

**Record of Decision  
for  
Initial Parcel # 3 Property**

Former McClellan Air Force Base,  
McClellan, California

U.S. Environmental Protection Agency  
Region 9  
San Francisco, California

September 2012  
Final

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## Acronyms and Abbreviations

AFB	Air Force Base
AFRPA	Air Force Real Property Agency
AOC	Administrative Order on Consent
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
BaP	benzo(a)pyrene
Beta BHC	beta-hexachlorocyclohexane
bgs	below ground surface
BRAC	Base Realignment and Closure
CCR	California Code of Regulations
CDPH	California Department of Public Health
Central Valley Water Board	Central Valley Regional Water Quality Control Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CIP	Community Involvement Plan
COC	contaminant of concern
COPC	contaminant of potential concern
CS	confirmed site
CSM	Conceptual Site Model
DCE	dichloroethene
DRMO	Defense Reutilization and Marketing Office
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
EPC	exposure point concentration
ESCA	Environmental Services Cooperative Agreement
FFA	Federal Facilities Agreement
FOSET	Finding of Suitability for Early Transfer
ft	feet
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IC (#)	investigation cluster (used with a numeral to identify SVE investigation/cleanup areas)
IC	institutional control
ID	identification
IP	initial parcel
IRA	interim remedial action
IROD	Interim Record of Decision
IRP	Installation Restoration Program

IWL	industrial waste line
IWTP	industrial wastewater treatment plant
MBP	McClellan Business Park, LLC
mg/kg	milligrams per kilogram
msl	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	non-detect
NFI	no further investigation
NPL	National Priorities List
OU	operable unit
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
POL	petroleum, oil, and lubricant
ppbv	parts per billion by volume
PRG	preliminary remediation goal
PRL	potential release location
RAB	Restoration Advisory Board
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RD/RA	remedial design/remedial action
RI	remedial investigation
RICS	remedial investigation characterization summary
RI/FS	remedial investigation/feasibility study
ROD	record of decision
SA	study area
SARA	Superfund Amendment and Reauthorization Act
SGEA	soil gas exposure area
SLUC	State land use covenant
SSA	special study area
SSG	shallow soil gas
STOP	SVE termination and optimization process
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
TCE	trichloroethene
TPH	total petroleum hydrocarbons
TPH-D	diesel-range total petroleum hydrocarbons
TPH-G	gasoline-range total petroleum hydrocarbons
UST	underground storage tank
VOC	volatile organic compound

## **PART 1: THE DECLARATION**

### **1.1 Statement of Basis and Purpose**

This Record of Decision (ROD) presents the selected remedial actions for soil and soil gas on the 245 acres of the former McClellan Air Force Base (AFB) Superfund Site referred to as Initial Parcel #3 (IP #3) Property. McClellan AFB was listed on the Environmental Protection Agency's (EPA) National Priorities List (NPL) on July 22, 1987 (EPA, 2007), with a National Superfund database identification number of CA4570024337.

The IP #3 Property was included in the second portion of former McClellan AFB selected for early transfer with privatized cleanup ("privatization"). Privatization uses existing regulatory and enforcement tools to construct a set of agreements which allow the developers to complete the cleanup work on behalf of the federal government in a manner that is protective of human health and the environment and accelerates cleanup and reuse, with cost savings to the government.

The Air Force transferred the Property through the County of Sacramento to McClellan Business Park, LLC (MBP) by means of the Finding of Suitability for Early Transfer (FOSET) One [1] (Air Force Real Property Agency [AFRPA], 2009a) under the Early Transfer Authority provision of the Defense Authorization Act of 1997. MBP is the current owner of the Property and is responsible, under the terms of the Administrative Order on Consent (AOC), dated 13 November 2009 (EPA, 2009a), for the implementation of remedial activities associated with soil contamination in surface and subsurface soils to a depth of 15 feet (ft) below ground surface (bgs) at the Property.

As described in the 2009 AOC, the Air Force retains the responsibility for groundwater and existing contaminations, pollution, or other environmental conditions deeper than 15 ft bgs. Groundwater contamination is present below the IP #3 Property, but it is being addressed under the 2007 *Final Basewide VOC (volatile organic compound) Groundwater Record of Decision* (VOC Groundwater ROD; AFRPA, 2007) and the *Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision* (AFRPA, 2009b) and is, therefore, not covered by this ROD.

If, during the implementation of the IP #3 remedial activities, MBP finds contamination exceeding the cleanup levels deeper than 15 ft bgs (which is defined as a "Retained Condition" in the 2009 AOC), the AOC recognizes the Environmental Services Cooperative Agreement (ESCA) process, in which MBP (on behalf of the County of Sacramento) consults with the Air Force on how to address the Retained Condition (AFRPA, 2009c). Pursuant to the ESCA and as recognized in the AOC, one alternative is that the Air Force (with the approval of EPA, MBP and the County of Sacramento) may choose to treat the Retained Condition as an "Added Condition" under the AOC, in which case the AOC shall govern the response action to be implemented by MBP and the funding for such action shall be paid by the Air Force through the ESCA. To the extent necessary due to the scope of the discovered Retained Condition, the Air Force retains the responsibility for addressing any remedial change in accordance with 40 CFR [Code of Federal Regulations] 300.435(c)."

Pursuant to Section III of the 2010 Federal Facilities Agreement (FFA) Amendment, EPA selected the response actions for the IP #3 Property in close consultation with the state regulators. The State of California, acting through the Department of Toxic Substance Control (DTSC) and Central Valley Regional Water Quality Control Board (Central Valley Water Board), participated from the beginning in developing the IP #3 Property ROD (including the selection of cleanup levels) and concurs on the selected remedies. The IP #3 Property ROD complements the overall cleanup strategy for the former McClellan AFB.

The remedies for the IP #3 Property were selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision documented in this ROD is based on the Administrative Record for the former McClellan AFB, which has been developed in accordance with §113(k) of CERCLA, 42 U.S.C. §9613(k). The Administrative Record Index identifies all the items that support remedy section. The IP #3 ROD will become part of the Administrative Record for the former McClellan AFB.

## **1.2 Assessment of Site**

The IP #3 Property includes 49 Installation Restoration Program (IRP) sites previously identified by the Air Force. Forty-three (43) of the 49 IP #3 Property sites are located in the southern portion of the AFB. One site (Potential Release Location [PRL] S-042) is located in the northeast portion of the base; five sites (Area of Concern [AOC] 322, Confirmed Site [CS] 023, Operable Unit [OU] B1 Drainage Ditch, PRL S-013, and PRL 060) are located in the western portion (see Figure 1.1.1). Site PRL L-005G was not included in the IP #3 FS, but the western portion of the site is included in the AOC. Therefore, PRL L-005G is included in this ROD.

The soil contamination at 41 of the 49 sites addressed by this ROD has the potential to negatively impact human health or welfare or the environment if not addressed. EPA, in consultation with the State, has determined that No Action is appropriate and protects human health or welfare or the environment at eight sites.

## **1.3 Description of Selected Remedies**

EPA selected the remedies for the IP #3 Property based on the Site-specific characterizations are detailed in the IP #3 Remedial Investigation Characterization Summaries (RICS) Addenda (CH2MHill, 2008a) and the 2008 Air Force Feasibility Study (CH2MHill, 2008b) supplemented by additional characterization and analysis including recent interim remedial actions by the Air Force and recent concerns regarding the risks posed by shallow soil gas intrusion to indoor air.

The selected remedies address VOCs in soil gas that may present a threat to human health through the vapor inhalation pathway, and non-VOCs in soil that may present a threat to human health through direct contact, inhalation, or ingestion or that may present a threat to surface water. Individual site characteristics and risk summaries for each of the 49 sites (found in Section 2.5) and the selected remedies for the IP#3 Property ROD are organized in tables according to the VOC and Non-VOC remedial alternatives developed by the Air Force. The tables highlight site contaminants of concern (COCs) exceeding cleanup levels in bold. The risk summaries are color-coded: cells highlighted in red indicate risk greater than  $10^{-4}$  or a hazard index (HI) greater than 1. COCs above the ROD cleanup levels include polychlorinated biphenyls (PCBs), benzo(a)pyrene (BaP) and naphthalene. The final selected remedies for the IP #3 Property use cleanup levels for industrial land use, which is the current and reasonably anticipated future use of the Property. Many IP#3 sites have both VOC and non-VOC remedies.

The IP #3 Property remedies summarized in Table D.1 below are listed in Table 2.10.1 and described in Section 2.10.1.

**Table D.1 IP #3 Property Selected Remedies**

<b>Site Name</b>	<b>Selected Remedy</b>	<b>Remedy Description [a]</b>	<b>Contaminants Addressed [b]</b>
AOC 322	Alternative 1-No Action	No Action	Not Applicable (NA)
Building 600 [c]	Alternatives VOC3 and Non-VOC3	Engineered Controls (ECs), Institutional Controls, ICs); Monitoring	VOCs in Shallow Soil Gas (SSG), total petroleum hydrocarbons (TPH), metals
CS 023 [c]	Alternatives VOC2 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS 030 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs
CS 034	Alternative 1-No Action	No Action	NA
CS 036	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS 047	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Polychlorinated biphenyls (PCBs)
CS 048	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS T-061	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	VOCs in SSG, TPH
OU B1 Drainage Ditch	Alternative Non-VOC4a	Excavation, Off -Site Disposal, ECs, ICs; Monitoring	PCBs
PRL 060	Alternative Non-VOC2	ICs; Monitoring	Metals, pesticides, polyaromatic hydrocarbons (PAHs), PCBs
PRL L-005B	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-005C	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	TPH, PCBs, VOCs in SSG
PRL L-005D	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-005F	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-005G	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-006A	Alternatives VOC3 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-006B	Alternatives VOC3 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL P-009	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	VOCs in SSG, metals, PCBs
PRL S-005	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-009	Alternative 1-No Action	No Action	NA
PRL S-012	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	PCBs

Site Name	Selected Remedy	Remedy Description [a]	Contaminants Addressed [b]
PRL S-013	Alternatives VOC2 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs, Monitoring	PCBs, VOCs in SSG
PRL S-028 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-029	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-030	Alternative VOC2	ICs; Monitoring	VOCs in SSG
PRL S-034	Alternatives VOC3 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-035	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-042	Alternative 1-No Action	No Action	NA
PRL T-006	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL T-007[c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL T-060	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	TPH
SA 001 [c]	Alternative VOC2	ICs; Monitoring	VOCs in SSG
SA 002 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
SA 005	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	TPH
SA 006	Alternative 1-No Action	No Action	NA
SA 007	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	VOCs in SSG, PAHs, TPH
SA 011	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Metals
SA 014	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Metals, TPH, pesticides, PCBs, VOCs
SA 018	Alternative VOC2	ICs	VOCs in SSG
SA 088 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
SA 089	Alternative 1-No Action	No Action	NA
SA 090 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
SA 092	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	PCBs, lead
SA 093	Alternative 1-No Action	No Action	NA
SA 095	Alternative VOC2	ICs; Monitoring	VOCs in SSG
SA 104	Alternative 1-No Action	No Action	NA
SSA 002 [c]	Alternative VOC2	ICs; Monitoring	VOCs in SSG
Wastepile	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Metals, pesticides, and PCBs

Source: EPA, 2011a

- [a] Engineered Controls may not be necessary if monitoring prior to change of use indicates that there is no unacceptable risk to human health or the environment.
- [b] Cleanup Levels and IC Compliance Levels are presented in Tables 2.6.1 and 2.6.2, respectively.
- [c] Selected Remedy for these sites changed from the Proposed Plan (EPA, 2011a), see Section 2.12, Documentation of Significant Changes.

**Alternative 1 – No Action** was selected for eight IP #3 Property Sites (AOC 322, CS 034, PRL S-009, PRL S-042, Study Area [SA] 006, SA 089, SA 093, SA 104) because the investigations have determined that no contamination above residential or industrial cleanup levels is present at the site. EPA is required under CERCLA to consider a no action alternative for comparison with other cleanup alternatives.

**Alternative VOC2 – Institutional Controls (ICs) to Prohibit Residential Use and Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use** were selected for eight IP #3 Property Sites (seven with Alternative VOC2: CS 023, PRL S-013, PRL S-030, SA 001, SA 018, SA 095, and Special Study Area (SSA) 002, and one with Alternative Non-VOC2: PRL 060). ICs only are more cost effective solutions for sites with low level or limited contamination. Because the future land use is expected to be industrial or commercial, maintenance, monitoring, and enforcement of the existing ICs are protective of human health and the environment and comply with applicable or relevant and appropriate requirements (ARARs). Digging restrictions may be applied as part of the Non-VOC remedies. Through a specific State land use covenant (SLUC) recorded on the property subject to this remedy, use of the property for residential and similar purposes will be prohibited. The SLUCs will be implemented and enforced by the State, as represented by DTSC and the Central Valley Water Board. Alternative VOC2 includes monitoring and enforcement of the ICs. The IC alternative is being selected in combination with Alternative Non-VOC3 at one site (CS 023). The IC alternative is being selected in combination with Alternative Non-VOC4a at one site (PRL S-013).

**Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use** was selected for 26 IP #3 Property Sites (Building 600, CS 030, CS 036, CS 047, CS 048, CS T-061, PRL L-005B, PRL L-005C, PRL L-005D, PRL L-005F, PRL L-005G, PRL L-006A, PRL L-006B, PRL P-009, PRL S-005, PRL S-028, PRL S-029, PRL S-034, PRL S-035, PRL T-006, PRL T-007, SA 002, SA 007, SA 014, SA 088, and SA 090); six in combination with Alternative Non-VOC4a (CS 047, CS T-061, PRL L-005C, PRL P-009, SA 007 and SA 014) and four in combination with Alternative Non-VOC3 (Building 600, PRL L-006A, PRL L-006B, and PRL S-034).

Under Alternative VOC3, the SLUC will prohibit residential land use and will require that any future building construction (i.e., new buildings or significant modifications to existing buildings) on the site address the risk of vapor intrusion. The property owner must install vapor controls in the building or perform monitoring to show that there is no unacceptable risk. The specific vapor control required would be determined at the time of construction and must be approved by EPA and the State regulatory agencies.

**Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use** was selected for four sites in combination with Alternative VOC3 (Building 600, PRL L-006A, PRL L-006B, and PRL S-034) and one site (CS 023) in combination with Alternative VOC2. Under Alternative Non-VOC3, ECs would be used to eliminate or limit non-VOC exposure pathways. IP #3 Property sites with Alternative Non-VOC3 may be subject to digging restrictions and physical restrictions such as fencing, or surface controls such as maintenance of a surface cover or cap. These engineering controls will be fully developed during the Remedial Design/Remedial Action Work Plan with

concurrence by the regulatory agencies. The ICs would prohibit residential land use through an SLUC and implement site controls to protect the ECs that reduce exposure to contamination.

**Alternative Non-VOC4a – Excavation and Offsite Disposal** was selected for 14 sites (CS 047, CS T-061, OU B1 Drainage Ditch, PRL L-005C, PRL P-009, PRL S-012, PRL S-013, PRL T-060, SA 005, SA 007, SA 011, SA 014, SA 092, and Wastepile) at the IP #3 Property; one in combination with Alternative VOC2 (PRL S-013); and six in combination with Alternative VOC3 (CS 047, CS T-061, PRL L-005C, PRL P-009, SA 007, and SA 014). Under Alternative Non-VOC4a, the IP #3 Property Sites with contaminated soil and/or sediment would be excavated, and the excavated soil would be transported to an offbase landfill for disposal. All soil containing concentrations of contaminants above industrial use levels will be removed and the resulting land use is restricted. The SLUC is a component of Non-VOC4a and therefore, will be implemented and enforced by DTSC and the Water Board. Alternative Non-VOC4a also includes ECs (such as surface cover or sediment collection) as necessary, ICs, and monitoring as described in detail in Section 2.7.

These CERCLA remedial actions selected in the ROD are necessary to protect the public health, welfare and environment from actual or threatened releases of hazardous substances into the environment. MBP is completing the site investigation and cleanup for the top 15 ft of soil at the IP #3 Property under the direction of EPA, in close consultation with State regulators.

#### **1.4 Statutory Determinations**

EPA has selected remedies for the IP #3 Property that are protective of human health and the environment, comply with federal and state ARARs for the remedial actions, and are cost effective. The selected site remedies do not satisfy the statutory preference for treatment as a principal element of the remedies because costs to achieve the same risk reduction using treatment are significantly higher. The hazardous substances at the IP #3 Property are not considered principal threat wastes and, therefore, do not trigger the NCP expectation for treatment of principal threat wastes.

Because the selected remedy will result in hazardous substances remaining onsite above levels that allow for unrestricted uses and unlimited exposures, statutory five-year reviews will be required to determine whether the remedy remains effective and protective of human health and the environment.

#### **1.5 Record of Decision (ROD) Data Certification Checklist**

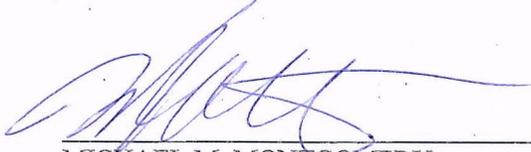
The following information is included in the Decision Summary in Section 2 of this ROD. Additional information can be found in the Administrative Record file for the IP #3 Property:

- A list of the COCs (Tables 2.5.1a through i)
- A summary of the risk represented by the COCs (Section 2.5, Tables 2.5.1 and 2.5.2, and Attachment D)
- Current and reasonably anticipated future land use and beneficial groundwater use assumptions used in the risk assessment and ROD (Section 2.5)
- Potential land and groundwater use that will be available following implementation of the remedial action (Section 2.5)
- Cleanup levels established for COCs and the basis for these levels (Section 2.7)
- Estimated cost of the remedies (Section 2.10)
- The Principal Threat Wastes (Section 2.9)
- The key factor(s) that led to selecting the remedies (Section 2.10.1)

This ROD was prepared consistent with guidance published by EPA for preparation of RODs (EPA, 1999).

**1.6 Authorizing Signatures**

The ROD documents the selected remedies for soil contamination at the IP #3 Property. Pursuant to Section III of the 2010 Federal Facilities Agreement Amendment, EPA is selecting response actions for the IP #3 Property, in close consultation with the State. The Assistant Director of Federal Facilities and Site Cleanup Branch (EPA, Region 9) has been delegated the authority to approve and sign this ROD.

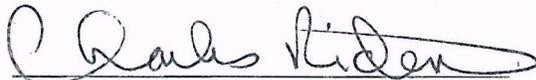


MICHAEL M. MONTGOMERY  
Assistant Director of Federal Facilities and Site Cleanup Branch  
Region 9, U.S. Environmental Protection Agency

9/25/12  
Date

**State Acceptance**

The Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) had an opportunity to review and comment on the IP #3 Property ROD, and State concerns have been addressed.



CHARLES RIDENOUR  
Supervising Hazardous Substances Engineer II  
Sacramento Office  
Brownfields and Environmental Restoration Program  
California Department of Toxic Substances Control

9/28/12  
Date

## **PART 2: THE DECISION SUMMARY**

This Decision Summary provides a description of the site-specific factors and analyses that led to the selection of the remedies for IP #3 Property. It includes background information about nature and extent of contamination and the rationale for the selection of the remedies.

### **2.1 Site Name, Location, and Description**

The former McClellan AFB, which encompasses 3,452 acres, is located 7 miles northeast of downtown Sacramento, California (Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] Identification (ID) Number CA 4570024337 and Superfund Site ID Number 0902759). McClellan is surrounded by the City of Sacramento to the west and southwest, unincorporated areas of Antelope on the north, Rio Linda on the northwest, and North Highlands on the east.

From 1936 until 2001, McClellan AFB was an aircraft repair depot and supply base. On July 22, 1987, all of McClellan AFB, including the IP #3 Property, was added to the NPL as a site with known releases or threatened releases of hazardous substances, pollutants, or contaminants that warranted further investigation and cleanup under CERCLA.

