMP.

25 **RMP Implementation Area Group 3: Historical Spills and Stains.** Review of Army
26 documents and historical aerial photographs indicate that numerous spills and stains have been
27 observed over the years at the OARB. Possible chemical releases range from stained pavement
28 caused by minor leakage from parked vehicles to spills of hazardous substances. Historical
29 spills and stains are considered to be a basewide RMP issue. Soil excavated during new
30 construction will be inspected for contamination. Protocols for inspecting and managing
31 contaminated soil during and after redevelopment are specified in the RMP.

32 **RMP Implementation Area Group 4: Lead in Soil Around Buildings.** Federal statute defines
33 paint to be lead-based if it contains lead at concentrations greater than 1.0 mg/cm² or 5,000
34 mg/kg. However, paint manufactured before 1978 may still contain significant amounts of lead
35 even if does not meet the federal definition of LBP (United States Department of Housing and
36 Urban Development 1995). The EBS identified the buildings that may contain LBP based upon
37 the age of construction. ACE (1999) conducted a LBP investigation of buildings at the OARB.
38 Other structures likely contain LBP given their age of construction listed in the EBS but were not

1 included in the LBP investigation by ACE (EBS 1996). Requirements for managing shallow soil
2 containing LBP or potentially containing LBP at the OARB will be incorporated in the RMP.

3 ***RMP Implementation Area Group 5: Former PCB-Containing Equipment Sites.*** The PA/SI
4 and EarthTech utility survey include inventories of PCB-containing equipment at the OARB.
5 These inventories list approximately 100 pieces of electrical equipment that may be
6 contaminated with PCBs. Requirements for managing PCB-containing equipment at the OARB
7 will be incorporated in the RMP.

8 ***RMP Implementation Area Group 6: Former Industrial and Chemical Handling Sites.***
9 Seven locations have been identified at the OARB where former industrial activities or chemical
10 handling took place, for which little or no subsurface environmental data are currently available.
11 Although no significant contamination is known to exist at these locations, historical operations
12 suggest the potential for chemical releases. Further investigation will be performed to
13 characterize environmental conditions at the below sites. The intent of such further investigation
14 is to confirm that these sites have little or no environmental impairment, and can be
15 appropriately addressed through implementation of the RMP. A location will be reclassified as a
16 higher priority RAP Site if investigative findings indicate a chemical release has occurred that
17 may serve as an ongoing source of contamination or has affected groundwater. Data pertaining
18 to many of the below locations will be obtained as part of the Phase II investigations to be
19 performed by the OBRA and the Army.

20 ***Boiler Debris Near Building No. 99.*** The Army encountered debris while removing buried
21 waste oil piping in Corregidor Street west of Building No. 99. The debris consisted of ACM and
22 lesser amounts of charred wood, possible slag, burned coke material, and refractory brick,
23 which the Army believes originated from a boiler (IT 2002a). Approximately 15 tons of soil mixed
24 with the so-called "boiler debris" was excavated by the Army during removal of the waste oil
25 piping and disposed as a non-RCRA hazardous waste. The lateral extent of debris in soil near
26 Building No. 99 has not been delineated (IT 2002a) and no chemical analyses of the debris
27 remaining in soil have been done to confirm that the debris does not contain contaminants of
28 concern that pose a risk to human health and the environment. Thus, this area has been
29 identified for early investigation.

30 ***Building No. 85.*** A 1943 map of the OARB designates Building No. 85 as the area engineer's
31 office. The building appears to have been used chiefly to carry out administrative functions.
32 However, review of floor plans, dated 25 April 1960, show Building No. 85 was equipped with a
33 photograph-processing laboratory. IT (2000d) states that Building No. 85 was also historically
34 used as a printing plant, but no basis for this statement was provided. IT may be referring to the
35 photograph-processing laboratory when it concludes that the building was a printing plant. The
36 OBRA and Army will investigate soil and groundwater conditions at Building No. 85 during the
37 planned Phase II investigations to confirm that no significant releases associated with printing
38 inks or solvents have occurred.

1 **Building No. 812.** The Army constructed Building No. 812 in 1944. The Army describes the use
2 of this building as an “ordnance” maintenance shop until 1950, which included a welding booth,
3 machine shop, and two repair and grease areas. The term “ordnance,” as applied by the Army
4 to the OARB and certain other embarkation installations in the San Francisco Bay Area, did not
5 mean ammunition or explosives, but instead referred to vehicles and other mechanized
6 equipment shipped from the installations (Hamilton and Bolce 1946). The notion that the term
7 “ordnance” pertains to vehicles is consistent with the use history of Building No. 812.

8 Review of Army historical equipment records reveals the building contained various metal
9 working equipment, including drill presses, metal cutting machinery, lathes, a milling machine,
10 and a shaper. By 1969, Building No. 812 had been transformed to include a tune-up and lube
11 area, tire shop, battery shop, parts room, office machine repair shop, sheet metal shop,
12 mechanical and welding maintenance shop, and a large centralized crane area through the
13 center of the building. Metal cold cleaning apparently occurred within Building No. 812 (IT
14 2000d). Drums containing new and used petroleum products were stored outside on pallets with
15 no secondary containment (Kleinfelder 1998b). Used oil tank 8A was formerly located at the
16 southwest corner of Building No. 812.

17 No significant contamination has been identified near Building No. 812 based upon the results
18 of soil gas sampling conducted during the PA/SI, and soil and groundwater testing related to the
19 removal of used oil tank 8A. Soil gas samples contained low concentrations of VOCs. Soil from
20 the excavation pit of used oil tank 8A contained a maximum petroleum hydrocarbon
21 concentration of 250 mg/kg. Residual petroleum hydrocarbons of 450,000 µg/L were measured
22 in water present in the pit at the time of excavation, but no petroleum hydrocarbons or related
23 constituents were detected in groundwater samples collected from borings placed in the shallow
24 water-bearing zone outside of the boundaries of the pit.

25 Despite the fact that no residual sources of contamination to soil or groundwater at Building No.
26 812 have been found, the site is identified for investigation because of its industrial use history.

27 **Building No. 823.** Building No. 823 first appears on a 1943 map of the OARB. Army historical
28 documents show that Building No. 823 contained a paint room and paint booth in the southeast
29 corner of the building, a finishing room, and a carpenter shop. A report by the Army Industrial
30 Hygiene Laboratory, dated December 1944, indicates Army personnel stripped paint with
31 chemicals that included chlorinated solvents. IT (2000d) states that Building No. 823 was also
32 used as a heavy equipment maintenance facility, but the locations and types of equipment and
33 chemicals that were involved with this operation are unknown. Identified chemical release sites
34 near Building No. 823 include former UST A and the VOC-impacted groundwater near Building
35 Nos. 808 and 823, discussed above under RAP Site 3.

36 Besides petroleum hydrocarbons and related constituents associated with UST A, no residual
37 chemical sources in soil have been identified at Building No. 823. Although the available data do
38 not suggest that significant chemical releases have occurred at the building, the OBRA and the

1 Army will conduct additional testing as part of the planned Phase II investigations to confirm this
2 finding given the use history of the building.