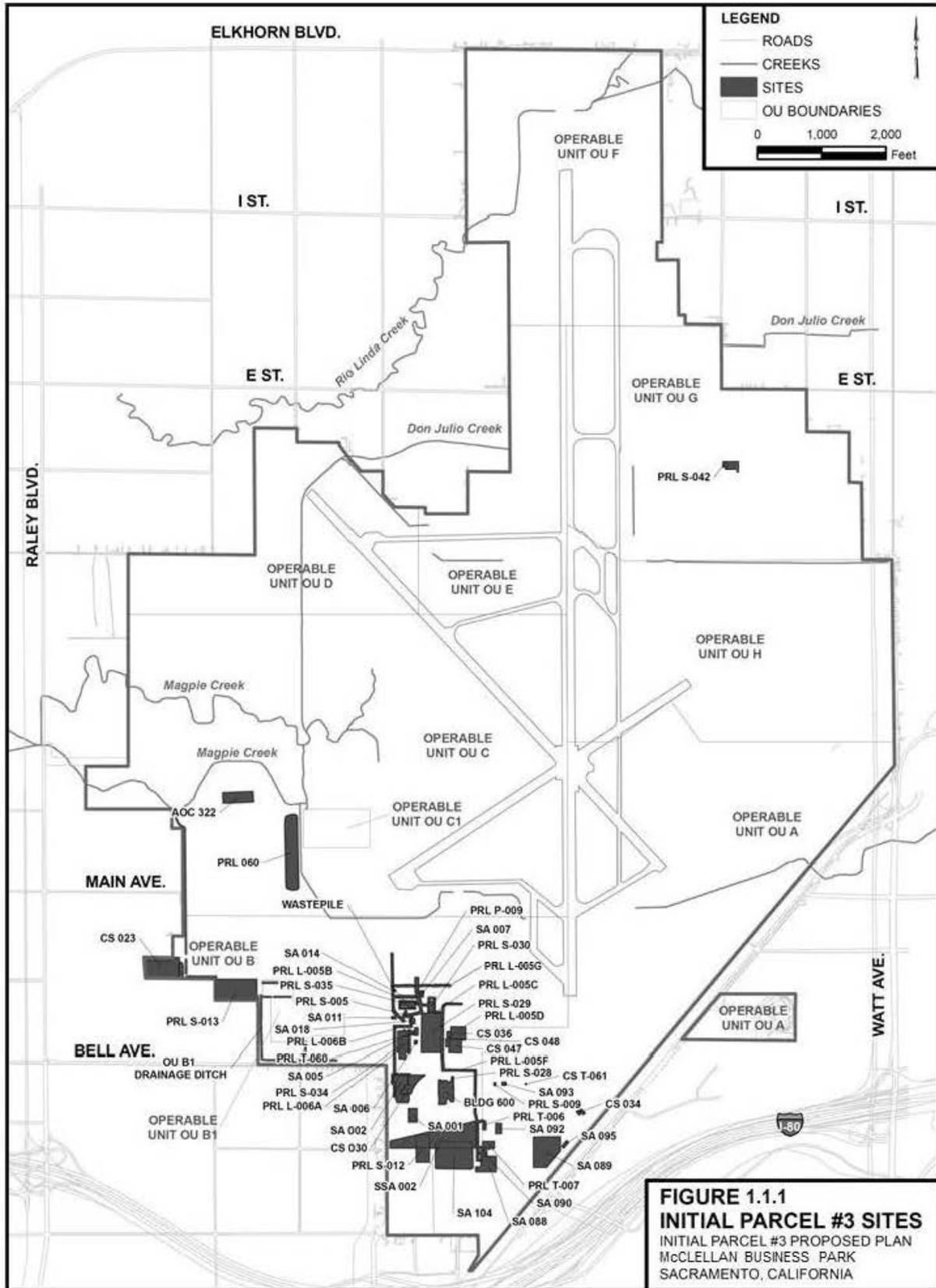
During the remedial investigation (RI) Stage of the Superfund Cleanup process, the Air Force identified 49 sites in the IP #3 Property. Forty-three (43) of the 49 IP #3 Property sites are located in the southern portion of the AFB. One site (PRL S-042) is located in the northeast portion of the base; five sites (AOC 322, CS 023, OU B1 Drainage Ditch, PRL S-013, and PRL 060) are located in the western portion. The 49 IP #3 Property sites totaling 245 acres do not have any residential areas and only minimal ecological habitat. These sites include staging and storage areas for hazardous materials, industrial waste line (IWL), and repair stations.

### **2.2 Site History and Enforcement Activities**

Following the listing of McClellan AFB on the NPL, EPA, DTSC, and the Air Force entered into an FFA on May 2, 1990 (Department of the Air Force, 1990). The FFA identified the Air Force as the lead agency and required the Air Force to identify, perform, and complete all necessary environmental cleanup and response actions, including operation and maintenance (O&M) at the property under CERCLA.

The Air Force has undertaken some response actions to clean up the IP #3 Property and reduce the risks to people and the environment. Soil contamination has been addressed through an Air Force interim OU B1 Interim Record of Decision (IROD) and several removal actions involving underground storage tanks (USTs) (CH2MHill, 2008a). See Section 2.4.1 and Attachment C for a list of these actions.

The threat to groundwater from VOCs at the IP #3 Property is currently being addressed through soil vapor extraction (SVE) as selected in the VOC ROD (AFRPA, 2007). Potential VOC impacts to groundwater will continue to be addressed at these sites using SVE until a soil vapor extraction termination and optimization process (STOP) decision is made per the VOC ROD. The *Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision* (AFRPA, 2009b) addresses definable non-VOC plumes in groundwater under the former McClellan AFB.



Note: Annotated from the Draft Initial Parcel #3 Proposed Plan For 45 Sites at the Former McClellan Air Force Base July 2008c (CH2MHill)

### ***Base Closure and Privatization***

In 1995, the Congressional Base Realignment and Closure (BRAC) Commission recommended closure of McClellan AFB, and on July 13, 2001, McClellan AFB was closed as an active military facility.

Cleanup under the IP #3 Property ROD is being addressed through the process of privatization. The FFA was amended on January 27, 2010, to suspend the obligation of the Air Force to conduct the response actions associated with the IP #3 Property, and to authorize EPA to select the associated remedial actions (AFRPA, 2010). The Air Force deeded the Property to MBP before completion of all the necessary environmental response actions.

The Air Force retains responsibility for the groundwater and soil contamination below a depth of 15 ft bgs and, if the selected remedy is not completed by MBP under the AOC, the obligation of the Air Force under the FFA is restored. If, during implementation of the IP#3 remedial activities, MBP finds contamination exceeding the cleanup levels deeper than 15 ft bgs (which is defined as a "Retained Condition" in the 2009 AOC), the AOC recognizes the ESCA process, in which MBP (on behalf of the County of Sacramento) consults with the Air Force on how to address the Retained Condition (AFRPA, 2009c). Pursuant to the ESCA and as recognized in the AOC, one alternative is that the Air Force (with the approval of EPA, MBP and the County of Sacramento) may choose to treat the Retained Condition as an "Added Condition" under the AOC, in which case the AOC shall govern the response action to be implemented by MBP and the funding for such action shall be paid by the Air Force through the ESCA. To the extent necessary due to the scope of the discovered Retained Condition, the Air Force retains the responsibility for addressing any remedial change in accordance with 40 CFR [Code of Federal Regulations] 300.435(c).

The 2009 AOC provides for the selection of remedial actions by EPA, in consultation with DTSC and the Central Valley Water Board in that process. Funds to complete the response actions for IP #3 Property are being provided to MBP by the Air Force through agreements with Sacramento County (AFRPA, 2009c).

## **2.3 Community Participation**

From the initial IP #3 Property planning stages prior to the transfer of the property and cleanup obligations, EPA, the State, Air Force and MBP have extended an invitation to the community to participate in the cleanup decision-making process and kept the community informed through oral and published communications. In an effort to keep neighbors informed of plans, activities, and findings, the following procedures have been implemented to facilitate an ongoing dialogue with the community.

### **2.3.1 Community Interviews and Fact Sheet**

In March 2011, to support the FOSET 1, including the IP #3 Property cleanup, EPA and MBP conducted interviews with individuals representing MBP tenants, residents, the chief of staff for Supervisor Phil Serna, the chief of staff for Congressman Lungren and environmental advocates. The information gathered from these interviews formed the basis for how the community and businesses would be informed about IP #3 Property cleanup activities. The interviews also helped to identify how to best address the public's concerns regarding the cleanup. A Fact Sheet was developed and distributed in April 2011.

### **2.3.2 Outreach Events**

EPA and MBP representatives shared information about the history and plans for IP #3 Property with members of the community at two community events. First was Sacramento County Supervisor Serna's

monthly community breakfast on March 23, 2011. Second was the annual McClellan Business Expo on October 6, 2011, during which base tenants and the general public were able to learn about environmental cleanup and discuss their ideas and concerns. Additional copies of the Fact Sheets describing the IP #3 Property cleanup and the McClellan privatization accomplishments were distributed at this event.

### **2.3.3 Community Involvement Plan**

An update to the *Community Involvement Plan* (CIP) that supplements the McClellan Community Relations Plan was developed to keep the communities and other stakeholders informed of plans, activities, and findings related to the McClellan privatized cleanup, including the cleanup of the IP#3 Property. The update also aimed at ensuring the public has opportunities to express their preferences and concerns. The CIP was finalized in August 2011 (MBP, 2011) and identifies numerous opportunities for community dialogue, and describes methods to provide the public with consistent, timely, and accurate information.

### **2.3.4 Restoration Advisory Board**

Quarterly Restoration Advisory Board (RAB) meetings offer opportunities for the public to learn about environmental restoration and to become involved in the redevelopment process. These meetings are specifically designed for the public to voice concerns, ask questions, and raise issues about the cleanup process. The public is encouraged to serve on the RAB, representing the interests of various parts of the community such as local residents, students, or environmental groups. Representatives from county, state, and federal agencies, MBP, and other community members also participate in the meetings.

### **2.3.5 Information Repositories**

Information is available to facilitate discussion on environmental cleanup at the following websites.

- EPA: [www.epa.gov/region09/McClellanAFB](http://www.epa.gov/region09/McClellanAFB)
- Air Force: <https://afarpaar.lackland.af.mil/ar>
- DTSC: [www.envirostor.dtsc.ca.gov](http://www.envirostor.dtsc.ca.gov)
- Central Valley Water Board: [www.geotracker.waterboards.ca.gov](http://www.geotracker.waterboards.ca.gov)

### **2.3.6 Administrative Record**

Copies of documentation pertaining to the IP #3 Property cleanup are available at the following locations:

#### **EPA Region 9 Superfund Records Center**

95 Hawthorne Street, Suite 403 S  
San Francisco, California 94105  
Telephone: 415-536-2000  
Hours: Monday - Friday 8 a.m. to 5 p.m.

#### **Air Force Repository**

#### **AFRPA Western Region Execution Center**

3411 Olson Street  
McClellan, California 95652-1071  
Telephone: 916-643-1250 x239

### **2.3.7 Public Notifications**

On April 26, 2011, EPA ran news releases in *The Sacramento Bee* announcing the release of the *IP #3 Property Proposed Plan* (Proposed Plan; EPA, 2011a). The notice invited the surrounding communities to attend an availability session and a public meeting on May 3, 2011, and announced that comments on the Proposed Plan would be collected during a 30-day comment period. The news releases also identified where copies of the Proposed Plan and the Administrative Record, including the Remedial Investigation/Feasibility Study (RI/FS) could be obtained for further information and review.

### **2.3.8 IP # 3 Proposed Plan**

The Proposed Plan had a two-fold purpose: 1) present alternatives to the public that were being considered for cleanup of IP #3 Property and 2) request public input on those alternatives. The preferred cleanup alternatives were specifically identified and the public was requested to submit comments and concerns during the comment period, which opened on April 20, 2011, and closed on May 22, 2011. This Proposed Plan superseded a previous Proposed Plan prepared by the Air Force (CH2MHill, 2008c).

### **2.3.9 IP #3 Proposed Plan Outreach**

A Fact Sheet summarizing the IP #3 Property Proposed Plan was distributed by mail to neighbors within a quarter-mile radius surrounding the IP #3 Property. Also contained within the Proposed Plan was an invitation to learn more about the IP #3 Property cleanup at the availability session and public meeting held on May 3, 2011, at the North Highlands Community Center.

The Fact Sheet was mailed to approximately a thousand on- or near-base recipients and also served to notify the public about the upcoming Proposed Plan and opportunity for public comment. Summaries of the IP #3 Property cleanup were shared electronically with Supervisor Serna's stakeholders and in the March 25, 2011, North County Newsletter. Notice of the IP #3 Property May 3, 2011, public meeting ran on the MBP electronic sign board on Watt Avenue for the three days preceding the meeting.

### **2.3.10 IP #3 Proposed Plan Public Meeting**

Representatives from county, state, and federal agencies, as well as MBP, were available to discuss the Proposed Plan during an Availability Session held on May 3, 2011, at the North Highlands Community Center. EPA formally presented the Proposed Plan and written and oral comments were formally documented during the Public Meeting Session. EPA also presented the Proposed Plan at the May 19, 2011, McClellan RAB meeting. Comments were collected through May 22, 2011, and considered during development of the ROD (see Attachment B). Responses to public comments are found in the ROD Part 3 Responsiveness Summary.

## **2.4. Scope and Role of the Operable Unit or Response Action**

This section explains the scope and role of this ROD in the context of the larger cleanup effort at the former McClellan AFB. The role of the previous and planned response activities that affect the sites in this ROD are also described. EPA will select the remedy for the 49 sites comprising IP #3, in consultation with the State. Privatization does not affect the Air Force's responsibility to clean up contamination in deeper soils (soil below 15 ft bgs) or in groundwater at the former McClellan AFB.

### **2.4.1 Overall Site Cleanup Strategy**

The initial strategy at the former McClellan AFB was to investigate and cleanup soil sites by geographic areas. The Air Force divided McClellan AFB into a number of operable units (OUs)—A, B, B1, C, C1, D, E, F, G and H, and a groundwater OU—to facilitate geographically organized cleanup. The Air Force is addressing groundwater and the potential threat to groundwater from VOCs through the VOC Groundwater ROD.

Contamination addressed by this ROD is located approximately within the upper 15 ft of soil and includes sites within OUs A, B, B1, C and C1. Because of the complexity and extent of contamination and the different media (soil, soil gas, sediment, and groundwater) affected, the practice of organizing the cleanup process geographically was abandoned. Site cleanup is now organized according to similar cleanup approaches, impacted media or type of contamination. Initial Parcels #1 and #2 were cleaned up under RODs signed in 2004 and 2008, respectively (AFRPA, 2004; AFRPA, 2008).

### **2.4.2 Past Removals/Interim Actions**

The Air Force has undertaken some response actions to clean up the IP #3 Property and reduce the risks to people and the environment. Soil contamination has been addressed through an Air Force interim OU B1 ROD and several removal actions involving USTs (CH2MHill, 2008a) (Section 2.4.1 and Attachment C present a list of these actions).

As noted, the Air Force is also conducting ongoing cleanup of groundwater contamination in accordance with the VOC Groundwater ROD (AFRPA, 2007). Because of the depth of groundwater (approximately 105 ft bgs), contamination in surface and shallow soils at the IP #3 Property is not known to be a source material for groundwater contamination. Four of the SVE systems (Investigation Cluster [IC] 1, IC 7, IC 34 and SSA 002) that were installed by the Air Force under past CERCLA removal actions to address the potential threat to groundwater from VOCs are located on seven IP #3 Property Sites (PRL L-005, PRL S-035, PRL T-006, SA 006, SA 018, SA 090, and SSA 002; CH2MHill, 2008a). For SVE system details, see Attachment C.

#### ***OU B1***

Under the OU B1 IROD signed in 1993 (Radian, 1993), soil excavation and consolidation and installation of an asphalt cap and sediment traps were performed in 1994. Between 2001 and 2003, the Air Force excavated 2,164 cubic yards of soil from the OU B1 Drainage Ditch, a site addressed in this ROD (Kleinfelder and Weston, 2004). This remedial action removed polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) to non-detect (ND) levels, dioxins/furans to no-adverse ecological effect levels and metals to McClellan background levels. However, later sampling demonstrated that PCBs now exceed the industrial cleanup levels. The IP #3 Property ROD remedy of excavation, offsite disposal and ICs determines the final cleanup for the OU B1 Drainage Ditch and supersedes the 1993 OU B1 IROD. Additionally, the OU B1 drainage ditch monitoring of surface water and sediment traps is currently being conducted as part of the Parcel C-6 post ROD O&M activities. O&M activities also include inspecting the asphalt cap and monitoring sediment runoff to ensure the cap's effectiveness at controlling the in-place contamination. Subsequent long-term monitoring of surface water quality and sediment for the OU B1 drainage ditch will be incorporated into post-ROD O&M procedures for the IP #3 Property ROD.

None of the sites addressed in this ROD was a Resource Conservation and Recovery Act (RCRA)-permitted facility.

## 2.5 Site and Risk Characteristics

The Air Force conducted multi-year investigations to characterize the contamination and develop remedial alternatives of the 49 IP #3 sites. Site-specific characterizations are detailed in the IP #3 RICS Addenda (CH2MHill, 2008a) and IP #3 Feasibility Study (CH2MHill, 2008b). EPA and the State regulators concurred on these findings.

Individual site characteristic summaries of the 49 IP #3 Property Sites addressed in the ROD are presented in Tables 2.5.1a through 2.5.1i, organized by the VOC and non-VOC remedial alternatives. These tables present information to support the selection of remedial alternatives including the site size, location, geographical or topographical features that impacted remedy selection; sources or potential sources of contamination type of contamination present and media in which the chemicals are present (constituents with bolded text in the “COCs” column of these tables exceed cleanup standards). The Site Characteristics tables also note some potential data gaps at some sites that now comply with the ROD cleanup levels but existing buildings or USTs or other infrastructure have previously prevented sampling in those areas to confirm compliance with the ROD cleanup levels. For those sites, EPA is requiring additional sampling and or documentation if the current land use changes. Also, the State of California submitted IP #3 Property site and risk summaries narrative descriptions. (Attachment F).

Generally, contamination sources at the IP #3 Property Sites are related to the routine O&M activities, aviation support operations, vehicle and facility maintenance activities, accidental spills and releases, and onsite storage or disposal of hazardous materials.

**Table 2.5.1a Site Characteristics for Alternative 1 – No Action Sites**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Target Volumes	Contaminants of Concern (COCs)
Area of Concern (AOC) 322 [b]	83,125 square feet (sq ft) [c]	Operable Unit (OU) C, west central, Proposed West McClellan District, Former Segment of Magpie Creek (surface water redirected).	Former Creek (formerly called PRL P-010).	Wastewater discharged to creek.	Not calculated	Not Applicable
Confirmed Site (CS) 034 [b]	6,500 sq ft	OU A within Investigation Cluster (IC) 41, Industrial Office Park sub-district of the proposed South McClellan District, 300 feet from the southeast Base boundary.	Unconfirmed (2) Underground Storage Tanks (USTs).	Potential leak from UST.	Not calculated	Not Applicable
Potential Release Location (PRL) S-009 [a]	940 sq ft [c]	OU A within IC 40.	Building 644 of this site was a former hazardous waste storage area; a small fenced, covered concrete storage area adjacent to the south side of Building 644	Surface spills and leaks.	Not calculated	Not Applicable
PRL S-042 [b]	200 by 250 feet (50,000 sq ft)	Central OU G, Community Support sub-district of the proposed East McClellan District, Perin Road and the proposed Core Aviation/Industrial District border the site on the west.	Buildings 1439 (auto shop) and 1441 (maintenance shop), a wash rack, former USTs, segments of the industrial waste line (IWL), a former unlined drainage ditch, and a former hazardous waste staging area.	Potential for leaks and spills (surface release or subsurface release); IWL lateral at PRL S-042 is not considered a potential source of COCs.	Not calculated	Not Applicable
Study Area (SA) 006 [a]	0.06 acres	OU B within IC 6.	Former Building 657 (a service station) and four USTs, which included a 10,000-gallon gasoline tank (657A), a 5,000-gallon gasoline tank (657B), and two 750-gallon diesel tanks (657C and 657D).	Surface leaks and spills associated and subsurface leaks from the fuel USTs and associated conveyance piping.	90 cubic yards (cy) with layback material included, the estimated target volume is 480 cy	Not Applicable
SA 089 [a]	3 acres	OU A within the southern portion of IC 41.	Former location of Building 611 and an unpaved storage area.	Surface spills.	Not calculated	Not Applicable
SA 093 [a]	2,820 sq ft [c]	OU A within IC 40.	Building 646 (Tritium Gas Laboratory).	Releases to the environment around the building or from leaks in the sewer line.	Not calculated	Not Applicable
SA 104 [b]	6 acres	IC 43 in OU A and is within the Industrial Office Park sub-district of the proposed South McClellan District.	Building 637 (communication repair shop) and former Warehouse Buildings 620 and 622.	No indication of chemical use or storage at the former warehouse buildings.	Not calculated	Not Applicable

Notes:

- [a] IP #3 RICS Addenda (CH2MHill, 2008a).
- [b] IP #3 Feasibility Study (CH2MHill, 2008b).
- [c] Size Area estimated from map scale.

**Table 2.5.1b Site Characteristics for Alternative VOC2 – Institutional Controls to Prohibit Residential Use Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [d]
PRL S-030 [a]	11,625sq ft [c]	OU B within IC 8	Wash rack and associated piping; a former automobile grease rack, storage pad, and drainage systems at Building 658; petroleum, oil, and lubricant (POL) UST; grassy area.	Surface leaks and spills associated with chemical storage, operation of the wash rack, and paint stripping/bead blasting activities and subsurface leaks from the IWL and UST.	Shallow soil gas and soil	1,630 cy (southwest of Building 658), 50 cy (beneath Building 658) (residential), 150 cy (industrial) [b, e]	<b>Tetrachloroethene (PCE)</b> <b>Trichloroethene (TCE)</b> Chloroform <b>Naphthalene</b> Benzene <b>Copper</b> <b>Lead</b> <b>Polychlorinated biphenyl (PCB)-1254</b> <b>PCB-1260</b> <b>Diesel-range total petroleum hydrocarbons (TPH-D)</b> <b>Gasoline-range TPH (TPH-G)</b>
SA 001 [a]	7 acres	East of former Building 626 in OU B	Former portable wash rack tank.	Surface releases from dumping of the portable wash rack tank and spills associated with loading/unloading of hazardous materials; IWL Buffer Zone. There is uncertainty regarding the presence of VOCs in shallow soil gas (SSG).	Shallow soil gas	Not calculated	VOCs
SA 018 [a]	9,400 sq ft	OU B within IC 7	Former location of a paved outdoor fuel and oil storage yard.	Surface leaks and spills associated with the storage/handling of fuel and oil drums.	Shallow soil gas and soil	Not calculated	<b>2-Methylnaphthalene</b> <b>PCE</b>
SA 095 [a]	0.2 acres	OU A within IC 41	Former UST, covered by grassland. This tank will be closed administratively by this ROD.	Subsurface leaking from the former UST	Shallow soil gas	Not calculated	TCE
Special Study Area (SSA) 002 [a]	7 acres	Southern portion of OU B directly east of the Base boundary	Former Buildings 624 and 626.	Surface spills and solvent tank discharges; IWL Buffer Zone. There is uncertainty regarding the presence of VOCs in SSG.	Shallow soil gas	Not calculated	VOCs

Notes:

- \* Sites with combined alternatives appear in a separate table: PRL S-013 has both Alternative VOC2 and Alternative Non-VOC4a.
- [a] IP #3 RICS Addenda (CH2MHill, 2008a).
- [b] IP #3 Feasibility Study (CH2MHill, 2008b).
- [c] Size Area estimated from map scale.
- [d] Contaminants with bolded text exceed cleanup standards.
- [e] Target volume estimates associated with PRL L-005C, which surrounds PRL S-030.