3 **Potential Drum Drainage Area East of Building Nos. 805 and 806.** USATHMA (1988)
4 identified the area adjacent to the Knight Railyard that is east of Building Nos. 805 and 806 as
5 the specific location where Army personnel reportedly allowed damaged drums of chemicals to
6 drain onto railroad track ballast in the past. To date, no testing has focused on determining if the
7 potential drum drainage area east of Building Nos. 805 and 806 has been impacted by chemical
8 releases. The OBRA and the Army intend to test this area as part of the Phase II investigations.

9 **Former Motor Pool and Salvage Operations at Building No. 640.** World War II era maps of
10 the OARB show a motor pool and salvage area existed in the area where Building No. 640
11 currently stands. The motor pool and salvage area included a gasoline station, a motor repair
12 shop, several grease racks and washracks, vehicle storage sheds, and several salvage
13 warehouses. Review of Army historical records indicate these facilities were demolished and
14 Building No. 640 was constructed by 1945. No soil or groundwater samples have been collected
15 near or within the former motor pool and salvage area. This site will be as part of the planned
16 Phase II investigations by OBRA and the Army.

17 **Benzidine at Former Used Oil Tank 21.** Former used oil tank 21 was part of Facility 16, which
18 was constructed in 1986 for preparing privately owned vehicles for overseas transport (IT
19 2000d). Facility 16 also included a washrack and an oil/water separator. Used oil tank 21 was a
20 UST situated partially beneath the washrack that stored oil drained from vehicles before
21 transport. Used oil tank 21, washrack, and oil/water separator were removed in December 1997.
22 Contaminated soil beneath the UST contained petroleum hydrocarbons, lead, and PAHs, which
23 are contaminants of concern typically associated with used oil releases. Excavation of
24 contaminated soil discovered in the area was completed by March 1997 (Remedial
25 Constructors, Inc. 1997).

26 Benzidine was reportedly measured at 48,000 µg/kg prior to excavating contaminated soil.
27 Benzidine is not typically found in used oil and its detection at this former tank site is unique at
28 the OARB. The United States Department of Health and Human Services, Agency for Toxic
29 Substances and Disease Registry (ATSDR); (1995) states that benzidine was used primarily to
30 produce dyes for cloth, paper, and leather. Benzidine has not been manufactured for sale in the
31 United States since the mid 1970s. Major dye companies in this country no longer make dyes
32 that have benzidine as an ingredient given concerns about the potential carcinogenic effects of
33 the chemical.

34 Testing by the Army after completing excavation activities at former used oil tank 21 did not
35 detect benzidine in soil or groundwater, but analytical method reporting limits of collected
36 samples were higher than concentrations at which benzidine is considered to be a potential
37 human health risk. Thus, the former used oil tank 21 area is identified for early investigation and

1 possible further remediation because available data are insufficient to conclude that benzidine is
2 not still present in soil and groundwater at concentrations of concern.

3 **RMP Implementation Area Group 7: Storm Drains and Sanitary Sewers.** ICF Kaiser
4 Engineers, Inc. (1999) reports that the storm drain system at the OARB consists of 107,484
5 linear feet (lf) of pipe. The storm drains convey water to San Francisco Bay through 13 outfalls.
6 Most water discharged from the outfalls appears to originate from the OARB with one notable
7 exception. Outfall 8b receives large flows from the City of Oakland through a 36-inch diameter
8 storm drain that enters the base from West Grand Street and through a 42-inch diameter storm
9 drain from the nearby EBMUD wastewater treatment plant (EarthTech 2000).

10 The sanitary sewer system consists of approximately 25,000 lf of pipe (ICF Kaiser Engineers,
11 Inc. 1999). Four pump or lift stations located throughout the base convey sewage to the EBMUD
12 wastewater treatment plant. The flat topography of the OARB prevents sewage from flowing by
13 gravity to the EBMUD plant (EarthTech 2000.)

14 Several studies (EarthTech 2000; ICF Kaiser Engineers, Inc. 1999; Radian 1997a, 1997b)
15 indicate that both the storm drain and sanitary sewer systems are in poor condition. Video
16 camera inspections have been performed of portions of the storm drain and sanitary sewer
17 systems that lie north of 14th Street. These prior inspections reveal that approximately 45
18 percent of the storm drain pipe and 60 percent of the sanitary sewer pipe that have been
19 examined have defects. Defects are defined as pipe with sags; plant root intrusion; sections that
20 have cracked, developed holes, or collapsed; or joints that have separated or become
21 misaligned. Moreover, EarthTech (2000) notes that the exceptionally flat grades of the storm
22 drain and sanitary sewer systems allow sediments to accumulate and block the insides of pipes.

23 Sediment that builds up in the catch basins or inlets to the storm drains is periodically removed
24 (ICF Kaiser Engineers, Inc. 1999). Testing of this sediment reveals that it often contains
25 petroleum hydrocarbons, lead, and other metals that are reflective of road grime, which likely
26 washes into the catch basins. PCBs and pesticides have occasionally been detected in the
27 sediment. Contaminated sediment from the OARB has likely been discharged to San Francisco
28 Bay in the past. It is unknown if such discharge is ongoing because improvements in storm
29 water management practices (e.g., periodic removal of sediments from catch basins, better
30 chemical handling, and reductions in the frequencies of chemical spills) have likely decreased
31 the contaminant quantities that are transported through the storm drains.

32 The past presence of contaminants in storm drains and sanitary sewer systems combined with
33 breaches in the pipes of these systems may have allowed contaminants of concern to leak into
34 soil and groundwater that surround the pipes. However, based on its investigative findings, ICF
35 Kaiser Engineers, Inc. (1999) concluded that only localized contamination in soil and
36 groundwater exists near storm drains and sanitary sewers.

37 EarthTech evaluated the storm drain and sanitary sewer systems to determine their
38 compatibility with planned redevelopment of the OARB. EarthTech (2000) finds that both

1 systems will have to be almost completely replaced because they are in poor condition and
2 undersized. Chapter 3: Description, states that the storm drain and sanitary sewer systems of
3 the OARB will be repaired and/or replaced. Therefore, it is anticipated that the localized soil and
4 groundwater contamination associated with existing storm drains and sanitary sewers, as
5 described in Army reports, can be adequately addressed as part of infrastructure replacement in
6 accordance with the RMP.

7 However, further investigation is appropriate to determine if significant quantities of
8 contaminated sediment are still being discharged through outfalls to San Francisco Bay. In its
9 guidance for managing contaminated sediment risks, U.S. EPA (2002) states that continuing
10 sources of significant sediment contamination should be controlled as early as possible. The
11 existing storm drains and sanitary sewers are identified as a basewide issue for investigation so
12 the need, if any, for interim remedial actions can be assessed. Environmental conditions
13 associated with marine sediments situated next to base outfalls will be addressed separately
14 and will not be considered in the RAP/RMP.

15 **RMP Implementation Area Group 8: Railroad Tracks.** Approximately 26 miles of railroad
16 track remain at the OARB. In addition, former railroad track ballast is covered with imported
17 gravel in the former Baldwin Railyard. According to U.S. EPA (2001a 1997a), typical
18 contamination in old railyards such as those that exist at the base include:

- 19 • Petroleum hydrocarbons from spillage during fueling operation and repetitive minor leakage
20 from engines and rail cars.
- 21 • PCBs from the hydraulic systems of locomotive engines and electrical equipment.
- 22 • Metal dust from brake shoes and other friction sources.