**Table 2.5.1c Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
CS 030 [a]	1 acre	Southwest portion of OU B near western boundary of former McClellan AFB, within IC 4.	Buildings 629 and 631, hazardous materials storage area, former rail car loading/unloading dock, asphalt-covered wash water release area with storm drain, three former transformer areas, staging area, and a 500-gallon UST. This tank will be closed administratively by this ROD after the UST has been removed and sampling under the UST confirms that a no further action determination is appropriate.	Disposal of non-radioactive wastes and wash water containing low levels of radioactivity onto the ground surface between Buildings 628 and 629, subsurface releases from the UST, IWL Buffer Zone.	Shallow soil gas	Not calculated	VOCs
CS 036 [a]	44,600 sq ft	OU B within IC 1 West of existing Building 655 (PRL S-029) and the IWL (PRL L-005D).	Building 683 and the storage yard north of former Building 666.	Surface spills resulting from chemical storage and transport activities. There is uncertainty regarding potential metals contamination at this site; therefore, the property owner must sample for metals if the site use changes.	Shallow soil gas	100 cy (industrial) 400 cy (residential/surface water) [d]	<b>TCE</b> <b>PCE</b> Benzyl chloride <b>1,4-Dichlorobenzene</b> Methylene chloride Hexachlorobutadiene

**Table 2.5.1c Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
CS 048 [a]	13,450 sq ft [c]	OU B within IC 1, West of existing Building 655 (PRL S-029) and the IWL (PRL L-005D).	Former industrial wastewater treatment plant (IWTP) #4.	Surface spills resulting from chemical waste storage, surface and subsurface reassess from wastewater treatment activities at IWTP #4, and leaks from sumps. There is uncertainty regarding potential metals contamination at this site; therefore, the property owner must sample for metals if the site use changes.	Shallow soil gas	100 cy (industrial) 400 cy (residential/surface water) [d]	<b>TCE</b> <b>PCE</b> Benzyl chloride <b>1,4-Dichlorobenzene</b> Methylene chloride Hexachlorobutadiene
PRL L-005B [a]	Main PRL L-005 IWL segments in IP #3 area are 5,400 feet long.	Throughout OU A and OU B to the IWTP in OU C1.	IWL piping	Subsurface leaks from breaks or cracks in the IWL.	Shallow Soil Gas and Soil	Not calculated	<b>PCE</b> <b>TCE</b> Methylene chloride Methyl tert-butyl ether Naphthalene Chloroform <b>TPH-G</b> <b>TPH-D</b>
PRL L-005D [a]	Main PRL L-005 IWL segments in IP #3 area are 5,400 feet long.	Throughout OU A and OU B to the IWTP in OU C1.	IWL piping	Subsurface leaks from breaks or cracks in the IWL.	Shallow Soil Gas and Soil	Not calculated	<b>PCE</b> <b>TCE</b> Methylene chloride Methyl tert-butyl ether <b>Naphthalene</b> Chloroform <b>TPH-G</b> <b>TPH-D</b>
PRL L-005F [a]	Main PRL L-005 IWL segments in IP #3 area are 5,400 feet long.	Throughout OU A and OU B to the IWTP in OU C1.	IWL piping	Subsurface leaks from breaks or cracks in the IWL.	Shallow Soil Gas and Soil	Not calculated	PCE TCE Methylene chloride Methyl tert-butyl ether <b>Naphthalene</b> Chloroform <b>TPH-G</b> <b>TPH-D</b>

**Table 2.5.1c Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
PRL L-005G [e]	Main PRL L-005 IWL segments in IP #3 area are 5,400 feet long.	Throughout OU A and OU B to the IWTP in OU C1.	IWL piping	Subsurface leaks from breaks or cracks in the IWL.	Shallow Soil Gas and Soil	Not calculated	PCE TCE Methylene chloride Methyl tert-butyl ether <b>Naphthalene</b> Chloroform <b>TPH-G</b> <b>TPH-D</b>
PRL S-005 [a]	0.13 acres	OU B within IC 7	Former location of IWTP #2 (included multiple process tanks, piping, a sump, and an effluent discharge point as potential sources).	Subsurface and surface releases associated with the IWL and former wash rack north of PRL S-034 are the primary release mechanisms associated with the main IC 7 VOC source area. There is uncertainty regarding the lateral extent of PCB contamination at boring IC07B009. It is assumed that the IC is protective unless the site use changes.	Shallow Soil Gas and soil	Not calculated	(PCE <b>Naphthalene</b>
PRL S-028 [a]	1,500 sq ft	OU B, at the northeast corner of IC 4	Building 615, a portable building (technical laboratory for oil and paint storage).	Surface spills; IWL Buffer Zone.	Shallow soil gas	Not calculated	VOCs
PRL S-029 [a]	4.1 acres	OU B within IC 8	Building 655, five USTs: Tanks 655C, 655D and 655 North will be closed administratively by this ROD.	Surface leaks and spills, subsurface leaks from IWL drains and USTs.	Shallow soil gas and soil	Not calculated	<b>TCE</b> <b>PCE</b> <b>Naphthalene</b> Chloroform Benzyl chloride
PRL S-035 [a]	0.43 acres	OU B within IC 7	Building 654 (small engine test and maintenance facility).	Surface leaks and spills associated with operation of wash rack and maintenance and testing of small engines, subsurface links from IWL drains.	Shallow soil gas and soil	Not calculated	<b>Naphthalene</b> <b>2-Methylnaphthalene</b> 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene <b>PCE</b> m,p-Xylenes

**Table 2.5.1c Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
PRL T-006 [a]	0.7 acres	OU A within IC 43	Former parts cleaning room in the western portion of Building 640 (currently vacant).	Surface leaks and spills associated with waste solvent handling and operation of steam cleaning room, solvent booth and printed wiring board area, and subsurface leaks from connections of cracks in IWL or suspected USTs.	Shallow soil gas	Not calculated	TCE PCE 1,1-Dichloroethane Vinyl chloride cis-1,2-Dichloroethene (DCE) Methylene chloride
PRL T-007 [a]	20,775 sq ft [c]	OU A within IC 43	Former 500-gallon UST and a paint spray booth and associated floor sump, located inside the southern portion of Building 640. UST will be closed administratively by this ROD.	Subsurface leaks from cracks or holes in the sump and UST; IWL Buffer Zone. There is uncertainty associated with soil gas beneath Building 640. The property owner must sample for VOCs in shallow soil gas if Building 640 is demolished, or maintain a surface cover or other ECs, as warranted.	Shallow soil gas	Not calculated	VOCs
SA 002 [a]	2.5 acres	Southwest portion of OU B along the western boundary of former McClellan AFB within IC 4	Building 628 (McClellan Central Laboratory).	Discharge of low-level radioactive wastes and other contaminants from leaky drains; IWL Buffer Zone.	Shallow soil gas	Not calculated	VOCs

**Table 2.5.1c Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
SA 088 [b]	60,000 sq ft building	OU A within IC 43, within Industrial Office Park sub-district of the proposed South McClellan District.	Building 610 (communication storage) and a drainage ditch.	Handling and disposal of wastes occurred, and no releases or spills have been identified; IWL Buffer Zone. There is potential uncertainty regarding characterization of VOCs in SSG beneath Building 610. The property owner must sample for VOCs in shallow soil gas if Building 610 is demolished or maintain a surface cover or other ECs, as warranted.	Shallow soil gas	Not calculated	VOCs
SA 090 [a]	8,925 sq ft [c]	OU A within IC 43.	Building 613 and several former hazardous materials staging areas.	Surface spills or leaks; IWL Buffer Zone. No COCs were identified; however, there is uncertainty associated with characterization of VOCs in SSG beneath Building 613. The property owner must sample for VOCs in shallow soil gas if Building 613 is demolished, or maintain a surface cover or other ECs, as warranted.	Shallow soil gas	Not calculated	VOCs

Notes:

\* Sites with combined alternatives appear in a separate table: PRL L-006A and PRL L-006B have both Alternative VOC3 and Alternative Non-VOC3 selected and CS 047, CS T-061, PRL P-009, SA 007, PRL L-005C, and SA 014 have both Alternative VOC3 and Alternative Non-VOC4a.

[a] IP #3 RICS Addenda (CH2MHill, 2008a) .

[b] IP #3 Feasibility Study (CH2MHill, 2008b).

[c] Size Area estimated from map scale.

[d] Target volume estimates associated with Site CS 047 because sites CS 036, CS 047 and CS 048 were evaluated together in the RICS.

- [e] Site PRL L-005G was not included in the IP #3 FS, but the western portion of the site is included in the AOC. Therefore, PRL L-005G is included in this ROD.
- [f] Contaminants with bolded text exceed cleanup standards. Soil gas will be managed in accordance with Alternative VOC3.

**Table 2.5.1d Site Characteristics for Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use Site**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [b]
PRL 060 [a]	5 acres	Southwestern portion of OU C within IC 15	Former oxidation ponds, currently a parking lot.	Surface releases through the deposition of contaminated sediment on the bottom of the ponds and possible infiltration of contaminants to the subsurface via leaching.	Soil	11,970 cy (industrial)	Benzo(a)pyrene beta-hexachlorocyclohexane (Beta BHC) <b>Cadmium</b> <b>Dieldrin</b> <b>PCB-1254</b> <b>PCB-1260</b>

Notes:

[a] IP #3 RICS Addenda (CH2MHill, 2008a).

[b] Contaminants with bolded text exceed cleanup standards.

**Table 2.5.1e Site Characteristics for Alternative Non-VOC4a – Excavation and Offsite Disposal Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs[e]
OU B1 Drainage Ditch [a]	4,500 feet of unlined earthen ditch and 1,500 feet of gunite-lined ditch	OU B/B1, Begins along the southern portion of OU B/B1 and empties into Magpie Creek, (considered a portion of IRP site SA 012).	Drainage ditch (OU B1 consists of former transformer storage and transfer yards, Building 700, and associated drainage ditches).	Surface water runoff from contaminated areas including OU B1 (PCBs), surrounding areas where industrial oils were used as a dust and weed suppressant, and vehicle tracking of PCBs-contaminated soil. Source of PCBs in OU1B Drainage Ditch not known. There is a potential data gap at OU B1 Drainage Ditch associated with the source of PCBs that will be addressed by Alternative Non-VOC4a. The property owner must monitor for PCBs to address the uncertainty related to the source. Further, an off-site PCB detection at location PS13HA048 is well bounded and characterized as below the industrial risk screening level and slightly above the unrestricted (residential) screening level. The potential exposure from such a small volume (3.7 cubic yards) is very low and at the low end of the risk management range. No action is warranted for this location.	Soil	60 cy (industrial), 210 cy (protection of surface water)[b]	<b>PCB-1254</b> <b>PCB-1260</b>
PRL S-012 [a]	1.8 acres	OU B	Bays C and D of former Building 624 (624C and 624D, respectively).	Surface spills and leaks from the transformers stored in 624C and 624D, including the documented spill in 1979 and the release of TCE that was used to clean up the spill, VOCs (including Freon) may be associated with overlapping site SSA 002, potential surface spills associated with loading/unloading activities on the east side of the building	Soil	2,810 cy (industrial)	<b>PCB-1260</b>

**Table 2.5.1e Site Characteristics for Alternative Non-VOC4a – Excavation and Offsite Disposal Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs[e]
PRL T-060 [a]	0.06 acres	OU B within IC 6	Former 27,000-gallon UST.	Subsurface leaks of bunker oil from UST and underground piping, subsurface leaks from IWL that connects to floor drain in Building 656. There is uncertainty regarding potential contamination from non-VOCs beneath Building 656, because the building has a basement extending to 13 ft bgs. The property owner may need to sample for non-VOCs if Building 656 is demolished.	Soil	230 cy [d]	<b>TPH-G TPH-D</b>
SA 005 [a]	5,000 sq ft	OU B within IC 6	Building 656 (steam generation plant and paint storage facility).	Subsurface leaks of bunker oil from UST and underground piping, subsurface leaks from IWL that connects to floor drain in Building 656.	Soil	230 cy [d]	<b>TPH-G TPH-D</b>
SA 011 [a]	0.05 acres	OU B within IC 7	Building 699 (pump house for Base Well 17), former 200-gallon gasoline UST, fill pit area, IC 7 SVE system. This tank will be closed administratively by this ROD after sampling confirms that a no further action determination is appropriate.	Surface and shallow soil contamination resulting from contaminated fill and construction debris, subsurface leakage from UST, contaminant migration from main IC 7 VOC source area north of PRL S-034. UST area not sampled due to access issues in the vicinity of the IC7 SVE system; therefore, there is uncertainty related to the former UST area. The property owner must sample for non-VOCs near the former location of UST 699 following SVE system removal.	Soil	2,050 cy (industrial)	Antimony Arsenic Cadmium Copper Iron Lead Manganese Thallium Zinc
SA 092 [a]	5,000 sq ft	OU A within IC 43	Building 641 (steam generation plant), former 7,500-gallon UST, surface disposal site east of Building 616.	Subsurface leaks from UST, surface releases east of Building 616 from surface disposal activities and leaks from transformers south and east of Building 616.	Soil	550 cy (industrial) 5,720 cy (unrestricted/surface water) [c]	<b>PCB-1254 PCB-1260 Lead</b>

**Table 2.5.1e Site Characteristics for Alternative Non-VOC4a – Excavation and Offsite Disposal Sites\***

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs[e]
Wastepile [a]	0.15 acres	OU B within IC 7	Former Wastepile.	Surface deposition resulting from the storage of fill dirt potentially contaminated with metals, PCBs, and pesticides, aerial deposition of PCBs from a nearby former transformer storage area.	Soil	200 cy (industrial) 1,430 cy (unrestricted/surface water) [c]	Alpha chlordane Antimony <b>Cadmium</b> <b>Dieldrin</b> Gamma chlordane <b>Lead</b> <b>PCB-1254</b> <b>PCB-1260</b> <b>Silver</b>

Notes:

- \* Sites with combined alternatives appear in a separate table: PRL S-013 has both Alternative VOC2 and Alternative Non-VOC4a selected and CS 047, CS T-061, PRL L-005C, PRL P-009, SA 007, and SA 014 have both Alternative VOC3 and Alternative Non-VOC4a.
- [a] IP #3 RICS Addenda (CH2MHill, 2008a).
- [b] Industrial volume will be excavated and sediment monitoring performed, which will leave mass in place that exceeds surface water quality standard.
- [c] EPA has also estimated the volume for unrestricted use that, in some cases, is also the target volume for surface water quality protection. The IP #3 ROD requires excavation to achieve industrial cleanup levels. Target volumes will be updated, as necessary, in the Remedial Design/Remedial Action Report (RD/RA) and confirmed in the Remedial Action Completion Report.
- [d] PRL T-060 and SA 005 address the same target volume.
- [e] Contaminants with bolded text exceed cleanup standards.

**Table 2.5.1f Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use Sites**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [b]
Building 600 [a]	68,000 sq ft.	OU B, at the northeast corner of IC 4	Former electronics repair facility and a 20,000-gallon double-wall diesel UST. This tank will be closed administratively by this ROD.	Surface discharge, spills and leaks; IWL Buffer Zone. There is uncertainty regarding VOCs in SSG and non-VOCs in soil beneath the building. If Building 600 is demolished, the property owner must sample or maintain a surface cover or other ECs, as warranted.	Shallow oil gas and soil beneath building	Not calculated	VOCs TPH Metals
PRL L-006A [a]	PRL L-006A-B includes about 1,910 linear feet of IWL.	OU B within ICs 4 and 7	IWL and corresponding lift stations, IWL connects to Building 628 and Building 652.	Subsurface leaks from fractures or misaligned joints in the IWL, VOCs beneath northern portion of PRL L-006A-B possibly from degreasing rack on north side of Building 652. Soil in the vicinity of the IWL not sampled. There is some uncertainty regarding characterization of soil around the IWL. Detections of arsenic and thallium above combined background and screening levels were analyzed using Method SW6010, which is unreliable for arsenic and thallium analyses.	Soil and shallow soil gas	Not calculated	PCE TCE
PRL L-006B [a]	PRL L-006A-B includes about 1,910 linear feet of the IWL.	OU B within ICs 4 and 7	IWL and corresponding lift stations, IWL connects to Building 628 and Building 652.	Subsurface leaks from fractures or misaligned joints in the IWL, VOCs beneath northern portion of PRL L-006A-B possibly from degreasing rack on north side of Building 652. Soil in the vicinity of the IWL not sampled. There is some uncertainty regarding characterization of soil around the IWL. Detections of arsenic and thallium above combined background and screening levels were analyzed using Method SW6010, which is unreliable for arsenic and thallium analyses.	Soil and shallow soil gas	Not calculated	PCE TCE

**Table 2.5.1f Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use Sites**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [b]
PRL S-034 [a]	40,700 sq ft.	OU B within IC 7	Building 652 (current woodworking shop, formerly used for automotive repair, painting, and depainting); pad-mounted transformer.	Surface leaks and spills associated with operation of the wash rack, degreaser, and paint spray booth, subsurface leaks from IWL and trench drains. SSG in northern portion of Building 652 has not been sampled, and soil beneath Building 652 has not been investigated for non-VOCs. If the building is demolished, the property owner must sample or maintain a surface cover or other ECs, as warranted.	No VOCs above screening levels within site boundary, proximity to IC7 Removal Action requires ICs/engineering controls	Not calculated	No VOCs above screening levels within site boundary.

Notes:

[a] IP #3 RICS Addenda (CH2MHill, 2008a)

[b] Contaminants with bolded text exceed cleanup standards . Soil gas will be managed in accordance with Alternative VOC3.

**Table 2.5.1g Site Characteristics for Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal Site**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [c]
PRL S-013 [a]	2.6 acres	OU B	Building 679, Building 709, Building 727 (formerly known as Storage Lot No. 3)	Surface spills and leaks in the drainage system to the subsurface, used oil containing PCBs may have been sprayed for dust control. Lateral extent of SSG contamination west of PS13SB067 not known.	Soil and shallow soil gas	1,400 cy (industrial) 2,700 cy (unrestricted/surface water) [b]	<b>PCB-1260</b> VOCs

Notes:

[a] IP #3 RICS Addenda (CH2MHill, 2008a).

[b] EPA has also estimated the volume for unrestricted use that, in some cases, is also the target volume for surface water quality protection. The IP #3 ROD requires excavation to achieve industrial cleanup levels. Target volumes will be updated, as necessary, in the RD/RA and confirmed in the Remedial Action Completion Report.

[c] Contaminants with bolded text exceed cleanup standards.

**Table 2.5.1h Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal Sites**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
CS 047 [a]	38,000 sq ft.	OU B within IC 1, West of existing Building 655 (PRL S-029) and the IWL (PRL L-005D).	Former Building 666 (electroplating facility).	Spills within the building; leaks from the degreaser, plating pits, and associated piping; surface releases from plating shop floor rinsate; and surface releases at former transformer yard east of Building 666. There are uncertainties associated with metals beneath former Building 666. The property owner must sample for metals if the land use changes.	Soil and shallow soil gas	100 cy (industrial) 400 cy (residential/surface water) [d][e]	<b>TCE</b> <b>PCE</b> Benzyl chloride <b>1,4-Dichlorobenzene</b> <b>Methylene chloride</b> Hexachlorobutadiene <b>PCB-1254</b> <b>PCB-1260</b>
CS T-061 [a]	180 sq ft [c].	OU A within IC 40.	Former UST 614 (gasoline tank). UST will be closed administratively by this ROD after Alternative Non-VOC4a (excavation and off-site disposal) has been implemented and sampling confirms that a no further action determination is appropriate.	Subsurface releases as a result of leaks from the former UST and associated piping; surface spills may have also occurred during refilling. There are uncertainties associated with the lateral extent of TPH-D beneath Building 614. The property owner must sample for TPH-D if Building 614 is demolished.	Soil and shallow soil gas	200 cy	<b>2-Methynaphthalene</b> <b>Naphthalene (soil &amp; Shallow Soil Gas [SSG])</b> <b>1,2,4-Trimethylbenzene</b> <b>1,3,5-Trimethylbenzene</b> <b>m,p-Xylenes</b> <b>o-Xylene</b> n-Propylbenzene <b>Naphthalene (soil)</b> <b>TPH-G</b> <b>TPH-D</b>
PRL L-005C [a]	Main PRL L-005 IWL segments in IP #3 area are 5,400 feet long.	Throughout OU A and OU B to the IWTP in OU C1.	IWL piping.	Subsurface leaks from breaks or cracks in the IWL.	Soil and shallow soil gas	710 cy for PRL L-005 (near Building 603), 1,630 cy (southwest of Building 658), 50 cy (beneath Building 658) (residential), 150 cy (industrial) [g].	<b>TPH-D</b> <b>PCB-1260</b>

**Table 2.5.1h Site Characteristics for Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal Sites**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [f]
PRL P-009 [a]	Ditch is about 800 feet long.	OU B in the Northern portion of IC 7.	Shallow unlined drainage ditch, IWL (PRL L-005B) passes beneath PRL P-009.	Contaminants from locations such as IWTP No. 4, Building 654, and Building 699 may have collected and migrated into the subsurface; potential for infiltration of contaminants in runoff/wastewater.	Soil and shallow soil gas	100 cy (industrial), 2,800 cy (unrestricted/surface water)[e]	1,2-Dibromoethane <b>2-Methylnaphthalene</b> <b>Naphthalene</b> PCE TCE <b>Cadmium</b> Iron <b>Lead</b> <b>Manganese</b> Nickel <b>PCB-1260</b> <b>Silver</b>
SA 007 [a]	0.24 acres.	OU B within IC 7.	Building 659 (former wash rack and fuel tanker refueling area), three former USTs. These tanks will be closed administratively by this ROD after Alternative Non-VOC4a (excavation and off-site disposal) has been implemented and sampling confirms that a no further action determination is appropriate.	Potential Surface leaks, releases, and spills associated with operation of the wash rack, tanker fueling facility, and hazardous materials staging/handling, subsurface leaks from IWL drain, former fuel USTs, and former POL UST.	Soil and shallow soil gas	890 cy (industrial) 1,470 cy (unrestricted/surface water)[e]	<b>PCE</b> <b>2-Methylnaphthalene</b> <b>Naphthalene</b> Benzene Chloroform <b>TPH-G</b> <b>TPH-D</b>
SA 014 [a]	Ditch is 1,600 feet long; site covers 1.8 acres.	IC 7, OU B, ditch runs along the western boundary of IC 7.	Unlined drainage ditch.	Infiltration of contaminants in surface water runoff, wastewater, and effluent from the IWTP into the soil at the bottom of the drainage ditch, migration of VOCs from main IC 7 VOC source area.	Soil	2,010 cy (industrial) 3,280 cy (unrestricted/surface water)[e]	<b>2-Methylnaphthalene</b> Alpha chlordane <b>Aluminum</b> Benzo(a)pyrene Benzo(b)fluoranthene <b>Cadmium</b> <b>Dieldrin</b> <b>Gamma chlordane</b> <b>Lead</b> <b>Naphthalene</b> <b>PCB-1254</b> <b>PCB-1260</b> Thallium Vanadium

Notes:

- [a] IP #3 RICS Addenda (CH2MHill, 2008a).
- [b] IP #3 Feasibility Study (CH2MHill, 2008b).
- [c] Size Area estimated from map scale.
- [d] Target volume estimates associated with Site CS 047 because sites CS 036, CS 047 and CS 048 were evaluated together in the RICS.
- [e] EPA has also estimated the volume for unrestricted use that, in some cases, is also the target volume for surface water quality protection. The IP #3 ROD requires excavation to achieve industrial cleanup levels. Target volumes will be updated, as necessary, in the RD/RA and confirmed in the Remedial Action Completion Report.
- [f] Contaminants with bolded text exceed cleanup standards. Soil gas will be managed in accordance with Alternative VOC3.
- [g] Target volume estimates associated with PRL L-005C, which surrounds PRL S-030.