23 In addition, surface soil may become contaminated with creosote, pentachlorophenol (PCP) or
24 chromated copper arsenate (CCA) that originate from preservatives that are often applied to
25 railroad ties (Felton and DeGroot 1996; U.S. EPA 1993). Herbicides sprayed near tracks for
26 weed control are also of potential concern.

27 No surface or shallow soil samples have been analyzed to assess the potential contamination
28 near railroad tracks at the OARB (*i.e.*, within the sub-ballast or interface between ballast and
29 underlying fill). Given the large total mileage of track present at the base, early sampling is
30 warranted to determine if contaminants of concern in surface soil are widespread along the
31 tracks. The OBRA intends to conduct such preliminary sampling during its planned Phase II
32 investigation.

33 **OARB Sub-District, Regulated Building Materials**

34 Regulated building materials present at the OARB include LBP, Asbestos, PBCs and
35 ASTs/USTs. With respect to LPB, some buildings at the OARB have tested positive for LBP and
36 others are assumed to have LBP due to their age. (EBS 1996; ACE 1999.) Additionally, shallow

1 soils around these buildings may be impacted by lead. See discussion above under RMP Sites
2 Group 4, for further information. With respect to asbestos, prior surveys indicate that asbestos
3 and asbestos-containing materials (ACM) exist within buildings, structures and utilities at the
4 OARB. (EBS 1996; ACE 1999.) As for PBCs, this chemical may be present in older
5 transformers, capacitors, and light ballasts. PCB transformers, PCB-contaminated transformers,
6 and other oil-filled equipment are considered to be a hazardous waste once taken out of
7 service. See discussion above regarding RMP Implementation Area Group 5. Finally, with
8 respect to ASTs and USTs, such tanks are known to be present at the OARB. Many have
9 already been closed and/or removed. However, some ASTs and USTs remain, and there may
10 be some residual soil contamination that remains. See discussion above regarding RMP
11 Implementation Area Group 2.

12 **Maritime Sub-District, Hazardous Materials**

13 Hazardous materials in the maritime sub-district are also associated with the commercial and
14 industrial activities occurring there. In addition to the common maintenance and fabrication
15 activities that use relatively small quantities of hazardous materials, hazardous materials may
16 also be brought in as cargoes by ship, truck, or rail. Because the hazardous materials cargoes
17 are only transiting the maritime sub-district, there are no specific records regarding the types
18 and quantities of hazardous materials that may be present in the area at any given time. As
19 noted earlier, hazardous materials transportation is extensively regulated under federal law.

20 The environmental database search (EDR 2002) indicated that there is one RCRA generator in
21 the Maritime sub-district. In addition, the EDR report identified four active USTs, which are likely
22 to contain petroleum products or other hazardous materials. As discussed earlier, the database
23 search only covered a portion of the Maritime sub-district; however, the findings are likely to be
24 representative of the types of concerns identified in the sub-district. RCRA large quantity
25 generators generate more than 1000 kilograms/month (kg/month) of hazardous wastes; small
26 quantity generators generate 100 to 1000 kg/month. RCRA generators typically also store
27 hazardous materials (*i.e.*, the materials used in the processes that ultimately generate
28 hazardous wastes). An additional three active UST and three RCRA small quantity generator
29 sites were shown on the “orphan” sites list for the Maritime sub-district.

30 **Maritime Sub-District, Hazardous Waste**

31 The types of hazardous waste present at the maritime sub-district are expected to be similar to
32 those encountered at the OARB sub-district. They are likely to include waste oil, other waste
33 automotive fluids, and other maintenance-related chemicals and wastes. The Schnitzer Steel
34 automotive recycling facility in the maritime sub-district likely generates somewhat larger
35 volumes of hazardous wastes, possibly including asbestos wastes resulting from old brake
36 pads, as a result of its vehicle dismantling operations. In addition, due to the age of many of the
37 structures in the maritime sub-district, ACM and LBP may be present. ACM and LBP issues are
38 also discussed in the section entitled “regulated building materials.”

1 As noted above, the EDR report indicated that there is one RCRA generator in the Maritime
2 sub-district (as well as three “orphan” sites), as well as four active USTs (as well as three
3 “orphan” sites). Some of these USTs may contain hazardous wastes. There are also seven sites
4 on the HazNet database, indicating that hazardous wastes have been generated at these seven
5 locations. An additional 20 “orphan” sites in the Maritime sub-district were listed on the HazNet
6 (18) and/or RCRIS small generator (3) databases, indicating that they generate or dispose of
7 hazardous wastes. One site was on both the HazNet and RCRIS lists, thus generating 21
8 listings for 20 sites.

9 **Maritime Sub-District, Contaminated Soil and Groundwater**

10 The EDR report identified numerous potential contaminated soil and groundwater concerns in
11 the Maritime sub-district, as would be expected in an area that is currently and has historically
12 been an industrial area. These potential concerns include 10 leaking/historical USTs, five
13 documented spills or accidental releases, and two other sites with contamination. There are 14
14 sites on the Cortese List in the portion of the Maritime sub-district covered by the database
15 search (these include one site on the CHMIRS database, three sites on the LUST/historical
16 tanks database, three on the active UST list, three on the HazNet database, and one on other
17 contamination databases). An additional 26 “orphan” sites in the Maritime sub-district were
18 listed on the one of the leaking underground storage tank (LUST), Cortese, SLIC, historical
19 tank, and/or CHMIRS databases, indicating that they either had or may have had releases.
20 Three of these sites had multiple database listings. Some specific sites are discussed below.

21 **Berth 24.** The former Mobil Oil site located at Berth 24 is under an RWQCB order for
22 investigation and remediation of contaminated soil and groundwater (RWQCB Order 99-063).
23 Elevated levels of petroleum-related compounds were detected in groundwater in this area (ICF
24 Kaiser 1997; RWQCB 1999). Free product has also been found at the site. Detected
25 constituents include BTEX as well as TPH measured as gasoline (TPH-g) and diesel (TPH-d).
26 Elevated levels of TPH-g and BTEX are present on most of Berth 24; elevated levels of TPH-d
27 are confined to a smaller area in the eastern portion of the berth. High levels of methane,
28 resulting from anaerobic biodegradation of the TPH and BTEX compounds, are present in the
29 surficial soils. Investigation of the plume suggests that it is largely limited to Berth 24, although
30 the southern edge of Berth 23 may also be impacted.

31 **Port of Oakland Outer Harbor Area USTs.** USTs have been removed from at least six
32 locations in the Port of Oakland Outer Harbor area (Port of Oakland 2001a). Localized
33 groundwater contamination associated with some of these USTs was identified. Typical
34 constituents in groundwater included TPH-g, TPH-d, and BTEX compounds. Where
35 contamination was identified, concentrations were generally relatively low, and confined to the
36 immediate vicinity of the tank.