**Table 2.5.1i Site Characteristics for Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use Sites**

Site	Size	Geographical Description	Site Features	Source/Potential Sources of Contamination	Media of Concern	Target Volumes	COCs [d]
CS 023 [a]	4.5 acres	Western boundary of OU B	Building 781 (chemical storage warehouse), Building 789, area of debris in the northern portion of the site, area of soil disturbance in the southern portion of the site.	Surface and subsurface releases from materials disposed of in the debris area. There is uncertainty regarding the presence of VOCs in SSG and metals in soil beneath Building 781. If the building is demolished, the building owner must sample for metals to address uncertainties.	Shallow soil gas, soil [c]	Not calculated	<b>PCE</b> <b>Vinyl chloride</b> Metals [c]

Notes:

[a] IP #3 RICS Addenda (CH2MHill, 2008a).

[b] IP #3 Feasibility Study (CH2MHill, 2008b).

[c] Metals are a COC in soil because of uncertainty due to lack of sampling, not known concentrations.

[d] Contaminants with bolded text exceed cleanup standards. Soil gas will be managed in accordance with Alternative VOC3.

### **2.5.1 Topography, Geology, and Hydrology**

The former McClellan AFB is located in the Sacramento Valley. The regional topography slopes gently westward toward the Sacramento River. The IP #3 Property is located in the central and southeastern sections of McClellan and the surface elevation in this area is approximately 60 ft above mean sea level (msl).

The vadose zone is the unsaturated soils between the ground surface and the water table. The vadose zone is approximately 95 to 110 ft thick, and the saturated (groundwater) zone is approximately 1,000 ft thick. The vadose zone and the shallow groundwater zone, to 450 ft bgs, are the zones most likely to be affected by contamination (CH2MHill, 2008b).

Groundwater flow directions have varied over the past 80 years, but have persisted in a south-to-southwesterly direction over the past decade. Deposits on the east side of the Base include more fine-grained sediments. In the eastern portions of the Base in Monitoring Zone A, relatively thinner saturated thicknesses and increased percentages of fine-grained sediments result in relatively lower transmissivity than in the western portions of the Base. Contaminant transport is inhibited, but not prevented, by lower permeability layers, both in the vadose and saturated zones. The relatively higher transmissivity in the western portions of the Base results in relatively greater potential for contaminant transport (CH2MHill, 2008b).

### **2.5.2 Ecological Characteristics**

According to the OU B1 RI/FS (Radian, 2008), the drainage ditches from the Defense Reutilization and Marketing Office (DRMO) yard (the OU B1 Drainage Ditch) may occasionally be used by wildlife as a water source, but their importance is minimized by the ephemeral nature of the drainages. Some sections of these ditches contain small patches of grasses and weedy plant species, but are not considered to be a useful ecological resource. Potential ecological impacts of contamination in Magpie Creek from the OU B1 Drainage Ditch have been investigated as part of the Final Ecological Sites Feasibility Study (CH2MHill, 2010).

### **2.5.3 Current and Potential Future Land and Resource Uses**

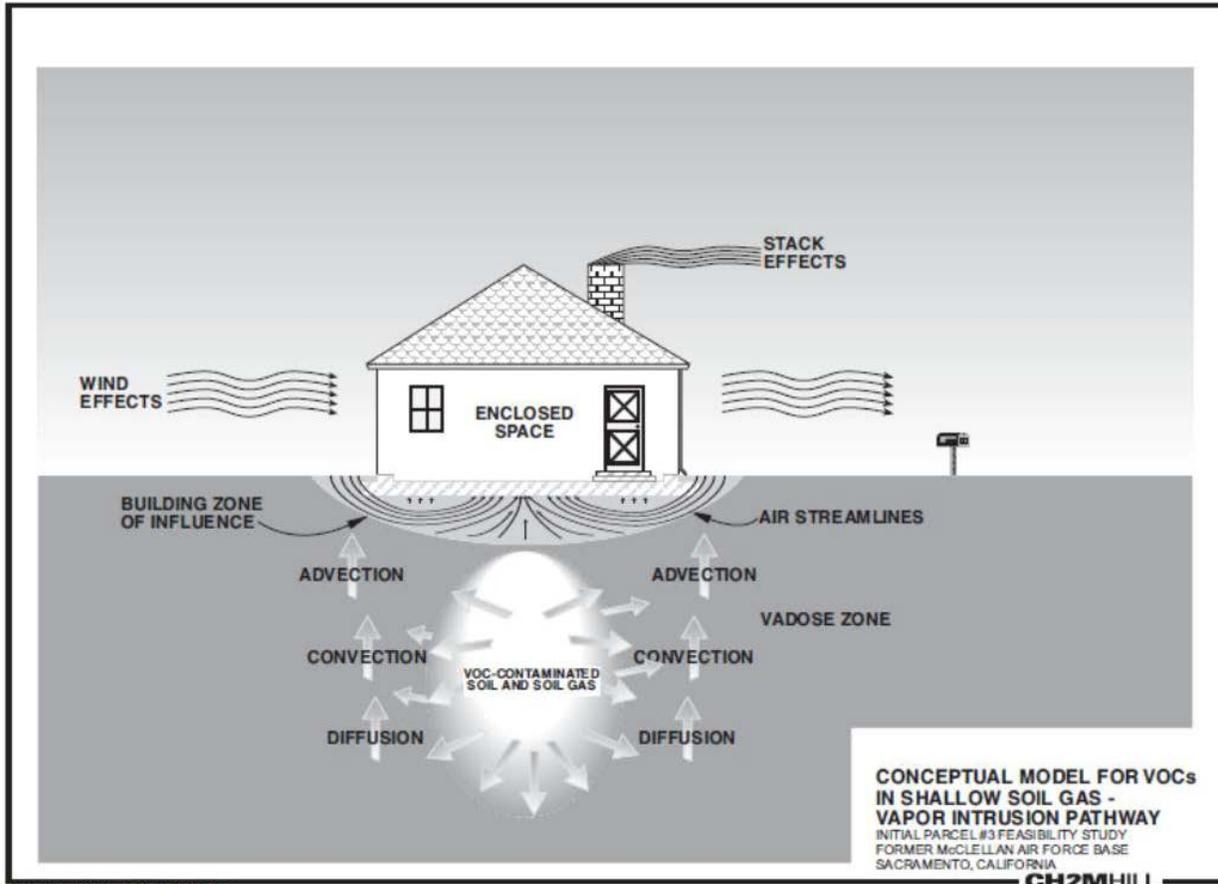
Much of the land surrounding the former McClellan AFB, particularly to the west, is zoned for low-density residential and agricultural use. Historical land use at IP #3 Property included industrial and commercial usage. Based on the *McClellan Reuse Plan* (EDAW, 2000) and the McClellan Park Special Planning Area (Ordinance No. SZC-2002-0029) (County of Sacramento, 2002), all of the IP #3 Property Sites are located within areas designated for industrial or industrial/commercial land use.

### **2.5.4 Conceptual Site Model**

A Conceptual Site Model (CSM) was used to develop an understanding of a site and to evaluate potential risks to human health and the environment. CSMs for the 49 IP #3 Property Sites examined VOC contamination in shallow soil and shallow soil gas, and non-VOC and radiological contamination in soil. The VOC and non-VOC components of this model were developed in accordance with EPA guidance and include known and suspected sources of contamination, types of contaminants and affected media, known and potential routes of migration, and known or potential human and ecological receptors. Information for the contaminant sources, transport pathways, and receptors are depicted schematically on Figure 2.5.1, which presents the conceptual site model for the shallow soil and vapor intrusion pathway and

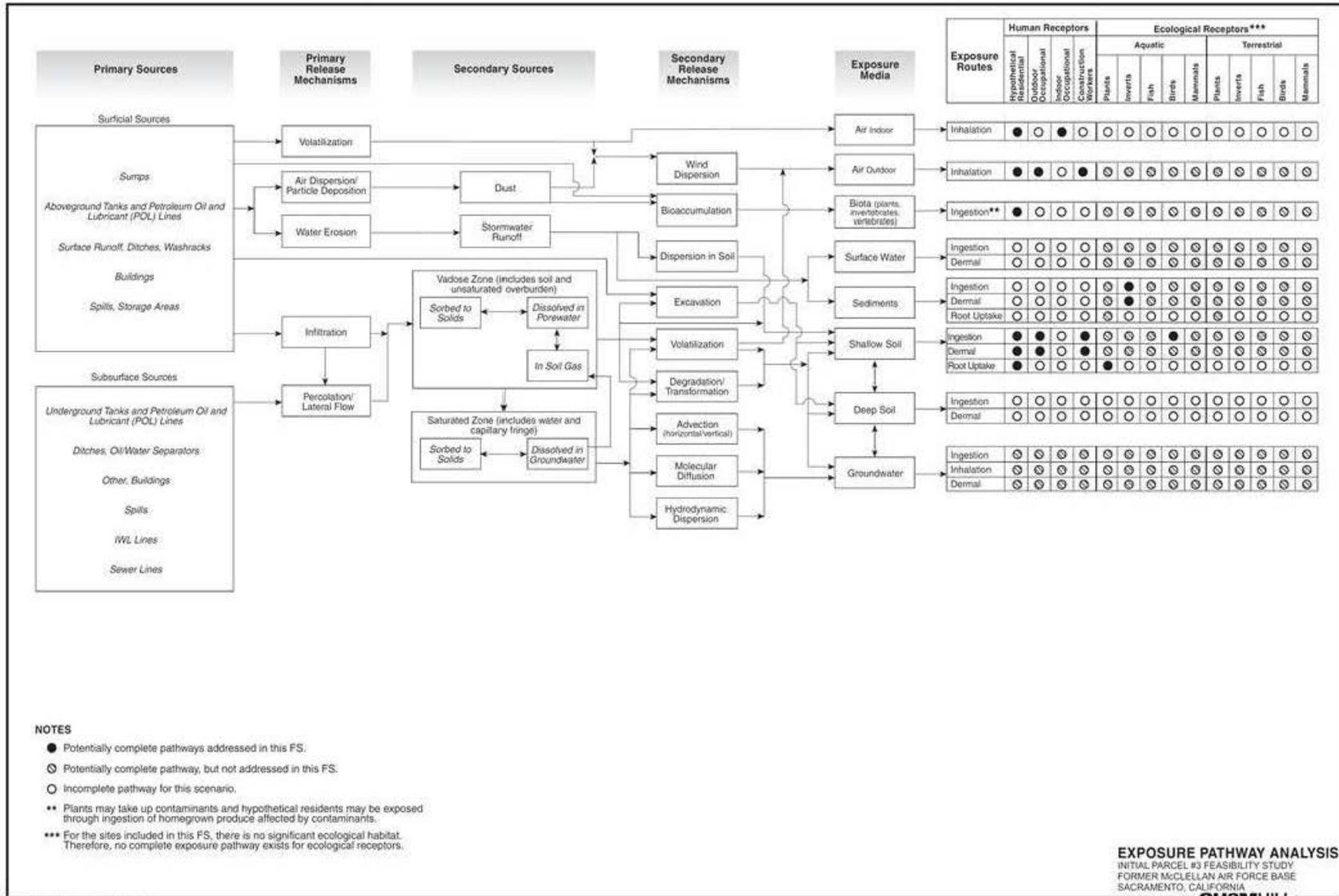
Figure 2.5.2, the exposure pathway analysis, to aid in remedy selection. Site-specific CSM descriptions can be found in the IP #3 RICS Addenda (CH2MHill, 2008a) and IP #3 Feasibility Study (CH2MHill, 2008b).

**Figure 2.5.1 Conceptual Model for Vapor Intrusion Pathway**



Source: IP #3 Feasibility Study (CH2MHill, 2008b)

Figure 2.5.2 Exposure Pathway Analysis



Source: IP #3 Feasibility Study (CH2MHill, 2008b)

### 2.5.5 Human Health Risk Summary for Initial Parcel #3

Several remedial investigations were conducted at 49 sites within IP #3 Property to characterize the nature and extent of chemicals and to evaluate potential risks to human health from chemicals detected in soil and soil gas (CH2MHill, 2006, 2008a and 2008b; Cabrera, 2007). Five IP #3 sites—PRL S-042, CS 034, SA 018, AOC 322, and SA 088—were identified as No Further Investigation (NFI) sites. For the remaining sites where additional RI data were collected, sites were characterized for soil contaminants and VOCs in shallow and deep soil gas. Human health risk assessments (HHRAs) were updated for each site using previous investigation data, where appropriate, and data collected during the IP #3 Property investigation. The assessment of potential risk is used to determine how the public or the environment may be impacted if receptors or resources are exposed to site-related contaminants at existing concentrations.

This summary of site risks in IP #3 Property is organized in accordance with steps required in EPA guidance for evaluating human health risks at Superfund sites (EPA, 1999).

#### *Identification of Contaminants of Concern*

Based on data collected during the investigations of each site, contaminants of potential concern (COPCs) were first identified based on historic site use and activities. Maximum COPC concentrations were compared to relevant screening criteria. The risk-based screening levels were set at an excess lifetime cancer risk of  $1 \times 10^{-6}$  for carcinogens and a hazard quotient (HQ) of 1 was used for noncarcinogens. Chemicals for which the maximum concentrations exceeded the screening criteria were evaluated as COCs in a quantitative risk assessment. For each COC, the maximum concentration was used as the exposure point concentration (EPC) for the quantitative risk assessment. Chemical-specific concentrations for each site (i.e., maximum and minimum concentrations, frequency of detection) are presented for each site in the IP #3 RICS Addenda (CH2MHill, 2008a) and IP #3 Feasibility Study (CH2MHill, 2008b).

#### *Exposure Assessment*

Potential human health effects associated with exposure to COCs at the 49 sites within IP #3 Property were estimated quantitatively through the development of several current and future receptor scenarios and exposure pathways. These pathways were developed to evaluate the potential for receptor exposure to hazardous substances based on the location of each site, the current site uses, and potential future site uses. Future use of the IP #3 Property will be for industrial and commercial purposes (EDAW, 2000; Sacramento County Ordinance No. SAZ-2002-0029). Although there are no current plans for residential development at IP #3 Property, the risk assessment of a future resident was conducted to assist decision-makers in the selection of remedies. The relationships between the chemicals detected in soil, release mechanisms, and exposure pathways are illustrated in an Exposure Pathway Analysis shown on Figure 2.5.2.

Based on the current understanding of land use conditions at and near the site, the most plausible exposure pathways that were considered for characterizing human health were evaluated, and are listed as follows:

- **Outdoor Occupational Worker Scenario** – The outdoor occupational worker scenario is considered representative of current and future workers at the site who spend all of their time outdoors. For the HHRA for IP #3 Property, the current and future worker scenario was evaluated using soil data from the 0-2 ft bgs depth interval.

- **Indoor Occupational Worker Scenario** – The indoor occupational worker scenario considered representative of current and future workers at the site who spend all of their workday indoors. Indoor workers may be exposed to VOCs that migrate from the subsurface into the indoor air in buildings where they work. Shallow soil gas data from 0-15 ft bgs were used to evaluate the current and future indoor occupational worker scenario.
- **Onsite Construction Worker Scenario** – Under future scenarios, onsite construction workers would potentially be exposed during onsite construction or excavation activities at the IP #3 Property sites. For the future construction worker scenario, soil data from the 0-10 ft bgs depth interval were used in the risk assessment.

Although residential land use is not planned for any of the IP #3 Property sites at this time, residential exposure scenarios (adults and children; indoor and outdoor exposure) were evaluated in the HHRAs to provide information on future risk management decisions. Future residential scenarios were evaluated using soil data from the 0-2 ft bgs depth interval to represent undisturbed soil conditions and the 0-10 ft bgs depth interval, representative of disturbed soil conditions where subsurface soil is brought to the surface and mixed with surface soil. In addition, the indoor air pathway to evaluate vapor intrusion into a residential building was evaluated for the future residential scenario using shallow soil gas data from the 0-15 ft bgs depth interval (see Figure 2.5.1).

### *Toxicity Assessment*

Chemicals detected at each site were evaluated as two groups based on their effects on human health: carcinogens (cancer causing) and noncarcinogens (may cause adverse health effects other than cancer). Chemicals classified as carcinogens may also exhibit noncarcinogenic health effects, thus these effects were also evaluated. For potential carcinogens, the quantitative risk to human health is expressed in terms of the probability of the chemical causing cancer over an estimated lifetime of 70 years. For noncancer effects, the likelihood that a receptor will develop an adverse effect is evaluated as a predicted level by comparison to the highest level of exposure that is considered protective. For noncarcinogens, the potential impact to human health is expressed as a HQ for each exposure route (e.g. ingestion, dermal contact, and inhalation) and the HI is the sum of all the HQs for all chemicals to which adverse health effects are possible.

Additionally, exposure to lead was evaluated separately by comparison to risk-based levels estimated for the occupational and construction workers, respectively. For the residential receptor, a model that calculates concentrations of lead in blood that are protective of exposures to children was used.

### *Risk Characterization*

Results of the quantitative risk assessment conducted for each site are presented in Table 2.5.2 for the occupational worker and in Attachment D for both the occupational worker and resident, according to the remedy selected. The tables present cancer risks and non-cancer hazards for each site using color codes to indicate the level of concern for consideration of remedial action. For those sites that indicate that remedial action may be warranted, the main chemicals contributing to potential health concerns are listed.

Table 2.5.2. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft below ground surface [bgs]+) IP#3 Record of Decision							
Site	Outdoor Occupational				Indoor Occupational		
	Total Chemical Risk	Drivers/ Pathway	Radiological Risk	Noncarcinogenic HI	Total Chemical Risk	Radiological Risk	Noncarcinogenic HI
<b>Alternative 1 – No Action</b>							
AOC 322	a	NA	5.E-05	a	<1E-06	2.E-05	<1
CS 034	a	NA	NE	a	b	NE	c
PRL S-009	a	NA	NC	a	<1E-06	NC	<1
PRL S-042	<1E-06	NA	NE	<1	b	NE	c
SA 006	b	NA	NE	c	9.E-06	NE	<1
SA 089	1.E-05	Arsenic/Ing	NE	<1	<1E-06	NE	<1
SA 093	b	NA	4.E-05	<1	b	2.E-05	c
SA 104	a	NA	NE	a	<1E-06	NE	<1
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use</b>							
PRL S-030	<1E-06	NA	<1E-06	<1	4.E-05	3.E-04	3
SA 001 (combined with SSA 002)	<1E-06	NA	NE	<1	<1E-06	NE	<1
SA 018	<1E-06	NA	NE	<1	9.E-06	NE	<1
SA 095	<1E-06	NA	NE	<1	<1E-06	NE	<1
SSA 002 (combined with SA 001)	<1E-06	NA	NE	<1	<1E-06	NE	<1
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal</b>							
PRL S-013	4.E-05	Arsenic/Ing and Derm	NE	<1	3.E-06	NE	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use</b>							
CS 030 (combined with SA 002)	a	NA	4.E-05	<1	<1E-06	2.E-05	<1
CS 036 EA 1 <sup>f</sup>	<1E-06	NA	NE	<1	1E-03	NE	16
CS 036 EA 2 <sup>g</sup>	2.E-06	PCB-1254 / Derm, Ing	NE	<1	1E-03	NE	16
CS 048 <sup>g</sup>	2.E-06	PCB-1254 / Derm, Ing	NE	<1	1E-03	NE	16
PRL L-005B, D, F and G EA 1 <sup>h</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005B, D, F and G EA 2 <sup>h</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005B, D, F and G EA 3 <sup>h</sup>	e	NA	NC	e	4.E-04	NC	5
PRL L-005B, D, F and G EA 4 <sup>h</sup>	b	NA	NC	<1	4.E-04	NC	5
PRL S-028	a	NA	NE	<1	<1E-06	NE	<1
PRL S-035	<1E-06	NA	NE	<1	4.E-04	NE	5
PRL T-006	<1E-06	NA	NE	<1	6.E-06	NE	<1
PRL T-007	<1E-06	NA	NE	<1	<1E-06	NE	<1
SA 002 (combined with CS 030)	a	NA	4.E-05	<1	<1E-06	2.E-05	<1

Table 2.5.2. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft below ground surface [bgs]+) IP#3 Record of Decision							
Site	Outdoor Occupational				Indoor Occupational		
	Total Chemical Risk	Drivers/ Pathway	Radiological Risk	Noncarcinogenic HI	Total Chemical Risk	Radiological Risk	Noncarcinogenic HI
SA 088	b	NA	NE	c	b	NE	c
SA 090	<1E-06	NA	NE	<1	2.E-06	NE	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use Sites</b>							
Building 600	b	NA	NE	<1	<1E-06	NE	<1
PRL L-006A-B EA 1	a	NA	d	a	4.E-04	d	5
PRL L-006A-B EA 2	b	NA	d	<1	4.E-04	d	5
PRL L-006A-B EA 3	b	NA	d	c	4.E-04	d	5
PRL S-034	<1E-06	NA	NE	<1	4.E-05	NE	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation/Disposal</b>							
CS 047 <sup>f</sup>	<1E-06	NA	NE	<1	1E-03	NE	16
CS 047 <sup>g</sup>	2.E-06	PCB-1254,PCB-1260 / Derm, Ing	NE	<1	1E-03	NE	16
CS T-061	a	NA	NE	a	3.E-04	NE	352
PRL L-005 EA 1 <sup>j</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005 EA 2 <sup>j</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005 EA 3 <sup>j</sup>	e	NA	NC	e	4.E-04	NC	5
PRL S-005	b	NA	NE	<1	9.E-06	NE	<1
PRL S-029	<1E-06	NA	NE	<1	9.E-06	NE	<1
PRL P-009	<1E-06	NA	NE	<1	4.E-04	NE	5
SA 007	<1E-06	NA	NE	<1	4.E-04	NE	5
SA 014 / Wastepile <sup>k</sup>	2.E-06	PCB-1254, BaP / Derm, Ing	NE	<1	4.E-04	NE	5
SA 014 North	1.E-06	BaP / Derm, Ing	NE	<1	4.E-04	NE	5
<b>Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use Site</b>							
PRL 060	a	NA	5.E-05	a	<1E-06	2.E-05	<1
<b>Alternative Non-VOC4a – Excavation and Offsite Disposal</b>							
OU B1 Drainage Ditch EA1	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA2	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA3	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA4	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA5 <sup>i</sup>	2.E-06	PCB-1260 / Derm, Ing	NE	<1	NE	NE	NE
PRL S-012	<1E-06	NA	NE	<1	<1E-06	NE	<1
PRL T-060	a	NA	NE	a	9.E-06	NE	<1
SA 005	a	NA	NE	a	9.E-06	NE	<1
SA 011	b	NA	NE	<1	4.E-04	NE	5

Table 2.5.2. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft below ground surface [bgs]±) IP#3 Record of Decision							
Site	Outdoor Occupational				Indoor Occupational		
	Total Chemical Risk	Drivers/ Pathway	Radiological Risk	Noncarcinogenic HI	Total Chemical Risk	Radiological Risk	Noncarcinogenic HI
SA 092 EA 1	3.E-06	PCB-1254, PCB-1260 / Derm, Ing	NE	<1	<1E-06	NE	<1
<b>Alternative VOC2 – Institutional Controls to Prevent Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Site Uses</b>							
CS 023	3.E-05	Arsenic/Ing	NE	<1	5.E-05	NE	2
<b>Notes:</b> HI = Hazard index SGEA = Soil gas exposure area EA = Exposure area NA = Not applicable NE = Not evaluated VOCs = Volatile organic compounds PCB = Polychlorinated biphenyl compounds BaP = Benzo(a)pyrene Ing = Ingestion route of exposure Derm = Dermal route of exposure							
<1E-06	Cells in green highlight indicate risk <1E-06 or HI <1.						
4.E-05	Cells in yellow highlight indicate risk within risk management range, i.e. 10 <sup>-6</sup> to 10 <sup>-4</sup> .						
3.E-04	Cells highlighted in red indicate risk greater than 10 <sup>-4</sup> or HI>1.						
	Cells highlighted in gray indicate radiological risk.						
+ Soil data from 0-2 feet (ft) below ground surface (bgs) were used to evaluate the incidental ingestion, dermal contact, and inhalation pathways. a No data collected at 0-2 ft bgs interval. b No carcinogenic contaminants of potential concern (COPCs) identified in the 0-2 ft bgs interval. c No non-carcinogenic COPCs identified in the 0-2 ft bgs interval. d No radiologic COPCs identified in the 0-2 ft bgs interval. e No analytes detected in the 0-2 ft bgs interval. f Risk assessment for CS 036, CS 047, and CS 048 EA 1 does not include transformer yard.. g Risk assessment for CS 036, CS 047, and CS 048 EA 2 includes transformer yard. h Exposure areas include portions of PRL L-005 B, D, F and G: EA 1 includes the area south PRL L-005B; EA 2 includes north PRL L-005B; EA 3 includes PRL L-005D and northwestern portions of PRL L-005D; EA 4 includes northeastern PRL L-005F. i OU1 B Drainage Ditch EA 5 consists of the row of sampling locations in the ditch located just inside the western boundary of the former McClellan AFB, west of Buildings 786-A through 786-J, and flows north, draining into Magpie Creek. j Exposure areas include portions of PRL L-005C: EA 1 includes the western edge of PRL L-005C; EA 2 includes north PRL L-005C; EA 3 includes south PRL L-005C. k Risk assessment for SA 014 and the Wastepile are combined.							

Individual HHRA's for the 49 sites in IP #3 Property were conducted for exposure to chemicals in soil only; groundwater characterization was not considered part of the investigation.

In general, calculated cumulative cancer risks greater than  $1 \times 10^{-4}$  and HIs greater than 1 require consideration of cleanup alternatives. Cancer risks between  $1 \times 10^{-4}$  and  $1 \times 10^{-6}$  (between 1 in ten-thousand and 1 in one-million) fall within EPA's risk management range. Determination of what constitutes acceptable levels of residual risks within this range is decided on a site-specific basis, considering the degree of conservatism and inherent uncertainty associated with the risk assessment. Cumulative incremental lifetime cancer risk related to site contamination below  $1 \times 10^{-6}$  is considered a *de minimis* level and typically does not warrant active risk/exposure mitigation.

### ***Occupational Worker Receptors***

Results of the risk assessment, as shown in Table 2.5.2 for the occupational workers, indicates that none of the sites has potential cancer risks greater than  $1 \times 10^{-4}$  or HIs greater than 1 for the outdoor occupational exposure for soil. Nine sites (or groups of sites) (CS 023, CS 036, CS 047, CS 048, OU B1 Drainage Ditch, PRL S-013, SA 014 / Wastepile, SA 089 and SA 092) have potential cancer risks within the risk management range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . Of the nine sites with potential cancer risks within the risk management range, arsenic is the main risk driver at three sites (SA 089, CS 023, and PRL S-013). Concentrations of arsenic are low at these sites and are not likely associated with site-related activities. Other sites with potential cancer risk within the risk management range have the following main risk drivers: PCBs for two sites (SA 092 and OU B1 Drainage Ditch) and PCBs and PAHs for one site (SA 014/Wastepile).

For the indoor occupational worker scenario, potential cancer risks are greater than  $1 \times 10^{-4}$  at ten sites (or groups of sites) (CS 036/ CS 047/CS 048, CS T-061; PRL L-005 B, D, F and G; PRL L-005 EAs 1 and 2; PRL L-006 A-B; PRL P-009; PRL S-035; SA 011; SA 014 North; and SA 014/Wastepile), located within Soil Gas Exposure Area (SGEA) 7 and SGEA 2. SGEAs with potential cancer risks within the risk management range are located in SGEA 3, SGEA 5, SGEA 11, SGEA 12, SGEA 17, SGEA 18 and SGEA 22. SGEAs 2, 7, 8, 17 and 18 also have locations with HIs greater than 1.

### ***Residential Receptors***

As shown in Attachment D, Table D-2, evaluation of the hypothetical residential scenario resulted in five sites with carcinogenic risks greater than  $1 \times 10^{-4}$  for the surface soil exposure scenario (0-2 ft bgs): CS 023, CS 030 / SA 002, PRL S-013, SA 089 and SA 090, with arsenic as the primary driver at these sites. As noted earlier, arsenic concentrations at the IP #3 Property Sites are low and not likely associated with site-related activities. Eleven sites (OU B1 Drainage Ditch; PRL L-005B, D, F and G; PRL P-009; PRL S-012; PRL S-030; PRL S-035; PRL L-005 EA 2; PRL S-012; SA 014 North; SA 014/Wastepile and SA 092) have carcinogenic risks within the risk management range with PCBs as the main risk driver for seven of these sites (OU B1 Drainage Ditch, PRL L-005, PRL P-009, PRL S-012, PRL S-030, PRL S-035 and SA 092). PCBs and PAHs drive risk in SA 014/Wastepile. The noncancer HIs for the child resident exposed to surface soils exceed 1 for thirteen sites: CS 047, CS 048, PRL L-005 EA 1, PRL L-005 EA 2, PRL P-009, PRL S-013, SA 014/Wastepile, SA 014 North, SA 090, SA 092, SA 093 and SA 095. The noncancer HIs for sites CS 023, CS 047, CS 048, PRL L005, PRL S-035, PRL P-009, and PRL S-013, PRL S-035, SA 090, SA 014/Wastepile, SA 014 North, SA 092 and SA 093 also exceed 1 for the adult resident exposed to surface soil.

For the adult resident exposed to subsurface soils (0-10 ft bgs), presented in Table D-3 of Attachment D, 18 sites (CS 023, CS 030 / SA 002, CS 036, PRL L-005, PRL P-009, PRL 060, PRL S-013, PRL S-030, PRL S-034, SA 001, SA 002, SA 011, SA 014/Wastepile, SA 014 North, SA 089, SA 090, SA 092 and

SA 095) have carcinogenic risk estimates greater than  $1 \times 10^{-4}$ . Arsenic is the primary risk driver for 16 of these sites but is not likely associated with site activities. Naphthalene is the primary contributor of risk to three of the sites (PRL L-005, PRL S-030 and SA 007). Six sites (CS 048, CS T-061, OU B1 Drainage Ditch, PRL L-005, PRL S-012 and PRL S-035) have carcinogenic risk within the risk management range for the hypothetical future adult residential subsurface soil exposure scenario. Twenty-two sites (CS 023, CS 030 / SA 002, CS 047, OU B1 Drainage Ditch, PRL 060, PRL L-005, PRL L-006 A-B, PRL P-009, PRL S-013, PRL S-028, PRL S-029, PRL S-030, PRL S-035, PRL S-042, SA 011, SA 014/Wastepile, SA 014 North, SA 018, SA 089, SA 092, SA 093 and SA 095) have HI estimates greater than 1 for the child resident exposed to subsurface soils (0-10 ft bgs).

### ***Risk Assessment Conclusions***

Results of the risk assessments for sites within the IP #3 Property indicate that soil and soil gas contamination in some portions of the parcel exceed both residential and industrial risk-based levels. Current reuse plans for the IP #3 Property are for industrial/commercial purposes; therefore, the risk and hazard estimates for residential scenarios are overly conservative for the planned site use. As part of the State of California concurrence on the Finding of Suitability for Early Transfer, the California Department of Public Health (CDPH) provided a finding of unrestricted use for sites within IP#3 Property with respect to radiological constituents (CDPH, 2010). Natural causes are the source of these radiological constituents at the IP #3 sites and EPA cannot require cleanup beyond background levels.

The reasonably anticipated use of the property is industrial/commercial, and the selected remedies are intended to maintain residential use restrictions on the entire parcel where residential risk-based levels are exceeded.

## **2.6 Remedial Action Objectives**

The remedial action objectives (RAOs) describe what the cleanup action is expected accomplish. In order to meet the RAOs, EPA identified cleanup levels for soils (see Table 2.6.1) based on EPA Region 9's Preliminary Remediation Goals (PRGs), soil background levels, and risk-based screening levels developed in the IP #3 Feasibility Study (CH2MHill, 2008b). Similarly, shallow soil gas institutional control compliance levels are found in Table 2.6.2; these are the soil gas concentrations at which ICs or mitigation measures in the form of engineering controls would be necessary.

The RAOs are to:

- eliminate or reduce direct contact, inhalation or ingestion exposures to humans that are the result of contaminated soil and soil gas from the surface to 15 ft bgs by meeting the cleanup levels;
- prevent migration of contaminated soil to protect surface water quality; and
- prevent exposure to residual contamination by limits on land use.

**Table 2.6.1 Cleanup Levels- IP #3 Property**

<b>Contaminants of Concern (COCs)</b>	<b>Cleanup Levels</b>	<b>Depth</b>	<b>Basis for Cleanup*</b>
<b>Non-VOCs: Metals (milligrams per kilogram [mg/kg])</b>			
Aluminum	29,313[a]	1 to 15 feet 0 to 1 feet	Protection of human health Protection of surface water
Antimony Antimony	370[b] 190	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Arsenic Arsenic	6.5[c,d]	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Cadmium Cadmium	1,000[b] 2.2	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Copper Copper	37,000[b] 130	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Iron Iron	280,000[b] 39,695 [a]	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Lead Lead	320[f] 137	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Manganese Manganese	22,000[b] 1,600	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Nickel Nickel	18,000[b] 770	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Silver Silver	4,600[b] 23	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Thallium Thallium	61[b] 54	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Vanadium Vanadium	920[b] 920[b]	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
Zinc Zinc	280,000[b] 1,700	1 to 15 feet 0 to 1 foot	Protection of human health Protection of surface water
<b>Non-VOCs: Semi-Volatile Organic Compounds (SVOCs) (mg/kg)</b>			
Alpha chlordane	1.4 [b]	0 to 15 feet	Protection of human health
Benzo(a)pyrene	0.14[d]	0 to 15 feet	Protection of human health
Benzo(b)fluoranthene	0.88[d]	0 to 15 feet	Protection of human health
Beta BHC	1 [b]	0 to 15 feet	Protection of human health
Dibenzo(a,h)anthracene	0.26 [b]	0 to 15 feet	Protection of human health

**Table 2.6.1 Cleanup Levels- IP #3 Property**

<b>Contaminants of Concern (COCs)</b>	<b>Cleanup Levels</b>	<b>Depth</b>	<b>Basis for Cleanup*</b>
Dieldrin	0.11[b]	0 to 15 feet	Protection of human health
Gamma chlordane	5.2[b]	0 to 15 feet	Protection of human health
2-Methylnaphthalene	0.73[b]	0 to 15 feet	Protection of human health
Naphthalene	0.53[b]	0 to 15 feet	Protection of human health
PCBs (Aroclor 1254 and Aroclor 1260)	0.53 [b,d]	1 to 15 feet	Protection of human health
PCBs (Aroclor 1254 and Aroclor 1260)	0.025 [b]	0 to 1 foot	Protection of surface water
<b>Non-VOCs: Total Petroleum Hydrocarbons (TPH) (mg/kg)</b>			
TPH-Diesel (TPH-D)	3900 [e]	1 to 15 feet	Protection of environment
	3190	0 to 1 feet	Protection of surface water
TPH-Gasoline (TPH-G)	220 [e]	1 to 15 feet	Protection of environment
	160	0 to 1 feet	Protection of surface water

Notes:

\* Values for protection of human health, used as the basis for cleanup for non-VOCs and VOCs, are equivalent to the lesser of the carcinogenic risk of 1E-06 or an HQ of 1 for each contaminant for exposure to soil through direct contact, inhalation, and ingestion for the industrial use scenario.

[a] Combined background from Appendix E of the final McClellan AFB Interim Base Wide RI Report - General Framework, September 2005.

[b] Calculated risk based screening level for industrial use from the IP #3 FS (CH2MHill, 2008b)

[c] Silt and Clay background Concentrations from Appendix E of the final McClellan AFB Interim Base Wide RI Report -General Framework, September 2005.

[d] Consistent with Parcel C-6 ROD (EPA, 2009b).

[e] Consistent with McClellan Overall Cleanup Strategy.

[f] Reflects recent change in CA standard.

EPA, in close consultation with the State of California, set these cleanup levels to protect human health and surface water quality. While the IP#3 Property ROD does not address groundwater, it is expected that these cleanup levels will also protect groundwater under the IP #3 Property.

**Table 2.6.2. Shallow Soil Gas Institutional Control Compliance Levels**

Contaminants of Concern (COCs)	IC Compliance Levels [a]	Depth	Basis for Cleanup*
<b>Volatile Organic Compounds (VOCs) (parts per billion by volume [ppbv])</b>			
Benzene	170	0 to 15 feet	Protection of human health
Benzyl chloride	16	0 to 15 feet	Protection of human health
cis-1,2-Dichloroethene	13,000	0 to 15 feet	Protection of human health
Chloroform	36	0 to 15 feet	Protection of human health
1,2-Dibromoethane	0.93	0 to 15 feet	Protection of human health
1,4-Dichlorobenzene	58	0 to 15 feet	Protection of human health
1,1-Dichloroethane	630	0 to 15 feet	Protection of human health
Hexachlorobutadiene	17	0 to 15 feet	Protection of human health
Methylene chloride	2,500	0 to 15 feet	Protection of human health
2-Methylnaphthalene	760	0 to 15 feet	Protection of human health
Methyl tert-butyl ether	4,400	0 to 15 feet	Protection of human health
Naphthalene	840	0 to 15 feet	Protection of human health
n-Propylbenzene	42,000	0 to 15 feet	Protection of human health
Tetrachloroethene	98	0 to 15 feet	Protection of human health
Trichloroethene	380	0 to 15 feet	Protection of human health
1,2,4-Trimethylbenzene	1,800	0 to 15 feet	Protection of human health
1,3,5-Trimethylbenzene	1,800	0 to 15 feet	Protection of human health
Vinyl chloride	360	0 to 15 feet	Protection of human health
m,p-Xylenes	33,000	0 to 15 feet	Protection of human health
o-Xylene	33,000	0 to 15 feet	Protection of human health

\* Values for protection of human health, used as the basis for cleanup for VOCs, are equivalent to the lesser of the carcinogenic risk of 1E-06 or an HQ of 1 for each contaminant for exposure to soil gas through indoor air inhalation for the industrial use scenario.

[a] Calculated risk based screening level for industrial use from the IP #3 FS (CH2MHill, 2008b).

## 2.7 Description of Alternatives

The remedial alternatives developed for the IP #3 Property address a broad range of site conditions and contaminant types. During the Feasibility Studies (CH2M Hill, 2008b) the alternatives were categorized as VOC alternatives and non-VOC alternatives (i.e., metals/inorganics, semi-volatile organic compounds [SVOCs], and radionuclides) as follows:

- Alternative 1 – No Action
- Alternative VOC2 – Institutional Controls to Prohibit Residential Use

- Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use
- Alternative VOC4 – SVE
- Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use and Digging Restrictions
- Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use
- Alternative Non-VOC4a – Excavation and Offsite Disposal (Restricted Land Use)
- Alternative Non-VOC4b – Excavation and Offsite Disposal (Unrestricted Land Use)

For sites impacted by both VOC and Non-VOC contamination, both types of alternatives (VOC and Non-VOC) were evaluated and for some of those sites, two alternatives were selected.

Each remedial alternative is summarized below; more detail is presented in Table 2.8.1. Institutional controls (explained further in Section 2.7.7) are part of all the remedies evaluated, except for the No Action alternative. Alternative VOC4 and Alternative Non-VOC4b were not selected for any of the IP#3 Property Sites and, therefore, are not discussed beyond this section.

### **2.7.1 Alternative 1 – No Action**

The no action alternative is appropriate when existing site conditions pose no risks at the site. CERCLA and the NCP require a No Action alternative to establish a basis for comparison with other alternatives. No remedial activities for VOCs and/or Non-VOCs are implemented under this alternative. The No Action alternative is evaluated for each of the IP #3 Property Sites. No cost is associated with this alternative.

### **2.7.2 Alternative VOC2 – Institutional Controls to Prohibit Residential Use**

Under Alternative VOC2, ICs would be used to eliminate or limit exposure pathways for VOCs to people and the environment and result in restricted land use. ICs would be implemented primarily to prohibit residential use. Through a specific SLUC recorded on the property subject to this remedy, use of the property for residential and similar purposes will be prohibited. Alternative VOC2 includes monitoring and enforcement of the ICs.

### **2.7.3. Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use**

Under Alternative VOC3, the SLUC will prohibit residential land use and will require that any future building construction (i.e., new buildings or significant modifications to existing buildings) on the site address the risk of vapor intrusion. The property owner must install vapor controls in the building or sample to show that there is no unacceptable risk. The specific vapor control required would be determined at the time of construction and must be approved by EPA and the State regulatory agencies. For sites with Alternative VOC3, the landowner could choose to mitigate shallow soil gas through the use of engineering controls including vapor barriers, gas collection and/or ventilation. All of the IP #3 Property sites with Alternative VOC3 are subject to physical restrictions such as fencing, or surface controls such as vapor barriers, gas collection and/or ventilation. Alternative VOC3 results in restricted land use.

To address uncertainties in shallow soil gas (SSG) characterization at some of the IP#3 sites, Alternative VOC3 will require that the property owner must sample or maintain surface cover or other ICs as

warranted if buildings on the site are demolished, property use changes, there are intrusive activities (e.g., digging), or the site is within the 100 foot buffer zone from the IWL.

This alternative requires monitoring and enforcement of ICs; details are described in Section 2.7.9.