37 **Former Fleet and Industrial Supply Center, Oakland.** Extensive groundwater investigations
38 have been conducted at FISCO. The potential concerns associated with groundwater were

1 divided into CERCLA-type releases and UST-related releases. A Remedial Action Plan (RAP),
2 specifying the required remaining remedial activities for the CERCLA-type releases, has been
3 completed. The only requirement in the RAP is that a deed restriction be placed on a small
4 portion of the property, prohibiting use of shallow groundwater as a source of drinking water
5 (this deed restriction is consistent with the de-designation of the Oakland Shoreline zone as a
6 source of drinking water as proposed by the SFRWQCB). Less than five percent of the property
7 is covered by the deed restriction.

8 In addition to the CERCLA-type releases, 10 UST sites at FISCO have not been closed.
9 Additional groundwater characterization has recently been completed, and a closure report for
10 these 10 sites is currently being prepared by the Port of Oakland (Port of Oakland 2001b).

11 **Former Union Pacific Roundhouse Property.** Several investigations have been performed at
12 this site (Kleinfelder 1999). A free product plume is present on the groundwater in the north-
13 central portion of the former UP Roundhouse property. The estimated location of the free
14 product corresponds to the location of a large former above-ground fuel storage tank.
15 Investigation at the site has shown the presence of TPH-d in soil and groundwater, localized
16 elevated concentrations of lead and antimony in soil, and very low levels of select aromatics and
17 PAHs in groundwater (Kleinfelder 1999, 2000). Finally, a soil gas investigation showed high
18 levels of methane in soil gas in the area of the free product plume (Kleinfelder 1999).

19 **Schnitzer Steel.** Schnitzer Steel is currently operating under an RWQCB cleanup and
20 abatement order that prohibits removing a concrete cap at the site (Corps and Port of Oakland
21 1998). In accordance with RWQCB requirements, the facility has installed a cut-off wall to
22 prevent migration of contaminated groundwater to the Bay.

23 **Union Pacific (former Southern Pacific) Desert Railyard.** The former SPRR (now UP) Desert
24 railyard located between the I880 and the OARB (the Desert Yard) is included in the study
25 area. It is the proposed site of the Central Station. No information is available on the Desert
26 railyard.

27 **Maritime Sub-District, Regulated Building Materials**

28 Due to the ages of the buildings in the maritime sub-district, many are likely to contain ACM and
29 LBP. In addition, oil-filled electrical equipment may contain PCBs. All ACM and LBP associated
30 with the former buildings at the former FISCO facility were abated prior to demolition of the
31 buildings. In addition, any PCB/PCB-containing equipment at the former FISCO facility was
32 removed prior to transfer.

33 **16th/Wood Sub-District, Hazardous Materials**

34 The environmental database search (EDR 2002) indicated that there are no RCRA generators
35 or active USTs in the 16th/Wood sub-district. No active UST and or RCRA small quantity
36 generator sites were shown on the "orphan" sites list for the 16th/Wood sub-district.

1 Nevertheless, hazardous materials may exist in the 16th/Wood sub-district, and they would be
2 associated with the commercial and industrial activities occurring there. In addition to the
3 common maintenance and fabrication activities that use relatively small quantities of hazardous
4 materials, hazardous materials may also be brought in as cargoes by truck or rail (*i.e.*, be
5 brought into and temporarily stored at the Desert Yard). Because these hazardous materials
6 cargoes are only transiting the sub-district, there are no specific records regarding the types and
7 quantities of hazardous materials that may be present in the area at any given time.

8 **16th/Wood Sub-District, Hazardous Waste**

9 As noted above, the EDR report indicated that there are neither RCRA generators nor active
10 USTs in the 16th/Wood sub-district. There are also no sites on the HazNet database in this sub-
11 district. No “orphan” sites in the 16th/Wood sub-district were listed on the HazNet or RCRIS
12 databases. Nevertheless, the types of hazardous waste present at the 16th/Wood sub-district
13 are expected to be similar to those encountered at the OARB and Maritime sub-districts. They
14 are likely to include waste oil, other waste automotive fluids, and other maintenance-related
15 chemicals and wastes. In addition, due to the age of many of the structures in the 16th/Wood
16 sub-district, ACM and LBP may be present.

17 **16th/Wood Sub-District, Contaminated Soil and Groundwater**

18 The EDR report identified numerous potential contaminated soil and groundwater concerns in
19 the 16th/Wood sub-district, as would be expected in an area that is currently and has historically
20 been an industrial area. These potential concerns include one leaking UST, one documented
21 spill or accidental releases, and six other sites with contamination. There are four sites on the
22 Cortese List in the portion of the 16th/Wood sub-district covered by the database (including two
23 sites from other contamination databases). One additional “orphan” site in the 16th/Wood sub-
24 district was listed as being on the CHMIRS (spill) database, indicating that it had or may have
25 had a release.

26 A large number of sites that pose a potential concern are located in the vicinity of the 16th/Wood
27 sub-district. These sites could result in contamination at the 16th/Wood sub-district if
28 contaminant migration occurs. For example, approximately 10 sites identified by the EDR report
29 are located within one to two blocks of the eastern boundary of the 16th/Wood sub-district.

30 **Former Amtrak Station/14th and Wood Street Area.** A remedial site evaluation (RSE) was
31 completed for this property in October 2000 (WEST 2000). The RSE incorporated information
32 from four prior investigations. The area covered by the RSE has had a wide range of historical
33 uses, including a foundry; a train station with associated rail facilities (including maintenance
34 facilities); automobile repair, painting, and dismantling; warehousing and trucking; and other
35 commercial and industrial uses. Several USTs, and a former oil sump are known to have been
36 located on the property.

1 The RSE showed that the following classes of constituents had been detected at the property:
2 TPH-diesel, BTEX, slightly elevated levels of lead, soluble lead above hazardous waste
3 thresholds, and certain chlorinated organic compounds in soil and/or groundwater. Based on a
4 review of the site data, the RWQCB concluded that, with few exceptions, residual site chemical
5 concentrations are below the relevant RBSLs for commercial/industrial uses. The exceptions
6 are a residue found in a floor drain, certain areas on the property with elevated levels of TPH,
7 the soluble lead, and the chlorinated organic compounds found in soil and groundwater. The
8 TPH and soluble lead would be managed during site development. The floor drain residue
9 would also be removed during site development. The chlorinated hydrocarbons are apparently
10 limited in extent. The RWQCB believes that the chlorinated compounds found may not have
11 originated on-site, and will ask the City of Oakland to conduct an investigation of the source and
12 extent. The RWQCB will also require a soil management plan to address the management of
13 known contaminants during construction.

14 **Former Phoenix Ironworks Property.** Several subsurface investigations have been completed
15 at the former Phoenix Ironworks Property (Riedel 1995; IT 2000). These investigations show
16 that elevated levels of lead, including soluble lead, are present in the soil at the site. Elevated
17 levels of lead were generally detected in the soil immediately below the concrete slab. In
18 addition, a dark-stained sand high in heavy petroleum hydrocarbons has been found in certain
19 borings immediately below the concrete slab (IT 2000). Soluble lead levels detected in certain
20 areas are sufficiently high that excavated soil would be classified as a federal and California
21 hazardous waste. Elevated levels of certain metals have also been detected in groundwater,
22 primarily along the eastern and southern perimeter of the property (IT 2000). Very low levels of
23 cVOCs have been detected in soil and groundwater.