#### **2.7.4 Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use**

Under Alternative Non-VOC2, ICs would be used to eliminate or limit exposure pathways for non-VOCs and result in restricted land use. This alternative requires monitoring and enforcement of ICs. Alternative Non-VOC2 is applicable at one of the IP #3 Property Sites with non-VOC contamination. ICs would be implemented primarily to prohibit residential use. Through a specific SLUC recorded on the property subject to this remedy, use of the property for residential and similar purposes will be prohibited. Institutional controls under this alternative consist of some or all of the following deed covenants:

- A prohibition on residential use.
- A prohibition on building slab removal without regulatory agency approval.
- A prohibition on intrusive activities without regulatory agency approval.

This alternative requires monitoring and enforcement of ICs; details are described in Section 2.7.9

#### **2.7.5 Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use**

Under Alternative Non-VOC3, engineered controls (ECs) would be used to eliminate or limit non-VOC exposure pathways. All five IP #3 Property sites with Alternative Non-VOC3 may be subject to digging restrictions. Two IP #3 Property sites with Alternative Non-VOC3—PRL L-006A and PRL L-006B—are subject to physical restrictions, such as fencing and sampling for metals if the land use changes. Three IP #3 Property sites—Building 600, CS 023, and PRL S-034—have buildings that, if removed, must be sampled or surface cover maintained to address the uncertainty in the characterization of non-VOCs under these structures. This alternative requires monitoring and enforcement of ICs; details are described in Section 2.7.9.

A summary of potential site specific ECs and monitoring activities is presented in Table 2.7.1 and will be fully developed with concurrence by the regulatory agencies during the remedial design/remedial action work plan and/or when the property owner intends on changing the site use.

**Engineered Controls.** Depending on the specific requirements of each site, ECs under this alternative would consist of maintenance of and improvements to the surface cover and drainage ditches and/or sediment collection, as follows:

- **Surface Cover.** This engineered control involves the maintenance and/or expansion of concrete, asphalt, and building foundations to reduce or eliminate direct contact exposure, soil erosion, and potential impacts to surface water.
- **Sediment Collection.** Under this alternative, drainage ditches would be reconstructed, as necessary, to improve their ability to collect sediment. Pre-constructed sediment traps would be installed in the downstream section of the ditch to trap and remove any residual sediment.

**Monitoring.** Long-term monitoring would be required to verify continued effectiveness of the surface cover and/or sediment collection systems.

The ICs would prohibit residential land use through an SLUC and implement site controls to protect the ECs that reduce exposure to contamination.

#### **2.7.6 Alternative Non-VOC4a – Excavation and Offsite Disposal**

Under Alternative Non-VOC4a, the IP #3 Property Sites with contaminated soil and/or sediment would be excavated, and the excavated soil would be transported to an offbase landfill for disposal. All soil containing concentrations of contaminants above industrial use levels would be removed and the resulting land use would be restricted. Alternative Non-VOC4a also includes ECs as necessary (described in detail in Section 2.7.5), and ICs (details are described in Section 2.7.9) and monitoring.

All of the IP #3 Property sites with Alternative Non-VOC4a (CS 047, CS T-061, OU B1 Drainage Ditch, PRL L-005C, PRL P-009, PRL S-012, PRL S-013, PRL T-060, SA 005, SA 007, SA 011, SA 014, SA 092 and the Wastepile), may be subject to physical restrictions such as fencing, or surface controls. The ECs at PRL L-005C also cover the area of PRL S-030, which it completely surrounds. Additionally, CS 047, OU B1 Drainage Ditch, PRL P-009, SA 007, SA 014, SA 092 and the Wastepile may be subject to sediment collection and/or surface water monitoring. CS 047, PRL S-012 and SA 011 will likely be subject to a surface cover engineered control. A summary of potential site-specific ECs and monitoring activities is presented in Table 2.7.1 and will be fully developed with concurrence by the regulatory agencies during the remedial design phase and/ or when the property owner intends on changing the site use.

The ICs would prohibit residential land use through an SLUC and implement ECs that reduce exposure to contamination. This remedy would also require monitoring and enforcement of ICs.

#### **2.7.7 Alternative Non-VOC4b – Excavation/Disposal (Unrestricted Land Use)**

Under Alternative Non-VOC4b, the IP 3 sites with contaminated soil and/or sediment would be excavated, and the excavated soil would be transported to an offbase landfill for disposal. All soil containing concentrations of contaminants above unrestricted use levels will be removed, and the resulting land use will be unrestricted. Because the land use would be unrestricted, long-term institutional controls, engineered controls, and/or monitoring would not be required.

#### **2.7.8 Alternative VOC4 – SVE (Restricted Land Use)**

Alternative VOC4 is based on existing Soil Vapor Extraction technology operated by the Air Force under the *McClellan Groundwater VOC Record of Decision* (August 2007). SVE would continue to be used to eliminate or limit VOC exposure in shallow soil gas (SSG). Expanded or additional soil vapor extraction wells would be installed and operated by the Air Force as needed. Institutional controls and monitoring would be required under this alternative similar to what is required under Alternative VOC3.

**Table 2.7.1 Summary of Potential Engineered Controls and Monitoring**

Site ID	Physical Restrictions	Surface Controls					Monitoring	
	Fencing	Vapor Barrier	Gas Collection	Ventilation	Surface Cover	Sediment Collection	Vadose Zone Monitoring	Surface Water and/or Sediment Trap Monitoring
Alternative VOC2 – Institutional Controls (ICs) to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use								
CS 023	x	--	--	--	* [a]	--	--	--
Alternative VOC2 – Institutional Controls (ICs) to Prohibit Residential Use and Alternative and Non-VOC4a – Excavation and Offsite Disposal								
PRL S-013	--	--	--	--	* [e]	* [e]	--	* [e]
Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use								
CS 030 [a]	x	x	x	x	--	--	--	--
CS 036 [b]	x	x	x	x	*	*	--	*
CS 048 [b]	x	x	x	x	*	*	--	*
PRL L-005B [b]	x	x	x	x	--	--	--	--
PRL L-005D [b]	x	x	x	x	--	--	--	--
PRL L-005F [b]	x	x	x	x	--	--	--	--
PRL L-005G [b]	x	x	x	x	--	--	--	--
PRL S-005 [a]	x	x	x	x	--	--	--	--
PRL S-028 [a]	x	x	x	x	--	--	--	--
PRL S-029 [a]	x	x	x	x	--	--	--	--
PRL S-035 [b]	x	x	x	x	--	--	--	--

	Physical Restrictions	Surface Controls					Monitoring	
Site ID	Fencing	Vapor Barrier	Gas Collection	Ventilation	Surface Cover	Sediment Collection	Vadose Zone Monitoring	Surface Water and/or Sediment Trap Monitoring
PRL T-006 [b]	x	x	x	x	--	--	--	--
PRL T-007 [b]	x	x	x	x	--	--	--	--
SA 002 [a]	x	x	x	x	--	--	--	--
SA 088 [b]	x	x	x	x	--	--	--	--
SA 090 [b]	x	x	x	x	--	--	--	--
Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use								
Building 600 [a]	x	x	x	x	*	--	--	--
PRL L-006A [b]	x	x	x	x	--	--	--	--
PRL L-006B [b]	x	x	x	x	--	--	--	--
PRL S-034 [b]	x	x	x	x	*	--	--	--
Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal								
CS 047 [b]	x	x	x	x	* [e]	* [c]		*[c]
CS T-061 [b]	x	x	x	x	--	--	--	--
PRL L-005C [b]	x	x	x	x	* [f]	--	--	--
PRL P-009 [b]	x	x	x	x	--	*[d]	--	*[d]

Site ID	Physical Restrictions	Surface Controls					Monitoring	
	Fencing	Vapor Barrier	Gas Collection	Ventilation	Surface Cover	Sediment Collection	Vadose Zone Monitoring	Surface Water and/or Sediment Trap Monitoring
SA 007 [b]	x	x	x	x	--	*	--	*
SA 014 [b]	x	x	x	x	--	*	--	*
Alternative Non-VOC4a – Excavation and Offsite Disposal								
OU B1 Drainage Ditch [b]	x	x	x	x	--	*	--	*
PRL S-012 [b]	x	x	x	x	* [e]	--	--	--
PRL T-060 [b]	x	x	x	x	--	--	--	--
SA 005 [b]	x	x	x	x	--	--	--	--
SA 011 [b]	x	x	x	x	* [e]	--	--	--
SA 092 [b]	x	x	x	x	*[e]	*	--	*
Wastepile [b]	x	x	x	x	* [e]	*[d]	--	*[d]

Notes:

- [a] Engineered controls not evaluated in the IP #3 Feasibility Study (CH2MHill, 2008b).
- [b] Information derived from the IP #3 Feasibility Study (CH2MHill, 2008b).
- [c] Sediment/surface water monitoring for this site occurs down gradient of the site at OU B1 Drainage Ditch monitoring locations.
- [d] Sediment/surface water monitoring site occurs down gradient of the site at SA 014 monitoring locations, also costs for sediment trap are found within the SA014 cost estimates.
- [e] Process option can be discontinued when remedial action is complete and Cleanup Goals are met.
- [f] Engineered controls for PRL L-005C cover PRL S-030
- x Process option to be implemented as necessary by subsequent property owner(s) to mitigate SSG contamination.
- \* Process option to be implemented as necessary by MBP under this ROD.
- Engineered Controls not applicable to the specified site.

### **2.7.9 Institutional Controls**

ICs are a component of all the remedial alternatives, except the No Action Alternative. ICs are included as a remedial alternative component because, if properly implemented, monitored, and enforced, they can be protective of human health and the environment. The intent of the ICs is to limit or eliminate exposure pathways to humans. ICs include non-engineering methods whereby access to contaminated soil is restricted or regulated (e.g., SLUC).

#### ***Existing ICs***

The existing ICs described in the federal deed and the current SLUCs for the IP #3 Property include the specific use restrictions described in the FOSET (AFRPA, 2009a) and the AOC (EPA, 2009a). These restrictions, put into place at the time of transfer of the Property by the Air Force, specify that the property shall not be put to any of the following uses:

- 1) A residence, including any mobile home or factory built housing, used as residential human habitation;
- 2) A hospital for humans;
- 3) A public or private school for persons under 18 years of age;
- 4) A day care center for children;
- 5) Any use in a manner that causes the covering or disturbing of groundwater monitoring wells or that restricts access to groundwater monitoring wells;
- 6) Any use that includes construction of any well or extraction of groundwater for any purposes other than monitoring or treatment of groundwater or that would cause the surface application or injection of water or other fluids, unless approved by EPA, DTSC and Central Valley Water Board;
- 7) Any use that would disturb or limit access to any equipment or systems associated with groundwater or soil vapor extraction remediation or monitoring;
- 8) Any use that would restrict investigation activities, remedial actions or long term maintenance and operations.

Furthermore, pursuant to the federal deed and SLUC, no activities at the IP #3 Property, except response actions pursuant to the AOC (EPA, 2009a) or Amended FFA (AFRPA, 2010), shall disturb the soil unless conducted in accordance with the approved McClellan Park Soils Management Manual for Transfer Parcels (Tetra Tech, 2008). Any soils brought to the surface as a result are required to be managed in accordance with all applicable provisions of State and federal law.

### **2.8 Summary of Comparative Analysis of Remedy Alternatives**

EPA evaluated and compared the alternatives against nine criteria (see Table 2.8.1). These nine criteria are part of the CERCLA process established to provide a format for selecting appropriate remedial alternatives. The first two criteria, overall protection of human health and the environment and compliance with state and federal environmental requirements, are called threshold criteria. These two criteria must be met in order for the alternative to be eligible for selection. The remaining seven criteria, called modifying and balancing criteria, are used to compare the eligible alternatives and help in the selection of the Preferred Alternatives.

**Table 2.8.1 Comparative Analysis of Both VOC and Non-VOC Alternatives [a]**

	<b>Alternative 1 – No Action</b>	<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use</b>	<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use</b>	<b>Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use</b>	<b>Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use</b>	<b>Alternative Non-VOC4a – Excavation and Offsite Disposal</b>
<p><b>1 Overall Protectiveness of Human Health and the Environment</b>                      Determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.</p> 	N/A	Yes, except for CS 036, CS 047, CS 048, CS T-061, PRL L-005, PRL L-006, PRL P-009, PRL S-034, PRL S-035, PRL T-006, and SA 007.	Yes. Exposure pathways limited with successful ICs and engineering controls further protect of human health.	Yes, Human exposure pathways limited with ICs but doesn't address potential threat to surface water.	Yes.	Yes. Contamination exceeding cleanup standards removed. ICs prevent impacts to human health from any contaminants remaining above residential standards.
<p><b>2 Compliance with State and Federal Environmental Requirements</b>                      Evaluates alternatives for compliance with environmental protection requirements.</p> 	N/A	Same as above	Yes.	Yes for human health ARARs, but would not address threats to surface water.	Yes for human health and surface water ARARs.	Yes for human health and surface water ARARs
<p><b>3 Long-term Effectiveness</b>                      Considers an alternative's ability to maintain reliable protection of human health and the environment after implementation.</p> 	N/A.	Only for sites where risks are within or below an excess cancer risk of 10-4 or an HI below 1 (exceptions as above).	ECs result in acceptable VOC risks.	Yes. IC monitoring and enforcement would protect human health and environment.	Yes. Monitoring and enforcement of engineered and ICs would protect humans and surface water.	Yes. Industrial standards likely achieved. ECs and long-term ICs protective of human health and surface water.

	Alternative 1 – No Action	Alternative VOC2 – Institutional Controls to Prohibit Residential Use	Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use	Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use	Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use	Alternative Non-VOC4a – Excavation and Offsite Disposal
<p><b>4</b> Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment</p> <p>Evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.</p> 	N/A	None	None	None	None	None
<p><b>5</b> Cost</p> <p>Weighs the benefits of a particular alternative against the cost of implementation.</p> 						
[b]						
AOC 322	\$0	—	—	\$81,000	—	—
Building 600/PRL S-028 [c]	\$0	\$81,000	—	\$81,000	—	—
CS 023	\$0	\$81,000	\$184,000	\$81,000	—	—
CS 036/CS 047/CS 048 [c]	\$0	\$81,000	\$184,000	\$81,000	\$215,000	\$264,000
CS T-061	\$0	\$81,000	\$184,000	\$81,000	—	\$181,000
OU B1 Drainage Ditch	\$0	—	—	\$81,000	\$119,000	\$215,000
PRL 060	\$0	—	—	\$81,000	—	\$2,142,000
PRL L-005 (B,C,D,F, and G) [c]	\$0	\$81,000	\$184,000	\$81,000	—	\$555,000
PRL L-006 (A and B) [c]	\$0	\$81,000	\$184,000	\$81,000	—	—
PRL P-009	\$0	\$81,000	\$184,000	\$81,000	\$81,000	\$187,000
PRL S-005	\$0	\$81,000	—	—	—	—
PRL S-012	\$0	—	—	\$81,000	\$343,000	\$604,000
PRL S-013	\$0	\$81,000	\$184,000	\$81,000	\$81,000	\$365,000
PRL S-029	\$0	\$81,000	—	—	—	—
PRL S-030	\$0	\$81,000	—	\$81,000	\$114,000	\$220,000

	Alternative 1 – No Action	Alternative VOC2 – Institutional Controls to Prohibit Residential Use	Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use	Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use	Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use	Alternative Non-VOC4a – Excavation and Offsite Disposal
PRL S-034	\$0	\$81,000	\$524,000	\$81,000	—	—
PRL S-035	\$0	\$81,000	\$184,000	—	—	—
PRL T-006	\$0	\$81,000	\$184,000	—	—	—
PRL T-007	\$0	\$81,000	\$184,000	—	—	—
PRL T-060/SA 005 [c]	\$0	—	—	\$81,000	—	\$119,000
SA 007	\$0	\$81,000	\$184,000	\$81,000	—	\$264,000
SA 011	\$0	—	—	\$81,000	\$106,000	\$633,000
SA 014	\$0	—	—	\$81,000	\$255,000	\$534,000
SA 018	\$0	\$81,000	—	—	—	—
SA 088	\$0	\$81,000	\$184,000	—	—	—
SA 090	\$0	\$81,000	\$184,000	—	—	—
SA 092	\$0	—	—	\$81,000	\$215,000	\$364,000
SA 095	\$0	\$81,000	—	—	—	—
Wastepile	\$0	—	—	\$81,000	\$81,000	\$202,000
 <p><b>6 Short-term Effectiveness</b> Addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.</p>	NA	Vapor inhalation pathway possible.	Vapor barriers would protect against indoor air contamination. Land use controls protect human health.	Would be immediately protective of human health.	Would be immediately protective of human health.	Short term risks during excavation and transport could be managed.
 <p><b>7 Implementability</b> Refers to the technical and administrative feasibility of the alternative, including the availability of materials and services needed to implement a particular option.</p>	NA	Implementable with coordination between EPA, State, Sacramento County, and AFRPA.	Implementable with agency coordination.	Implementable with agency coordination.	Surface cover and sediment collection systems implementable; aforementioned agency coordination required.	Readily implementable. Coordination with potential remedial actions for SSG required.

	<b>Alternative 1 – No Action</b>	<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use</b>	<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use</b>	<b>Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use</b>	<b>Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use</b>	<b>Alternative Non-VOC4a – Excavation and Offsite Disposal</b>
<div style="border: 1px solid black; padding: 5px;"> <p><b>8 State Acceptance</b>                      Considers whether the state favors or objects to any of the alternatives based on the available information.</p>  </div>	ROD coordinated DTSC & WB including NA sites.	ROD coordinated DTSC & WB including cleanup levels.	ROD coordinated DTSC & WB including cleanup levels.	ROD coordinated DTSC & WB including cleanup levels.	ROD coordinated DTSC & WB including cleanup levels.	ROD coordinated DTSC & WB including cleanup levels.
<div style="border: 1px solid black; padding: 5px;"> <p><b>9 Community Acceptance</b>                      Indicates whether community concerns are addressed by the alternative and whether the community has a preference for an alternative. Although public comment is an important part of the final decision, the Air Force must balance community concerns with all the previously mentioned criteria.</p>  </div>	Public comments on proposed plan support cleanup levels and remedies selected.	Public comments on proposed plan support cleanup levels and remedies selected.	Public comments on proposed plan support cleanup levels and remedies selected.	Public comments on proposed plan support cleanup levels and remedies selected.	Public comments on proposed plan support cleanup levels and remedies selected.	Public comments on proposed plan support cleanup levels and remedies selected.

Notes: Alternative VOC4 and Alternative Non-VOC4b were not selected for any IP#3 Sites and therefore were not included in this table.

- [a] Information in table is summarized from the IP #3 FS (CH2MHill, 2008b).
- [b] The estimated costs for implementing the alternatives are summarized in this table were based on detailed cost calculations presented in Appendix D of the IP #3 FS. The following sites were not evaluated in the IP #3 FS: CS 030, CS 034, PRL S-009, PRL S-042, SA 001, SA 002, SA 006, SA 089, SA 093, SA 104, SSA 002. Additional cost information can be found in Attachment E of the IP #3 Property ROD.
- [c] Sites were evaluated together for the purposes of calculating costs.

### **2.8.1 VOC Alternatives**

In the FS, the VOC alternatives were evaluated at 27 IP #3 Property sites for which COCs for shallow soil gas (SSG) have been identified (see Tables 2.5.1, 2.5.4 and 2.8.1, and Appendix D).

Each of these 27 sites with VOCs in SSG was evaluated for Alternative 1 and Alternative VOC2. Additionally, due to risks (or potential risks) associated with SSG within or greater than the risk management range (10-6 to 10-4) for industrial use Alternative VOC3 was evaluated at the following 20 sites: CS 023, CS 036, CS 047, CS 048, CS T-061, PRL L-005B, PRL L-005C, PRL L-005 D, PRL L-005F, PRL L-006A, PRL L-006B, PRL P-009, PRL S-013, PRL S-034, PRL S-035, PRL T-006, PRL T-007, SA 007, SA 088 and SA 090. The IP #3 site PRL S-034 was evaluated for Alternative VOC4; however, this remedy was not selected for this site. A summary of the comparative analysis of alternatives for these sites from the FS is presented in Table 2.8.1.

### **2.8.2 Non-VOC Alternatives**

In the FS (CH2MHill, 2008b), the Non-VOC alternatives were evaluated at 28 IP #3 Property Sites for which COCs for soil have been identified (see Tables 2.5.1, 2.5.2 and 2.8.1, and Appendix D).

Each of these 28 sites was evaluated for Alternatives 1 and Non-VOC2. Alternative Non-VOC3 was evaluated at the following 10 sites: CS 047, OU B1 Drainage Ditch, PRL P-009, PRL S-012, PRL S-013, PRL S-030, SA 011, SA 014, SA 092 and the Wastepile. Alternative Non-VOC4a and Alternative Non-VOC4b were evaluated at the following 21 sites: CS 036, CS 047, CS 048, CS T-061, OU B1 Drainage Ditch, PRL 060, PRL L-005B, PRL L-005C, PRL L-005 D, PRL L-005F, PRL P-009, PRL S-012, PRL S-013, PRL S-030, PRL T-060, SA 005, SA 007, SA 011, SA 014, SA 092 and the Wastepile. However, Alternative Non-VOC4b remedy was not selected for any site. A summary of the comparative analysis of alternatives for these sites from the FS is presented in Table 2.8.1.

## **2.9 Principal Threat Waste**

Principal threat wastes are those hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination and are considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The contaminants at the IP #3 Property are not highly mobile and could be reliably contained and, therefore, do not constitute principal threat wastes.

## **2.10 Selected Remedies**

EPA is selecting the combination of remedial alternatives as described below for the sites at the IP #3 Property. These remedial alternatives were presented in the Proposed Plan, and EPA has determined that the selected remedies are protective of human health and the environment given the current and reasonably anticipated future land use of industrial or industrial/commercial. The proposed IC measures are necessary to protect public health and the environment from the residual contaminants at the sites. The selected remedies are presented in Table 2.10.1.

### **2.10.1 Summary of the Rationale for the Selected Remedies**

EPA selected the remedies for the IP #3 Property based on the 2008 Air Force Feasibility Study (CH2MHill, 2008b), supplemented by additional characterization and analysis including recent interim remedial actions (IRAs) by the Air Force, new concerns regarding shallow soil gas intrusion to indoor air, and the uncertainty with respect to the inactive IWL that runs throughout McClellan. At some sites,

existing buildings or USTs have prevented sufficient sampling to confirm the absence of COCs below the cleanup levels. As noted later, EPA is requiring additional sampling and or documentation should the current land use change.

The principal factors weighed in choosing the selected remedies for each site are summarized in the following sections.

**Alternative 1 – No Action** selected for eight IP #3 Property Sites (AOC 322, CS 034, PRL S-009, PRL S-042, SA 006, SA 089, SA 093, SA 104) because the investigations have determined that no contamination above residential or industrial cleanup levels are present at the site. Risks at No Action sites are less than or within the risk management range of 10<sup>-6</sup> to 10<sup>-4</sup> or HI less than 1.

**Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use** were selected for eight IP #3 Property Sites— seven with Alternative VOC2: CS 023, PRL S-013, PRL S-030, SA 001, SA 018, SA 095, and SSA 002 and one with Alternative Non-VOC2: PRL 060. ICs only are more cost-effective solutions for sites with low-level or limited contamination. Risks at these sites are less than or within the industrial/commercial risk management range of 10<sup>-6</sup> to 10<sup>-4</sup> or HI less than 1. Because the future land use is expected to be industrial or commercial, ICs selected as the remedial alternative to prohibit residential use are protective of human health and the environment and comply with ARARs. The IC alternative is being selected in combination with the Alternative Non-VOC4a at one site (PRL S-013). IC compliance levels for VOCs are presented in Table 2.6.2 and are protective of human health and the environment and comply with ARARs.

**Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use** was selected for 26 IP #3 Property Sites (Building 600, CS 030, CS 036, CS 047, CS 048, CS T-061, PRL L-005B, PRL-005C, PRL L-005D, PRL L-005F, PRL L-005G, PRL L-006A, PRL L-006B, PRL P-009, PRL S-005, PRL S-028, PRL S-029, PRL S-034, PRL S-035, PRL T-006, PRL T-007, SA 002, SA 007, SA 014, SA 088 and SA 090); six in combination with Alternative Non-VOC4a (CS 047, CS T-061, PRL L-005C, PRL P-009 SA 007 and SA 014) and four sites in combination with Alternative Non-VOC3 (Building 600, PRL L-006A, PRL L-006B and PRL S-034). Alternative VOC3 was selected because risks for industrial/commercial use at Alternative VOC3 sites are within or greater than the risk management range of 10<sup>-6</sup> to 10<sup>-4</sup> or greater than HI of 1. IC Compliance Levels for VOCs are presented in Table 2.6.2.

Alternative VOC3 requires mitigation for potential vapor intrusion from shallow soil gas for new construction. The landowner or developer would be required to demonstrate there is not an unacceptable risk under the industrial use scenario for a vapor intrusion pathway through sampling and analysis. Alternatively, the landowner could choose to mitigate shallow soil gas through the use of engineering controls including vapor barriers, gas collection, and/or ventilation. Because the future land use is expected to be industrial or commercial, maintenance of the existing ICs as well as the implementation of ECs, as necessary, are protective of human health and the environment and comply with ARARs.

There are site-specific considerations for the following sites:

**Building 600.** There is uncertainty regarding SSG and non-VOCs beneath the building. If Building 600 is demolished, the property owner must sample or maintain a surface cover or other ECs, as warranted. Therefore, Alternative VOC 3 in conjunction with Alternative Non-VOC3 was selected for this site.

**PRL L-005C.** The ECs at PRL L-005C also cover the entire area of PRL S-030, which it completely surrounds. Therefore, Alternative VOC3 was not selected for PRL S-030.

**PRL S-034.** There is uncertainty regarding VOC concentrations in SSG beneath the northern portion of Buildings 652. If Building 652 is demolished, the property owner must sample or maintain a surface cover or other ECs, as warranted. Therefore, Alternative VOC3 in conjunction with Alternative Non-VOC3 was selected for this site.

**PRL T-007.** There is uncertainty regarding characterization of VOCs in SSG beneath Building 640. The property owner must sample for VOCs in shallow soil gas if Building 640 is demolished or maintain a surface cover or other ECs, as warranted.

**SA 088.** A quantitative risk assessment was not performed for SA 088 because no COPCs of potential sources were identified; however, there is potential uncertainty regarding characterization of VOCs in SSG beneath Building 610. The property owner must sample for VOCs in shallow soil gas if Building 610 is demolished or maintain a surface cover or other ECs, as warranted.

**SA 090.** No COCs were identified, however, there is uncertainty associated with characterization of VOCs in SSG beneath Building 613. The property owner must sample for VOCs in shallow soil gas if Building 613 is demolished or maintain a surface cover or other ECs, as warranted.

**Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use** was selected for one site (PRL 060). Alternative Non-VOC2 was selected to prohibit intrusive activities (e.g., digging, slab removal, etc.) without regulatory approval, and to prohibit residential use.

**Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use** was selected for one site (CS 023) in combination with the Alternative VOC2 and four sites (Building 600, PRL L-006A, PRL L-006B and PRL S-034) in combination with the Alternative VOC3. IP #3 Property sites with Alternative Non-VOC3 may be subject to digging restrictions and physical restrictions such as fencing, or surface controls such as maintenance of a surface cover or cap. Because the future land use is expected to be industrial or commercial, maintenance of the existing ICs as well as the implementation of ECs are protective of human health and the environment and comply with ARARs. ECs and ICs to be protective of industrial/commercial use were selected as the remedial alternative because risks at Alternative Non-VOC3 sites are within or greater than the industrial/commercial risk management range of 10<sup>-6</sup> to 10<sup>-4</sup> or greater than HI of 1; therefore, ECs will be required if site use changes.

**CS 023.** There is uncertainty regarding the presence of non-VOCs beneath Building 781. If the building is demolished, the building owner must sample for metals to address uncertainties. It is assumed that the IC is protective unless the site use changes. Therefore, Alternative Non-VOC3 in conjunction with Alternative VOC2 was selected for this site.

**PRL L-006A and PRL L-006B.** Because of the nature of the IWL and the potential heterogeneity of the distribution of contamination, there is some uncertainty regarding characterization of soil around the IWL. Detections of arsenic and thallium above combined background and screening levels were analyzed using Method SW6010, which is unreliable for arsenic and thallium analyses. Therefore, Alternative Non-VOC3 in conjunction with Alternative VOC3 was selected for these sites. Sampling for metals arsenic and thallium using reliable analytical methods will be performed if the land use changes.

**PRL S-034.** There is uncertainty regarding non-VOC contaminants because soil beneath Building 652 has not been investigated for non-VOCs; the property owner must sample for non-VOCs if the building is demolished. Therefore, Alternative Non-VOC3 in conjunction with Alternative VOC3 was selected for this site.

**Alternative Non-VOC4a – Excavation and Offsite Disposal** was selected for 14 sites (CS 047, CS T 061, OU B1 Drainage Ditch, PRL L-005C, PRL P-009, PRL S-012, PRL S-013, PRL T-060, SA 005, SA 007, SA 011, SA 014, SA 092 and the Wastepile) at the IP #3 Property; one (PRL S-013) in combination with Alternative VOC2; and six in combination with Alternative VOC3 (CS 047, CS T-061, PRL L-005C, PRL P-009, SA 007, and SA 014). Excavation to industrial/commercial cleanup levels and offsite disposal was selected as a remedial alternative because risks at the Alternative Non-VOC4a sites are within or greater than the risk management range of 10<sup>-6</sup> to 10<sup>-4</sup> or HIs are greater than 1 (SA 011 for metals).

Soil excavation includes physically removing soil contaminated with COCs above the IP#3 Property Cleanup Levels. Excavation of contaminated soil with earth-moving equipment is a well understood remedial alternative and has been successfully implemented at numerous sites at the former McClellan AFB. Excavation can be implemented using a variety of conventional earth-moving equipment including backhoes, scrapers, bulldozers and front-end loaders. The selection of earthmoving equipment primarily depends on the depth, area, and volume of soil requiring excavation. The excavated area is backfilled with imported clean soil or treated soil meeting Cleanup Levels. Disposal includes the transportation and disposal of soil determined to be contaminated to an off-site landfill. Representative options for off-site disposal of contaminated soil are disposal at an approved Class I or Class II landfill. At the landfill, appropriate measures will be taken to protect human health and the environment at the facility, either by treatment before disposal or, if treatment is not necessary, by disposing of the soil within an engineered containment system to prevent off-site contaminant migration.

Based on estimates of the vertical and lateral extent of contamination at the sites requiring excavation, approximately 27,410 cubic yards will be excavated from the IP#3 Property and disposed offsite. Because the future land use is expected to be industrial or commercial, maintenance of the existing ICs as well as the implementation of the excavation and off-site disposal remedy are protective of human health and the environment and comply with ARARs.

**CS 047.** There are uncertainties associated with metals beneath the former Building 666. The property owner must sample for metals if the site use changes. Additionally, there is uncertainty regarding potential metals contamination at CS 036 and CS 048, as these sites were evaluated in the FS along with CS 047; therefore, the property owner must sample for metals if the site use changes. In addition, the extent of surface cover to be maintained may be larger than the excavation target volume and may extend into sites CS 036 and CS 048. This will be fully developed during the RD phase.

**CS T-061.** There are uncertainties associated with the lateral extent of diesel-range total petroleum hydrocarbons (TPH-D) beneath Building 614. The property owner must sample for TPH-D if Building 614 is demolished.

**OU B1 Drainage Ditch.** There is a potential data gap at OU B1 Drainage Ditch associated with the source of PCBs that will be addressed by Alternative Non-VOC4a. The property owner must monitor for PCBs to address the uncertainty related to the source.

**PRL L-005C.** The excavation of approximately 150 cubic yards of soil at PRL L-005C near Building 658 also covers the target volume associated with PRL S-030, which is across the IWL from this target volume. In addition, ECs at PRL L-005C cover the entire area requiring ECs at PRL S-030, which it completely surrounds. Therefore, Alternative VOC4a was not selected for PRL S-030.

**PRL T-060.** There is uncertainty regarding potential contamination from non-VOCs beneath Building 656 because the building has a basement extending to 13 ft bgs. The property owner may need to sample for non-VOCs if Building 656 is demolished.

**SA 011.** There is uncertainty related to the former UST area, which could not be sampled because of access issues due to the presence of the IC7 SVE system. The property owner must sample for non-VOCs near the former location of UST 699 following SVE system removal.

***Expected Outcomes of the Selected Remedies***

The selected remedies will meet the RAOs:

- eliminate or reduce direct contact, inhalation or ingestion exposures to humans that are the result of contaminated soil and soil gas from the surface to 15 ft bgs by meeting cleanup levels;
- prevent migration of contaminated soil to protect surface water quality; and
- prevent exposure to residual contamination by restrictions on land use.

The selected remedies comply with ARARs (i.e., state and federal environmental requirements), are cost-effective, and provide the best balance with respect to the modifying and balancing criteria.

**Table 2.10.1 IP #3 Property Selected Remedies**

Site Name	Selected Remedy	Remedy Description [a]	Contaminants Addressed [b]
AOC 322	Alternative 1-No Action	No Action	Not Applicable (NA)
Building 600 [c]	Alternatives VOC3 and Non-VOC3	Engineered Controls (ECs), Institutional Controls (ICs); Monitoring	VOCs in Shallow Soil Gas (SSG), total petroleum hydrocarbons (TPH), metals
CS 023 [c]	Alternatives VOC2 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS 030 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS 034	Alternative 1-No Action	No Action	NA
CS 036	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS 047	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Polychlorinated biphenyls (PCBs)
CS 048	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
CS T-061	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	VOCs in SSG, TPH
OU B1 Drainage Ditch	Alternative Non-VOC4a	Excavation, Off -Site Disposal, ECs, ICs; Monitoring	PCBs
PRL 060	Alternative Non-VOC2	ICs; Monitoring	Metals, pesticides, polyaromatic hydrocarbons (PAHs), PCBs
PRL L-005B	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG

**Table 2.10.1 IP #3 Property Selected Remedies**

Site Name	Selected Remedy	Remedy Description [a]	Contaminants Addressed [b]
PRL L-005C	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	TPH, PCBs, VOCs in SSG
PRL L-005D	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-005F	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-005G	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-006A	Alternatives VOC3 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL L-006B	Alternatives VOC3 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL P-009	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	VOCs in SSG, metals, PCBs
PRL S-005	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-009	Alternative 1-No Action	No Action	NA
PRL S-012	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	PCBs
PRL S-013	Alternatives VOC2 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs, Monitoring	PCBs, VOCs in SSG
PRL S-028 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-029	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-030	Alternative VOC2	ICs; Monitoring	VOCs in SSG
PRL S-034	Alternatives VOC3 and Non-VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-035	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL S-042	Alternative 1-No Action	No Action	NA
PRL T-006	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL T-007[c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
PRL T-060	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	TPH
SA 001 [c]	Alternative VOC2	ICs; Monitoring	VOCs in SSG
SA 002 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
SA 005	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	TPH
SA 006	Alternative 1-No Action	No Action	NA
SA 007	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	VOCs in SSG, PAHs, TPH

**Table 2.10.1 IP #3 Property Selected Remedies**

Site Name	Selected Remedy	Remedy Description [a]	Contaminants Addressed [b]
SA 011	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Metals
SA 014	Alternatives VOC3 and Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Metals, TPH, pesticides, PCBs, VOCs
SA 018	Alternative VOC2	ICs	VOCs in SSG
SA 088 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
SA 089	Alternative 1-No Action	No Action	NA
SA 090 [c]	Alternative VOC3	ECs, ICs; Monitoring	VOCs in SSG
SA 092	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	PCBs, lead
SA 093	Alternative 1-No Action	No Action	NA
SA 095	Alternative VOC2	ICs; Monitoring	VOCs in SSG
SA 104	Alternative 1-No Action	No Action	NA
SSA 002 [c]	Alternative VOC2	ICs; Monitoring	VOCs in SSG
Wastepile	Alternative Non-VOC4a	Excavation, Offsite Disposal, ECs, ICs; Monitoring	Metals, pesticides, and PCBs

Source: EPA, 2011a

[a] Engineered Controls may not be necessary if monitoring prior to change of use indicates that there is no unacceptable risk to human health or the environment.

[b] Cleanup Levels and IC Compliance Levels are presented in Tables 2.6.1 and 2.6.2, respectively.

[c] Selected Remedy for these sites changed from the Proposed Plan (EPA, 2011a), see Section 2.12, Documentation of Significant Changes.

### ***Selected ICs***

The selected ICs for this ROD shall be implemented by modification or maintenance of the restrictions contained in the federal deed and SLUC. The revised land use covenant shall be executed by the State and the Property owner and the owner shall record the land use covenant in the county land records. The land use covenant shall run with the land and be binding upon all subsequent owners of the Property, and shall be enforceable by the State and EPA as a third-party beneficiary. The ICs shall be monitored to ensure that they remain in place and to ensure that the land use restrictions are protective. Land use controls will be maintained until the concentration of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure.

EPA believes the selected remedies for IP #3 Property meet the threshold criteria and provide the best balance of tradeoffs among the alternatives considered. EPA expects the selected remedies to satisfy the statutory requirements of CERCLA Section 121(b): 1) protection of human health and the environment; 2) compliance with ARARs; 3) cost effectiveness; 4) use of permanent solutions, treatment and alternative treatment technologies to the maximum extent practicable.

**Additional Sampling/Monitoring**

For Alternative Non-VOC3 and Alternative Non-VOC4a additional sampling will be conducted during the RD/RA to ensure the extent of contamination has been addressed.

For the IP #3 Property MBP will conduct annual monitoring and provide annual reports to EPA, DTSC and the Air Force describing whether property use has conformed to ICs or use restrictions, and undertake prompt action to address activity that is inconsistent with the IC objectives or use restrictions, or any action that may interfere with the effectiveness of the ICs. This information will be used by the Air Force to prepare the Five-Year Review to evaluate the effectiveness of the remedies.

*Estimated Remedy Cost*

The cost summary presented in Table 2.10.2 is based on information provided in the FS (CH2MHill, 2008b) and FS Addendum (EPA, 2011b). The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Difference, or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

**Table 2.10.2. Summary of Estimated Remedy Costs**

Remedial Alternative	Capital Cost (\$)	Annual Cost (\$)	Period of Analysis (yr)	Total Cost (\$)	PW <sub>30</sub> [a] (\$)
Alternative VOC2	5,000[b]	20,000[b]	30	605,000	405,000
Alternatives VOC2 and Non-VOC4a	298,000[c]	4,000[c]	30	418,000	334,400[d]
Alternative VOC3	966,600[b]	36,000[b]	30	2,046,600	1,637,280[d]
Alternatives VOC3 and Non-VOC3	833,200[b]	15,000[b]	30	1,283,200	1,026,560[d]
Alternatives VOC3 and Non-VOC4a	2,080,000	30,120	30	2,983,600	2,386,880[e]
Alternative Non-VOC2	1,000	4,000	30	121,000	81,000
Alternative Non-VOC4a	1,669,000	27,000	30	2,479,000	1,983,200[e]
Alternatives VOC2 and Non-VOC3	51,000[b]	5,000[b]	30	201,000	160,800[d]

Notes

PW<sub>30</sub> = present worth 30-year costs

- [a] A percent discount rate, as per the United States Office of Management and Budget (OMB) Circular A-94 Appendix C (2008), was used for real discount rates over a 30-year period.
- [b] Costs that were not calculated in the IP #3 FS were estimated based on costs associated with the alternative at similar sites.
- [c] Where paired alternatives both include ICs, costs of ICs were only counted once in calculating the overall capital and annual costs.
- [d] For these alternatives, PW30 was estimated to be 80% of the Total Cost.
- [e] Costs for SA 014 are included in Alternative Non-VOC4a because PW30 costs were not provided in the FS for a combination of alternatives for this site.

Table 2.8.1 presents a summary of the estimated remedial costs for each remedy. The detailed cost estimates, including assumptions and unit costs associated with the implementation of remedial alternatives, are provided in the Appendix D of the IP #3 FS (CH2MHill, 2008b).

## **2.11 Statutory Determinations**

Under CERCLA §121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, and mobility of hazardous wastes as a principal element and a bias against offsite disposal of untreated wastes. The selected site remedies do not satisfy the statutory preference for treatment as a principal element of the remedies because costs to achieve the same risk reduction using treatment are significantly higher.

The following sections provide a brief description of how the selected remedies satisfy the statutory requirements of CERCLA §121 and the Five-Year Review requirements.

### **2.11.1 Protection of Human Health and the Environment**

The selected remedies will protect human health and the environment through a series of remedies including excavating contaminated surface soils, institutional controls and/or engineering controls selected to prevent human exposure to contaminants that exceed the health-based clean up levels. Where excavation has been selected, soil will be excavated and transported offsite for disposal in an appropriate landfill, further limiting human and environmental exposure. ICs implemented as part of the selected remedies will also protect human health and the environment by restricting site uses that would allow exposure to any residual contamination. The selected remedies will not pose unacceptable short-term risks or cross-media impacts.

### **2.11.2 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)**

Section 121(d) of CERCLA states that remedial actions on CERCLA sites must attain (or justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations that are determined to be ARARs. Applicable requirements are those cleanup standards, criteria, or limitations promulgated under federal or state law that specifically extend to the situation at a CERCLA site. Relevant and appropriate requirements are federal or state cleanup standards, requirements, criteria, or limitations that, while not “applicable” to a hazardous substance, action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those found at the site that their use is well suited to the particular site. The selected remedies will meet all federal or state standards, requirements, criteria or limitations that have been determined to be ARARs for the IP #3 Property soil contamination. These ARARS are presented in Attachment A.

### **California Regional Water Quality Control Board, Central Valley Region Position Regarding Resolution 92-49 as an ARAR for the IP#3 ROD:**

The Central Valley Water Board has identified State Water Resources Control Board Resolution No. 92-49 as an ARAR for several of the remedial actions being selected for certain sites in this Record of Decision. The Water Board asserts that Resolution No. 92-49 is an applicable requirement for remedial actions that may impact waters of the state pursuant to Water Code section 13050, “Waters of the state” means any surface water or ground water, including saline waters, within the boundaries of the state.

EPA disagrees with the Central Valley Water Board about the applicability of Resolution No. 92-49 for the remedial actions being selected in this Record of Decision. EPA and the Central Valley Water Board, however, desire to avoid invoking dispute resolution procedures because there is no substantive dispute as to the selected remedies and cleanup levels for this cleanup action, and the Central Valley Water Board believes the selected remedies and cleanup levels set forth in the Record of Decision substantively comply with Resolution No. 92-49. Accordingly, the Central Valley Water Board reserves any and all rights to assert Resolution No. 92-49 as an ARAR in any future Record of Decision and without prejudice to its position, the Central Valley Water Board agrees to concur with this Record of Decision.

### **EPA's Position Regarding Resolution 92-49 as an ARAR for the IP#3 ROD:**

In general, EPA does not believe Resolution 92-49 is a relevant and appropriate requirement when the remedial action only addresses soil. This has been EPA's legal opinion over many years and its longstanding practice in identifying ARARs for soil cleanups at both private and Federal Facility sites. EPA agrees there may be instances where a soils remedial action could directly impact groundwater and in such instances Resolution 92-49 may be an ARAR.