24 **16th/Wood Sub-District, Regulated Building Materials**

25 Due to the ages of the buildings in the 16th/Wood sub-district, many are likely to contain ACM
26 and LBP. In addition, oil-filled electrical equipment may contain PCBs.

27 **4.7.5 Impact Analysis Methodology**

28 The impact assessment methodology used focused on the potential health effects and
29 environmental impacts from the release of hazardous materials or wastes during
30 demolition/construction or operation of proposed redevelopment activities. Impacts were
31 evaluated consistent with the level of information available regarding such activities. The
32 evaluation analyzes potential exposure to workers based on construction procedures in areas
33 where hazardous materials or wastes are known or expected to exist.

34 Impacts of operation associated with redevelopment, including exposure to existing hazardous
35 materials on site as well as hazardous materials which may be used on site in the future, is
36 consistent with available information, including the Redevelopment Plan and the Reuse Plan.
37 Complete assessment of potential health risks associated with future site uses requires precise

1 information on the type of use for each specific area. Relatively small changes in the project
2 description (e.g., relocating a building 200 feet, or locating a sensitive use such as a daycare
3 center to a different building) could result in substantial changes in future risk estimates. Future
4 use information has not been precisely developed, and information on potential health risks
5 resulting from redevelopment is based on existing documents that assess general proposed
6 construction practices and development of the project area. No new health risk assessments
7 were performed, and it is assumed that data in the existing assessments is accurate.

8 Although specific contaminants and concentrations may vary across the redevelopment project
9 area, the types of impacts expected, and therefore, the general response actions and
10 approaches to mitigation would be consistent throughout the redevelopment project area. The
11 impacts are based on an evaluation of the potential exposures and associated risks to human
12 health and the environment during demolition of existing buildings, structures and other
13 improvements, and removal of existing utilities, rail infrastructure, and other land improvements.
14 Impacts associated with installation of utilities and other public improvements, including rail
15 improvements, construction of new facilities, and renovation of existing facilities that contain
16 hazardous materials, are also evaluated. There is no method to estimate precisely the types of
17 hazardous materials that would be used on site after completion of the development, but such
18 uses would be regulated by current laws and regulations.

19 **Significance Criteria**

20 Remediation and redevelopment would have a significant impact on the environment if it would:

- 21 • Create a substantial hazard to the public or the environment through the routine transport,
22 use, or disposal of hazardous materials;
- 23 • Create a substantial hazard to the public or the environment through reasonably foreseeable
24 upset and accident conditions involving the release of hazardous materials into the
25 environment;
- 26 • Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances,
27 or waste within ¼ mile of an existing or proposed school;
- 28 • Be located on a site that is included on a list of hazardous materials sites compiled pursuant
29 to Government Code Section 65962.5, or be another known or suspected contaminated site
30 that would (1) create a significant hazard to the public or the environment, (2) exceed the
31 acceptable excess cancer risk range of 1×10^{-5} for commercial or industrial land uses as set
32 forth in the City of Oakland Urban Land Redevelopment Program Guidance Document (City
33 of Oakland 2000), or (3) exceed the acceptable excess cancer risk range set in the National
34 Contingency Plan (1×10^{-6} to 1×10^{-4}) for other uses.
- 35 • Impair implementation of or physically interfere with an adopted emergency response plan
36 or emergency evacuation plan.

1 **4.7.6 Impacts**

2 **Benefits**

3 Remediation and redevelopment would result in repair and/or replacement of the contaminated
4 sanitary sewer pipelines at the OARB and further remediation of site contamination as provided
5 for in the OARB RAP/RMP to be approved by DTSC and as otherwise required by regulatory
6 agencies. Remediation of the project area to meet ULR standards throughout the project area
7 would reduce the health risks currently posed by hazardous materials, hazardous wastes and
8 soil and groundwater contamination by removing or capping in combination with other
9 institutional controls. Use of these methods with the proper construction and disposal
10 techniques would reduce the potential for future environmental damage and allow for safe
11 reuse. Additionally, redevelopment activities would include removal of LPB-impacted, ACM-
12 impacted and PBCs-impacted materials in and around buildings to be demolished or renovated.
13 Finally, old ASTs and USTs, as well as any associated soil contamination would be removed.
14 Removal of LBP, ACM, and PBCs from structures and utilities on the property, and removal of
15 ASTs/USTs would eliminate potential hazards associated with these materials. Generally,
16 redevelopment would require remediation of soil and groundwater contamination, which is a
17 benefit.

18 ~ ~ ~

19 **Impacts**

20 **Hazardous Materials**

21 **Impact 4.7-1:** Routine use or accidental release of hazardous materials during
22 remediation, construction and operations could expose people or the
23 environment to these materials.

24 **Significance:** Less than significant

25 **Mitigation:** Mitigation is not warranted.

26 Remediation and construction workers and future commercial/industrial tenants and visitors
27 occupying newly constructed or renovated facilities may be exposed to hazardous materials
28 such as small quantities of gasoline, solvents, diesel fuel, oil and grease, hydraulic fluid,
29 ethylene glycol, welding gases, and paint routinely used in construction or industrial/commercial
30 operations. Hazardous materials may enter the study area via cargo on ships, trains or trucks.
31 The type and quantity of hazardous materials that may be used in, stored or transported through
32 the area would vary over time. Improper management of hazardous materials or accidental
33 release could pose a substantial hazard to human health and the environment. However,
34 management of hazardous materials during construction and operations shall comply with
35 applicable laws; therefore, this impact is considered less than significant.

36 ~ ~ ~

1 generated during construction or industrial/commercial operations. The quantity of hazardous
2 waste generated and stored within the area would vary over time. Improper management or
3 accidental release of hazardous waste could pose a substantial hazard to human health and the
4 environment. Management of hazardous waste during remediation, construction and operations
5 shall comply with applicable laws and legal requirements, including but not limited to the
6 remediation requirements, and health and safety and other measures, required under the
7 approved RAP/RMP; therefore, the impact is considered less than significant. In addition,
8 Mitigation Measure 4.15-1 requires development and implementation of a site-specific Water
9 Quality Protection Plan, which requires use of Best Management Practices. While Mitigation
10 Measure 4.15-1 is primarily intended to avoid or minimize impacts to surface water, its
11 implementation would also avoid or minimize impacts from potential accidental releases to
12 humans and the broader environment.

13 ~ ~ ~

14 **Contaminated Soil and Groundwater**

15 **Impact 4.7-4:** Site preparation, remediation and development of areas that contain
16 contaminated soil and groundwater could expose remediation and
17 construction workers, and future utility workers, tenants, and visitors
18 to soil and groundwater contamination conditions.

19 **Significance:** Potentially significant

20 **Mitigation 4.7-3:** Implement RAP/RMP as approved by DTSC, and if future proposals
21 include uses not identified in the Reuse Plan and incorporated into the
22 RAP/RMP, or if future amendments to the remediation requirements
23 are proposed, obtain DTSC and City approval.

24 **Mitigation 4.7-4:** For the project area not covered by the DTSC-approved RAP/RMP,
25 investigate potentially contaminated sites; if contamination is found,
26 assess potential risks to human health and the environment, prepare
27 and implement a clean-up plan for DTSC or RWQCB approval,
28 prepare and implement a Risk Management Plan, and prepare and
29 implement a Site Health and Safety Plan prior to commencing work.

30 **Residual Significance:** Less than significant

31 Since implementation of the RAP/RMP approved by DTSC is proposed as part of the project for
32 the OARB, and the RAP/RMP requires remediation to be fully protective of human health and
33 the environment for the proposed future uses of the OARB, no further mitigation is required for
34 the OARB unless either (1) future use proposals include those that were not identified in the
35 Reuse Plan and incorporated into the RAP/RMP; or (2) future amendments are proposed to the
36 remediation requirements included in the approved RAP/RMP. In either of these two

1 circumstances, required remediation includes obtaining the DTSC and City approval for
2 proposed changes in full conformance with applicable legal requirements including but not
3 limited to the HSAA and CEQA.

4 Specific contaminants and concentrations may vary across the redevelopment project area.
5 Nevertheless, the types of impacts expected, and therefore, the general response actions and
6 approaches to mitigation would be consistent throughout the redevelopment project area. With
7 respect to the OARB and as described in greater detail above, the process across the
8 redevelopment project area would mirror the RAP/RMP process that is already underway at the
9 OARB. With respect to the OARB sub-district, pursuant to HSAA Chapter 6.8, the OBRA has
10 proposed a RAP/RMP. The OBRA's remedial goal is to remediate soil and groundwater
11 contamination consistent with the City of Oakland ULR Program 10^{-5} remedy with appropriate
12 land use restrictions. This RAP/RMP must be approved by DTSC, which has the legal discretion
13 to impose remedies falling within the 10^{-4} and 10^{-6} risk range.

14 For the other sub-districts and areas not included in the DTSC-approved RAP/RMP, prior to
15 beginning redevelopment-related activities, potentially affected areas shall be investigated,
16 potentially including additional studies or site characterization activities, as required by the
17 regulatory agencies (DTSC or RWQCB). Once contaminated areas are identified, potential
18 human health risks from contaminants of concern based upon realistic future land use shall be
19 assessed, health risk-based and environmental risk-based cleanup goals shall be established,
20 and a determination regarding the need for additional site assessment work shall be made.

21 The potential risks associated with affected areas shall be assessed in accordance with
22 regulatory agency guidance and approvals and may result in remediation requirements. Such
23 cleanup plans shall address each area where soil or groundwater is contaminated above ULR
24 goals could be encountered during redevelopment. The clean up plan, the names of which vary
25 based on the type and source of contamination and the legal framework for the particular
26 oversight agency, shall specify measures to be taken to protect workers and the public from
27 exposure to potential contamination and certify that the proposed remediation measures,
28 including removal, disposal, stabilization and/or institutional controls are protective of human
29 health and the environment and implemented in accordance with federal, state and local
30 requirements. Additionally, a Risk Management Plan may be required by the oversight agency
31 to address site redevelopment activities and operations and provide an enforcement structure to
32 be in place during and post-construction. Finally, a Site Health and Safety Plan shall be
33 prepared in accordance with the OSHA and Cal/OSHA regulations. Off-hauling of contamination
34 shall comply with applicable laws, and construction hours shall be limited as provided for in
35 Mitigation Measure 4.5-1. Additionally, potential odor impact measures, and dust or other
36 nuisance conditions from remediation-related truck traffic is provided for in Mitigation Measure
37 4.3-13, and safety concerns are addressed in Mitigation Measure 4.9-3.

38 Implementation of these measures would reduce the impact to less than significant.

39 ~ ~ ~

1 practices as specified in government regulations shall be followed
2 during demolition.

3 **Mitigation 4.7-7:** Buildings, structures and utilities that have not been surveyed for
4 ACM, shall be surveyed to determine whether ACM is present prior to
5 demolition or renovation, and the safety precautions and work
6 practices as specified in government regulations shall be followed
7 during demolition.

8 **Mitigation 4.7-8:** Buildings and structures proposed for demolition or renovation shall
9 be surveyed for PCB-impacted building materials, and the safety
10 precautions and work practices as specified in government
11 regulations shall be followed during demolition.

12 **Residual Significance:** Less than significant

13 The presence of LBP, ACM and PCBs are known or suspected in buildings, structures and
14 utilities in all sub-districts. All structures on the OARB will be demolished as a result of
15 redevelopment, and other structures throughout the redevelopment area may also be
16 demolished. Some buildings, such as the Amtrack Station in the 16th and Wood sub-district will
17 be renovated. Release of LBP, use of which was prohibited in 1978, into the environment as
18 dust or flakes during building demolition or renovation could lead to human exposure through
19 inhalation or ingestion. Demolition or renovation activities could also cause asbestos fibers to be
20 released as ACM is disturbed. Finally, demolition may also expose workers or others to PCB-
21 impacted building materials.

22 Exposure to LBP, ACM or PCBs during demolition or renovation of buildings, structures and
23 utilities could create a substantial hazard to human health. This is considered a potentially
24 significant impact. With implementation of Mitigation Measures 4.7-6 through 4.7-8, including
25 following safety precautions and work practices as specified in government regulations, this
26 impact would be minimized, and the residual impact is considered less than significant.

27 ~ ~ ~

28 **Impact 4.7-7:** Workers or others could be exposed to hazardous materials and
29 contamination in and around ASTs and USTs during remediation and
30 redevelopment activities.

31 **Significance:** Potentially significant

32 **Mitigation 4.7-9:** For ASTs/USTs on the OARB, implement the RAP/RMP, which
33 incorporates the steps enumerated below.

1 cases, there has been no sampling to evaluate the possible presence of lead in shallow soil
2 near affected buildings. In all sub-districts, there exists potential for exposure to LBP in soils,
3 concrete, or pavement in concentrations that could pose a substantial hazard to human health.
4 With implementation of Mitigation Measures 4.7-11, the impact would be minimized, and the
5 residual impact is considered less than significant.

6 ~ ~ ~

7 **Impact 4.7-9:** Workers or others, or the environment could be exposed to lead,
8 asbestos or PCBs through off-site transport of soil and building
9 materials from demolition and construction.

10 **Significance:** Less than significant

11 Lead-contaminated, ACM-contaminated or PCB-contaminated soil and building materials from
12 building demolition and other construction activities will be transported off-site for disposal.
13 Should this waste/debris be handled improperly during transport or disposal, a potential exists
14 for lead exposure to human health or the environment. However, contractors shall comply with
15 all applicable hazardous waste laws at the time of demolition and hauling, which will reduce the
16 impact to less than significant.

17 ~ ~ ~

18 **Impact 4.7-10:** During interim or future use of existing buildings, people could be
19 exposed to ACM or other environmental hazards.

20 **Significance:** Potentially significant

21 **Mitigation 4.7-12:** The condition of identified ACM shall be assessed annually, and prior
22 to reuse of a building known to contain ACM.

23 **Mitigation 4.7-13:** No future tenancies shall be authorized at the OARB for use
24 categories that are inconsistent with the Reuse Plan without an
25 updated environmental analysis and DTSC approval as provided for in
26 the RAP/RMP.

27 **Mitigation 4.7-14:** For the remainder of the redevelopment project area (non-OARB
28 areas), any building that has not been surveyed for ACM but
29 potentially contains ACM shall be surveyed to determine whether
30 ACM is present prior to demolition, renovation or reuse.

31 **Residual Significance:** Less than significant

32 For the OARB, baseline environmental analyses have been completed to support current
33 interim uses of existing structures, including numerous commercial, trucking, warehouse and

1 other tenants, the Oakland Military Institute, and transitional housing used for formerly-
2 incarcerated women and their families and for various homeless service providers including an
3 overnight shelter. Other environmental hazards may also be encountered by future interim
4 occupants of existing OARB structures, and completion of a baseline environmental evaluation
5 to identify and abate such hazards prior to occupancy by tenants will mitigate such hazards.
6 Interim occupancy by future tenants who may propose land uses which are inconsistent with the
7 Reuse Plan, and thus may not have been considered in the DTSC-approved RAP/RMP, shall
8 occur only after DTSC approval as provided for in the RAP/RMP in order to assure that such
9 future non-conforming tenants are protected from other environmental hazards. As stated
10 above, for the remainder of the redevelopment project area, any building that has not been
11 surveyed for ACM but potentially contains ACM shall be surveyed to determine whether ACM is
12 present prior to demolition, renovation or reuse.

13 Inhalation of asbestos fibers from ACM poses a hazard to human health. Exposure of people to
14 damaged, friable ACM (such as pipe, boiler and other utilities insulation, wallboard, and ceiling
15 tiles) could pose a substantial hazard. Should this occur, it would be considered a significant
16 impact. Because presence of ACM in many buildings and the degree of human exposure are
17 not definite, this impact is considered potentially significant. With implementation of Mitigation
18 Measures 4.7-12, 4.7-13 and 4.7-14, the impact would be minimized, and the residual impact is
19 considered less than significant.

20 ~ ~ ~

21 **Impact 4.7-11:** Workers could be exposed to polychlorinated biphenyls (PCB) and
22 PCB-contaminated equipment during remediation, construction and
23 future operations.

24 **Significance:** Potentially significant

25 **Mitigation 4.7-15:** Known PCB transformers or PCB-contaminated transformers at the
26 OARB shall be removed, monitored and/or maintained in accordance
27 with applicable laws and regulations.

28 **Mitigation 4.7-16:** Oil-filled electrical equipment in the redevelopment project area that
29 has not been surveyed shall be investigated prior to the equipment
30 being taken out of service to determine whether PCBs are present.

31 **Mitigation 4.7-17:** PCB-containing or PCB-contaminated equipment taken out of service
32 shall be handled and disposed in compliance with applicable laws and
33 regulations.

34 **Residual Significance:** Less than significant

1 Oil-filled electrical equipment throughout the redevelopment project area may be contaminated
2 with PCB. In addition to transformers, common electrical equipment filled with dielectric fluids
3 (oil) includes light ballasts, capacitors, and hydraulic fluids (found in elevators and hydraulic
4 lifts). Improper maintenance, storage, or disposal of this equipment could result in a substantial
5 hazard to human health or the environment. Because it is expected that these materials would
6 be maintained, stored, and disposed properly, this impact is considered potentially significant.
7 With implementation of Mitigation Measures 4.7-15 through 4.7-17, the impact would be
8 minimized, and the residual impact is considered less than significant.

9 ~ ~ ~

10 **4.7.7 Mitigation**

11 Implementation of the following mitigation measures will avoid, minimize, reduce, rectify, or
12 compensate for significant impacts of remediation and redevelopment.

13 **Hazardous Materials/Hazardous Wastes**

14 **Mitigation 4.7-1:** For use of hazardous materials within ¼ mile of an existing or proposed
15 school, prepare Business Plan, business operators shall update annually, and keep on file with
16 the Oakland Fire Department.

17 This measure applies to Impact 4.7-2.

18 A business plan details the types and quantities of chemicals stored at a given location, the
19 storage location and types of storage containers, and the emergency response equipment
20 available at the property (e.g., location of fire extinguishers and fire hydrants). It also provides a
21 map showing the location of all of these items as well as major utilities (e.g., water, electricity).

22 ~ ~ ~

23 **Mitigation 4.7-2:** For use of AHMs within ¼ mile of an existing or proposed school, in addition
24 to a Business Plan, business operators shall prepare, implement, and update a Risk
25 Management and Prevention Plan (RMPP) on at least an annual basis.

26 This measure applies to Impact 4.7-2.

27 An RMPP is a plan to address the risks of accidental release of acutely hazardous chemicals
28 present at a site. The plan inventories the chemicals that exceed aggregate amounts above a
29 regulatory threshold and develops measures to ensure that that there is an adequate safety
30 program to prevent their release. The RMPP is submitted to the local oversight agency and then
31 goes through a public review process prior to approval by the agency. It is kept on file with
32 Oakland Fire Department.

33 ~ ~ ~

1 assessed, health risk-based and environmental risk-based cleanup goals shall be established,
2 and a determination regarding the need for additional site assessment work shall be made.

3 The potential risks associated with affected areas shall be assessed in accordance with
4 regulatory agency guidance and approvals and may result in remediation requirements. Such
5 cleanup plans shall address each area where soil or groundwater is contaminated above ULR
6 goals could be encountered during redevelopment. The clean up plan, the names of which vary
7 based on the type and source of contamination and the legal framework for the particular
8 oversight agency, shall specify measures to be taken to protect workers and the public from
9 exposure to potential contamination and certify that the proposed remediation measures,
10 including removal, disposal, stabilization and/or institutional controls are protective of human
11 health and the environment and implemented in accordance with federal, state and local
12 requirements. Additionally, a Risk Management Plan may be required by the oversight agency
13 to address site redevelopment activities and operations and provide an enforcement structure to
14 be in place during and post-construction. Finally, a Site Health and Safety Plan shall be
15 prepared in accordance with the OSHA and Cal/OSHA regulations. Off-hauling of contamination
16 shall comply with applicable laws, and construction hours shall be limited as provided for in
17 Mitigation Measure 4.5-1 in order to prevent night-time glare. Additionally, potential odor impact
18 measures, and dust or other nuisance conditions from remediation-related truck traffic is
19 provided for in Mitigation Measure 4.3-13, and safety concerns are addressed in Mitigation
20 Measure 4.9-3.

21 ~ ~ ~

22 **Mitigation 4.7-5:** For the project areas not covered by the DTSC-approved RAP/RMP,
23 remediate soil and groundwater contamination consistent with the City of Oakland ULR Program
24 and other applicable laws and regulations.

25 This measure, as well as Measures 4.7-3 and 4.7-4, applies to Impact 4.7-5.

26 The City of Oakland ULR Program has determined that reducing the target risk level to 1×10^{-5}
27 for commercial or industrial land uses in combination with appropriate institutional controls
28 would reduce the risk to future residents, employees, and visitors to less than significant. Within
29 the OARB area covered by the DTSC-approved RAP/RMP, implementation will result in
30 avoidance of any potentially significant impact to future commercial/industrial/maritime/utility
31 workers, and site visitors. Moreover, the measures required for the areas not covered by the
32 DTSC-approved RAP/RMP, (Measure 4.7-4) would evaluate and control potential human health
33 risks from contaminants of concern in the redevelopment project area and will sufficiently
34 address this potential impact. In addition, Mitigation Measures 4.14-1 and 4.14-2, which prohibit
35 the installation of groundwater wells for any purpose other than construction de-watering and
36 remediation and require that even for construction de-watering and remediation use of those
37 wells be minimized, will reduce the potential for contaminants to migrate to other underlying

1 groundwater aquifers, thus lessening the impact to future residents, employees and visitors to
2 less than significant.

3 ~ ~ ~

4 **Regulated Building Materials**

5 **Mitigation 4.7-6:** Buildings and structures constructed prior to 1978 slated for demolition or
6 renovation that have not previously been evaluated for the presence of LBP shall be sampled to
7 determine whether LBP is present in painted surfaces, and the safety precautions and work
8 practices as specified in government regulations shall be followed during demolition.

9 This measure applies to Impact 4.7-6 and Cumulative Impact 5.7-1.

10 ~ ~ ~

11 **Mitigation 4.7-7:** Buildings, structures and utilities that have not been surveyed for ACM, shall
12 be surveyed to determine whether ACM is present prior to demolition or renovation, and the
13 safety precautions and work practices as specified in government regulations shall be followed
14 during demolition.

15 This measure applies to Impact 4.7-6 and Cumulative Impact 5.7-1.

16 ~ ~ ~

17 **Mitigation 4.7-8:** Buildings and structures proposed for demolition or renovation shall be
18 surveyed for PBC-impacted building materials, and the safety precautions and work practices as
19 specified in government regulations shall be followed during demolition.

20 This measure applies to Impact 4.7-6 and Cumulative Impact 5.7-1.

21 ~ ~ ~

22 **Mitigation 4.7-9:** For ASTs/USTs on the OARB, implement the RAP/RMP, which incorporates
23 the steps enumerated in Measure 4.7-10 below.

24 This measure applies to Impact 4.7-7 and Cumulative Impact 5.7-1.

25 ~ ~ ~

26 **Mitigation 4.7-10:** For the remainder of the redevelopment project area (non-OARB areas), if
27 an AST or UST is encountered, it would be closed in place or removed and the soil would be
28 tested and remediated, if necessary, pursuant to regulatory approvals and oversight.

29 This measure applies to Impact 4.7-7 and Cumulative Impact 5.7-1.

1 Both ASTs and USTs are known to have been present on the OARB and in the redevelopment
2 project area generally. Many have been removed from the OARB and the redevelopment
3 project area, but others may remain. For the OARB, implementation of the RAP/RMP would
4 address the risk of exposure to a tank that is unexpectedly encountered, disturbed or damaged
5 during construction. For the remainder of the redevelopment project area, if an AST or UST is
6 discovered during construction activities, it would be closed in place or removed according to
7 the guidelines of the DTSC, RWQCB and CUPA. Like the RAP/RMP for the OARB, such
8 requirements include removing and properly disposing of any remaining hazardous materials in
9 the tank, having the tank removal supervised by regulatory agencies, testing the soil under the
10 tank for contamination, recycling or disposing of the discarded tank and filing a tank removal
11 closure report.

12 ~ ~ ~

13 **Mitigation 4.7-11:** For LBP-impacted ground on the OARB, implementation of a RAP/RMP to
14 be approved by DTSC as part of the project will result in avoidance of this potentially significant
15 impact. For the remainder of the redevelopment project area, sampling shall be performed on
16 soil or paved areas around buildings that are known or suspected to have LBP, and the safety
17 precautions and work practices specified in government regulations shall be followed.

18 This measure applies to Impact 4.7-8 and Cumulative Impact 5.7-1.

19 ~ ~ ~

20 **Mitigation 4.7-12:** The condition of identified ACM shall be assessed annually, and prior to
21 reuse of a building known to contain ACM.

22 This measure applies to Impact 4.7-10.

23 ~ ~ ~

24 **Mitigation 4.7-13:** No future tenancies shall be authorized at the OARB for use categories that
25 are inconsistent with the Reuse Plan without an updated environmental analysis and DTSC
26 approval as provided for in the RAP/RMP.

27 This measure applies to Impact 4.7-10.

28 For the OARB, baseline environmental analyses have been completed to support current
29 interim uses of existing structures, including numerous commercial, trucking, warehouse and
30 other tenants, the Oakland Military Institute, and transitional housing used for formerly-
31 incarcerated women and their families and for various homeless service providers including an
32 overnight shelter. Other environmental hazards may also be encountered by future interim
33 occupants of existing OARB structures, and completion of a baseline environmental evaluation
34 to identify and abate such hazards prior to occupancy by tenants will mitigate such hazards.
35 Interim occupancy by future tenants who may propose land uses which are inconsistent with the
36 Reuse Plan, and thus may not have been considered in the DTSC-approved RAP/RMP, shall

1 occur only after DTSC approval as provided for in the RAP/RMP in order to assure that such
2 future non-conforming tenants are protected from other environmental hazards. As stated
3 above, for the remainder of the redevelopment project area, any building that has not been
4 surveyed for ACM but potentially contains ACM shall be surveyed to determine whether ACM is
5 present prior to demolition, renovation or reuse.

6 **Mitigation 4.7-14:** For the remainder of the redevelopment project area (non-OARB areas), any
7 building that has not been surveyed for ACM but potentially contains ACM shall be surveyed to
8 determine whether ACM is present prior to demolition, renovation or reuse.

9 This measure applies to Impact 4.7-10 and Cumulative Impact 5.7-1.

10 ~ ~ ~

11 **Mitigation 4.7-15:** Known PCB transformers or PCB-contaminated transformers at the OARB
12 shall be removed, monitored and/or maintained in accordance with applicable laws and
13 regulations.

14 This measure applies to Impact 4.7-11.

15 In addition, surface and subsurface contamination from any PCB equipment that remains in use
16 should be investigated and remediated in compliance with all applicable laws and regulations.

17 ~ ~ ~

18 **Mitigation 4.7-16:** Oil-filled electrical equipment in the redevelopment project area that has not
19 been surveyed shall be investigated prior to the equipment being taken out of service to
20 determine whether PCBs are present.

21 This measure applies to Impact 4.7-11.

22 Equipment found to contain PCBs should be part of an ongoing monitoring program. Surface
23 and subsurface contamination from any PCB equipment shall be investigated and remediated in
24 compliance with applicable laws and regulations.

25 ~ ~ ~

26 **Mitigation 4.7-17:** PCB-containing or PCB-contaminated equipment taken out of service shall
27 be handled and disposed in compliance with applicable laws and regulations.

28 This measure applies to Impact 4.7-11.

29 Equipment filled with dielectric fluid (oil) including transformers, ballast, etc. containing more than
30 5 ppm PCBs is considered a hazardous waste in California.

31 ~ ~ ~
32 ~