The IP#3 ROD addresses only soil, with McClellan Business Park undertaking the implementation of the ROD under an Administrative Order on Consent. The Air Force has retained responsibility for "groundwater and existing contamination or other environmental conditions greater than 15 feet below ground surface" at IP#3 (designated as "retained conditions" in the Administrative Order on Consent). Although there are a number of sites addressed in this ROD that have groundwater contamination underneath, this contaminated groundwater is being addressed in the Final Basewide VOC Groundwater ROD, which was signed in 2007, and the Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision signed in 2009. If the soils remedial action required by the IP#3 ROD fails to address the impacts to the groundwater, the Air Force groundwater ROD will address such impacts or, if necessary, the Air Force groundwater ROD can be amended to address such impacts. In addition, EPA has provided language in the Declaration that describes the mechanisms to address soils contamination near the 15-foot horizon.

### **2.11.3 Cost Effectiveness**

In EPA's judgment, the selected remedies for the IP #3 Property are cost-effective and present reasonable values. According to the NCP, a remedy is cost-effective if its costs are proportional to its overall effectiveness. The overall effectiveness of the selected remedies was demonstrated in the comparative analysis of the alternatives. The selected remedies satisfy the threshold criteria (overall protectiveness and compliance with ARARs), while scoring high with respect to three of the five balancing criteria (long-term effectiveness; reduction in toxicity, mobility; and short-term effectiveness).

The overall effectiveness of the alternatives was then evaluated with respect to cost. Alternative VOC2 and Alternative Non-VOC2 include limited additional costs to modify the land use restrictions in the federal deed and SLUC and is, therefore, a cost-effective remedy. Alternative VOC3 and Alternative Non-VOC3 incur limited costs, other than for maintenance, inspection, reporting and possible enforcement of the ICs and for any potential future sampling or engineering controls necessary to address risks of vapor intrusion. Alternative Non-VOC4a costs are required to protect public health and the environment. Therefore, these remedies are also considered cost-effective for these sites relative to the necessary remedial action.

#### **2.11.4 Utilization of Permanent Solutions, Treatment and Alternative Treatment Technologies to the Maximum Extent Practicable**

EPA has selected remedies for the IP #3 Property that are protective of human health and the environment, comply with federal and state ARARs for the remedial actions, and are cost-effective. The selected site remedies do not satisfy the statutory preference for treatment as a principal element of the remedies because costs to achieve the same risk reduction using treatment are significantly higher. The hazardous substances at the IP #3 Property are not considered principal threat wastes and, therefore, do not trigger the NCP expectation for treatment of principal threat wastes.

The selected remedies will remove much of the source materials that contribute substantially to the risks. The selected remedies satisfy the criteria for long-term effectiveness by removing PCBs, total petroleum hydrocarbons (TPHs), PAHs, pesticides and metals from the site. Offsite disposal of contaminated soil effectively reduces the mobility of chemicals and potential for direct contact. The selected remedies do not present short-term risks different from the other alternatives. There are no special implementability issues that set the selected remedies apart from any of the other alternatives evaluated.

#### **2.11.5 State Acceptance**

DTSC and Central Valley Water Board have been an integral part of the CERCLA process for the IP #3 Property including the 2011 Proposed Plan and drafting this ROD. They concur on the selected remedies for the IP #3 Property.

#### **2.11.6 Community Acceptance**

During 2011, a public comment period on the Proposed Plan was held from April 20 to May 22 and a public meeting was held on May 5. All those who provided comments supported the IP #3 Property cleanup. Responses to all comments received are presented in Part 3, Responsiveness Summary.

#### **2.11.7 Five-Year Review Requirements**

Because these remedies result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a statutory five-year review will be conducted for the IP #3 Property. In 2009, the Air Force completed the third Five-Year Review for the former McClellan AFB and determined the remedies they are implementing are protective of human health and the environment. The Air Force has agreed to evaluate the protectiveness of the remedies at IP-#3 Property in all subsequent Five-Year Reviews. The next Five-Year Review will occur in 2014.

#### **2.12 Documentation of Significant Changes**

The Proposed Plan for IP #3 Property was released for public comment on April 20, 2011, and closed on May 22, 2011 (EPA, 2011a).

The Proposed Plan identified alternatives for the IP #3 Property as summarized in Table 2.10.1. EPA reviewed all comments submitted during the public comment period and based on the comments received, changed the remedy for one site, PRL S-034, from Alternative VOC4 to Alternative VOC3 and Non-VOC3.

Additionally, Alternative VOC3 was added to eleven sites because EPA has determined that a more protective remedy is warranted. After the close of the public comment period on the IP #3 Proposed Plan,

the Air Force completed additional action along the former Base's IWL, as documented in the Final Industrial Wastewater Line Decommissioning Completion Report (URS, 2012). EPA also conducted additional research on the sites that are part of or adjacent to the IWL. Due to the inability to fully characterize releases along the IWL, and sufficient characterization along other reaches of the IWL to suggest significant releases to warrant vapor intrusion concerns, EPA is now requiring the Alternative VOC3 – Engineered and Institutional Controls to Address Shallow Soil Gas Contamination— to be implemented at Building 600, CS 030, PRL S-028, PRL T-007, SA 002, SA 088 and SA 090. At PRL L-005C and SA 014, Alternative Non-VOC4a is selected in combination with Alternative VOC3. Alternative VOC2 was added for SA 001 and SSA 002 to provide for the application of ICs to prohibit residential use due to potential vapor intrusion concerns and uncertainty in characterization of VOCs in shallow soil gas.

The State of California concurs on these changes to the ROD.

On July 24, 2012, the Water Board requested that Alternative Non-VOC3 be added to three sites (Building 600, CS 023 and PRL S-034), since existing buildings have previously prevented sufficient sampling to confirm that metal COCs are below cleanup levels. EPA and DTSC concurred with this request.

### **PART 3: RESPONSIVENESS SUMMARY**

#### **3.1. Stakeholder Comments and Lead Agency Responses**

**Comment #1:** Commenter is a resident of North Highlands and a community co-chair of the McClellan Restoration Advisory Board. Commenter notes the inconsistency in referring to “both classes of contaminants” in the footnote to Table 4 for the non-VOC3 remedy proposed for Potential Release Location (PRL) L-006A-B, while the table only lists shallow soil gas under Contaminants Addressed. Commenter also notes that the proposed remedy of institutional controls and monitoring may not satisfy the uncertainty associated with the industrial waste line. Commenter recommends resolving the uncertainty before implementing a remedy.

**Response #1:** Commenter is correct that the footnote to Table 4 should address both remedies proposed for PRL L-006A-B, VOC3 and Alternative Non-VOC3. The footnote to Table 4 will be changed. Shallow soil gas is the only contaminant listed in the table as being addressed because it is the only contaminant found above levels suitable for unrestricted use. However, as noted by the commenter, some uncertainty exists regarding non-Volatile Organic Compounds (VOCs) in PRL L-006A-B because it is an industrial waste line, so the Alternative Non-VOC3 remedy was proposed to prevent exposure to potential risks from non-VOC contaminants like metals.

EPA acknowledges the commenter's concern with proceeding to a remedy while some uncertainty remains in the types and levels of contamination. However, the extent of the industrial waste line is known and the engineered and institutional controls that will be applied to the PRL L-006A-B section of the industrial waste line are sufficient to protect human health and the environment by preventing exposure to contamination. The cost of further study to eliminate the uncertainty must be balanced with the cost of the remedy and the other cleanup criteria such as effectiveness (short- and long-term) and compliance with ARARs. EPA and the State consider the proposed remedies to be the most protective and cost-effective approach to address the PRL L-006A and PRL L-006B sections of the industrial waste line.

**Comment #2:** Commenter is a community member who presented a written comment at the May 17, 2011, RAB meeting. Commenter notes that several IP #3 Property alternatives as well as alternatives on

other McClellan projects require institutional controls and monitoring. Commenter asks, “Is there a comprehensive management plan for monitoring all these site remedies for the long term, especially given the loss of institutional knowledge due to staff and contractor turnover?”

**Response #2:** Several legal and administrative mechanisms under institutional controls will ensure that issues such as staff turnover will not affect the effectiveness of the remedies. For example, pursuant to the deed and State Land Use Covenant, no activities at the IP #3 Property, except response actions pursuant to the AOC or Amended FFA, shall disturb the soil unless conducted in accordance with the approved McClellan Park Soils Management Manual for Transfer Parcels. Further, any soils brought to the surface as a result are required to be managed in accordance with all applicable provisions of State and federal law. The agreement between EPA and McClellan Park calls for McClellan Park to submit an Institutional Controls Implementation and Assurance Plan within 90 days of the signing of the ROD. The selected ICs for this ROD shall be implemented by modification or maintenance of the restrictions contained in the federal deed and SLUC, depending on the particular site. The revised land use covenant shall be executed by the State and the Property owner and the owner shall record the land use covenant in the county land records. The land use covenant shall run with the land and be binding upon all subsequent owners of the Property, and shall be enforceable by the State and EPA as a third-party beneficiary. The ICs shall be monitored to ensure that they remain in place and to ensure that the land use restrictions are protective. Finally, the AF will include the effectiveness of the ICs in the required Five-Year Review.

**Comment #3:** Commenter is a Sacramento County employee and the County’s representative on the McClellan Restoration Advisory Board. Commenter notes that the IP #3 Property ROD includes as a remedy for PRL S-034 the Soil Vapor Extraction (SVE) system being operated by the Air Force under the Basewide VOC Groundwater ROD. Commenter states that operation of the SVE system is outside the scope of the Administrative Order on Consent (AOC) and therefore should not be included as a remedy in the IP #3 Property ROD.

**Response #3:** EPA agrees that the SVE system is currently outside the scope of the AOC. Further the AF will continue to operate the SVE at PRL S-034 until acceptable concentrations are achieved. EPA has changed the IP #3 Property remedy to VOC3 for this site to provide for Institutional Controls including land use restrictions requiring mitigation for potential vapor intrusion from shallow soil gas for any new construction at PRL S-034.

**Comment #4:** Commenter is a community member who presented a written comment during the Public comment period. Commenter disagrees with the site description of Confirmed Site (CS) 034 as “Suspected location of two underground storage tanks (USTs)” because it implies that not enough research was done to establish whether it was or was not a UST site. Commenter also disagrees with the No Action status of CS 034, stating it would not take much “action” to determine whether or not the site is or is not a UST site.

**Response #4:** The site descriptions used in Table 2 of the proposed plan have been used since the sites at the former McClellan Air Force Base (McClellan) were first researched for the Preliminary Assessment and were retained in the Proposed Plan for consistency with previous documents. In fact, investigations have been conducted at CS 034, but there was not room in the Proposed Plan to summarize the investigations completed at all 45 sites, so EPA relied on the Administrative Record for this information. The IP#3 Feasibility Study, Volume 1, Appendix C, Site Characterization Summaries, contains a summary of investigations performed at CS 034. The existence or location of the two suspected USTs was never confirmed. A ground-penetrating radar (GPR) survey, review of historical aerial photographs, a site inspection, and soil borings all found no evidence of the USTs or associated features (fill lines, access roads). Fourteen soil borings have been completed in the area of the suspected USTs, and concentrations of contaminants in soil and soil gas samples collected from the borings were all below screening levels.

The “No Action” recommendation in the Proposed Plan is based on the site history and on the fact that no contaminants of concern were identified during the Remedial Investigation at CS 034.

### **3.2 Technical and Legal Issues**

There are no significant technical changes to the selected remedy. There are no additional significant technical or legal issues.

## References

- Air Force Real Property Agency (AFRPA). 2004. Local Reuse Authority Initial Parcel Record of Decision #1 (7 Sites) for Soil at PRL S-014, PRL S-033, PRL S-040, SA 003, SA 035, SA 041, SA 091. Former McClellan Air Force Base, California. June.
- AFRPA. 2007. Basewide VOC Groundwater Record of Decision. Former McClellan Air Force Base, California. Final. August.
- AFRPA. 2008. Local Reuse Authority Initial Parcel Record of Decision #2. Former McClellan Air Force Base, California. October.
- AFRPA. 2009a. Finding of Suitability for Early Transfer (FOSET) #1 Privatized Cleanup Parcels A4, A4a, A6b, A6d, B3a, C1, C4, C5, C7, C12, C13, and C15. July.
- AFRPA. 2009b. Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision. Former McClellan Air Force Base, California. Final. September.
- AFRPA. 2009c. Environmental Services Cooperative Agreement (ESCA) between the Air Force and McClellan Business Park. September.
- AFRPA. 2010. McClellan Federal Facility Agreement Amendment No. 2. January
- Cabrera Services (Cabrera). 2007. Remedial Investigation Characterization Summaries Addendum, Initial Parcel #3. Draft Final. November.
- California Department of Public Health (CDPH). 2010. Correspondence document concurrence letter for FOSET #1 Property Transfer. January.
- CH2MHill. 2006. Initial Parcel #3 Work Plan. Final. October.
- CH2MHill. 2008a. Initial Parcel #3 Remedial Investigation Characterization Summaries Addenda, Former McClellan Air Force Base. Final. December.
- CH2MHill. 2008b. Initial Parcel #3 Feasibility Study, Former McClellan Air Force Base. Final. December.
- CH2MHill. 2008c. Initial Parcel #3 Proposed Plan at the Former McClellan Air Force Base, California. July.
- County of Sacramento. 2002. McClellan Park Special Planning Area. Ordinance No. SZC-2002-0029.
- Department of the Air Force. 1990. The McClellan Air Force Base Interagency Agreement, Amended Federal Facilities Agreement. May.
- EDAW. 2000. McClellan Air Force Base Draft Final Reuse Plan. Prepared for the County of Sacramento. July.
- Kleinfelder, Inc., and Weston Solutions (Kleinfelder and Weston). 2004. Remedial Action Closeout Report OU B1 Drainage Ditch. Final. April.

- McClellan Business Park (MBP). 2011. Final Supplemental Community Involvement Plan, Former McClellan Air Force Base. August.
- Radian. 1993. Operable Unit B1 Interim Record of Decision (ROD) for McClellan AFB/EM. McClellan Air Force Base, California. Final. July.
- Radian. 2008. Final Operable Unit B1 Remedial Investigation and Feasibility Study, Former McClellan Air Force Base, June.
- Tetra Tech, Inc. 2008. Soils Management Manual for Transfer Parcels. Prepared for McClellan Park, LLC.
- URS. 2012. 2011 Annual Report, Groundwater and Soil Vapor Extraction RA-O and Monitoring Program (Volume 2, Soil Vapor Extraction Removal Action). February.
- URS. 2012. Final Industrial Wastewater Line Decommissioning Completion Report, Former McClellan Air Force Base. June.
- U.S. Environmental Protection Agency (EPA). 1999. A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. Solid Waste and Emergency Response. EPA 540-R-98-031. July.
- EPA. 2007. National Priorities List Narrative for McClellan Air Force Base.  
<http://www.epa.gov/superfund/sites/npl/nar920.htm>. Last updated 28 November 2007.
- EPA. 2009a. Administrative Order on Consent (AOC) #2008-08 for RI/FS & RD/RA for Cleanup of Portions of Former McClellan AFB. November.
- EPA. 2009b. Record of Decision for Parcel C-6. Former McClellan Air Force Base. May.
- EPA. 2011a. Proposed Plan for Initial Parcel #3, Former McClellan Air Force Base. May.
- EPA. 2011b. Feasibility Study Addendum for Initial Parcel #3. Former McClellan Air Force Base. May.
- United States Office of Management and Budget (OMB). 2008. Circular A-94 Appendix C.

## GLOSSARY/ACRONYMS

**Administrative Record**—Collection of all pertinent documents that support the final decisions for each site. This is located at the former McClellan Air Force Base.

**Air Force Real Property Agency**—A field operating agency activated by the secretary of the Air Force. The mission is to execute the environmental programs and real and personal property disposal for major Air Force bases being closed in the U.S.

**Applicable or relevant and appropriate requirements (ARARs)**—Federal laws and more stringent state laws that apply or are determined to be relevant and appropriate to the remedy.

**Area of Concern (AOC)**—An area identified for further investigation during the IRP process.

**Cleanup levels**—Levels set for the protection of human health, groundwater, or surface water. To protect human health, the set risk level is usually one in a million—an additional person in a million people may contract cancer.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**—Legislation passed in 1980 and designed to respond to the past disposal of hazardous substances. The act was extensively amended in 1986 by the Superfund Amendments and Reauthorization Act, which added many provisions and clarified unclear areas in the original law.

**Confirmed Site (CS)**—Site identified during the IRP process to have contaminants above the screening levels being used at the time.

**Contaminant of concern (COC)**—A substance selected for environmental cleanup based on predicted impacts to groundwater resources and a health risk posed by the contaminant.

**Engineered Controls**—Methods of managing environmental and health risks. Engineered controls, such as barriers placed between a contaminated area and the rest of a site, can be used to limit exposure pathways.

**Exposure pathway**—Ways that people can be exposed to contaminants. Common pathways include breathing, ingestion, or absorption through the skin.

**Feasibility Study (FS)**—A study of a hazardous waste site that must be completed before a cleanup remedy can be chosen and implemented. The Feasibility Study identifies and evaluates alternatives for addressing contamination.

**Five-year review**—Regular check-ups conducted on certain Superfund sites (where either treatment systems are still operating after 5 years or where waste is left behind) to make sure the site is still safe. Five-year review reports make recommendations on the continuation, modification, or elimination of annual reports and institutional control monitoring frequencies. Five-year review reports are submitted by the Air Force to regulatory agencies for review and comment. Five-year reviews also represent an opportunity for the public to voice any concerns.

**Groundwater**—Underground water that fills pores between particles of soil, sand, and gravel or openings in rocks to the point of saturation. Where groundwater occurs in significant quantity, it can be used as a source of drinking water.

**Hazard index (HI)**—The ratio of contaminant concentration divided by the safe exposure level. If the HI exceeds 1, people are exposed to contaminants that may pose noncancer health risks. Noncancer health risks are contaminant-dependent but may include kidney disease, headaches, dizziness, and anemia. For more information, go to ToxFAQs at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).

**Industrial Use**—When land is used for industrial, commercial, office, retail or other occupational purposes.

**Installation Restoration Program (IRP)**—Program designed to identify, investigate, and cleanup contamination.

**Mitigate**—Implement ECs or actions that prevent or make conditions less severe or harsh.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**—The federal regulation that guides determination of the sites to be cleaned up under the Superfund program. This plan also provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances in accordance with CERCLA and the Clean Water Act.

**National Priorities List (NPL)**—U.S. Environmental Protection Agency's published list of the highest priority hazardous waste sites in the U.S. for investigation and cleanup, which are subject to the Superfund program.

**Noncancer health risk**—Health risks that do not result in cancer and may include kidney disease, headaches, dizziness, and anemia.

**Non-volatile organic compounds (non-VOCs)**—A group of compounds that do not readily evaporate at room temperature. They include metals, pesticides, SVOCs, petroleum hydrocarbons, dioxins/furans and radionuclides.

**Occupational Worker**—Includes indoor and outdoor workers who may be exposed to chemicals in soil, air, and water during the course of a workday.

**Operable Unit (OU)**—The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with a site. Operable units may address geographic portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions that are concurrent but located in different parts of a site. The determination of an operable unit may vary over time as a result of change in activity or need. For management purposes, McClellan is subdivided into 11 operable units. Ten OUs correspond to discrete areas of the base where specific industrial operations and/or waste management activities took place: A, B, B1, C, C1, D, E, F, G, and H. The remaining OU is the Groundwater OU, which encompasses the entire base.

**Polychlorinated Biphenyls (PCBs)**—A group of man-made compounds that were widely used in the past, mainly in electrical equipment, but which were banned at the end of the 1970s in many countries because of environmental concerns.

**Polycyclic aromatic hydrocarbons (PAHs)**—Any of a class of carcinogenic organic molecules that consist of three or more benzene rings.

**Potential Release Location (PRL)**—Site identified during the IRP process to have potentially released contaminants.

**Preferred Alternative**—EPA's suggested cleanup method(s) for the contaminated site(s). The preferred alternative is protective of human health and the environment, complies with applicable or relevant and appropriate requirements, and is cost-effective.

**Privatization**—The process where the Department of Defense provides cleanup funds to a new property owner with the goal of speeding up redevelopment. EPA, instead of the military, will decide how the contamination will be cleaned up.

**Proposed Plan**—A summary of cleanup alternatives for a contaminated site, including a preferred alternative and the reasons for its selection. This step is the community's opportunity to review and comment on all cleanup alternatives under consideration. The responses to the comments are

presented in the Record of Decision (ROD). All changes from the Proposed Plan are explained in the ROD.

**Radionuclides**—Radioactive elements that may be naturally occurring or synthetic. There are hundreds of radionuclides, many of which are rarely encountered. People are much more likely to encounter a few that are used routinely for medical, military, or commercial purposes. Twelve radionuclides are most commonly found at Superfund sites, including cesium-137, radium, radon and thorium.

**Record of Decision (ROD)**—A document explaining and legally committing the lead agency to the cleanup alternative(s) that will be used at a site. The ROD is based on information and technical analyses generated during the Remedial Investigation, the Feasibility Study and consideration of public comments and community concerns.

**Remedial Investigation**—A hazardous waste site study to examine the nature and extent of site contamination.

**Residential Receptor**—A resident (child or adult) who may be exposed to chemicals through soil, air, and water from indoor and outdoor exposure.

**Residential Use**—When land is suitable for use as housing or any other purpose.

**Responsiveness Summary**—The section within the ROD that summarizes comments received from the public during the public comment period and provides lead agency responses to them.

**Restoration Advisory Board**—A board consisting primarily of members of the public. Board members have the opportunity to review cleanup reports and provide advice to decision makers on investigation and cleanup matters. The Board is a forum for the exchange of information between community members, regulatory agencies, and Air Force personnel.

**Risk Assessment**—A study based on the results of the Remedial Investigation to determine the extent to which chemical contaminants found at a Superfund site pose a risk to public health and the environment.

**Semivolatile organic compounds (SVOCs)**—A group of chemical compounds that evaporate in air at a slower rate than VOCs. SVOC is a name for a class of compounds and includes PAHs, PCBs, pesticides, and dioxins/furans.

**Shallow soil gas**—Soil gas in the upper 15 feet of soil.

**State Land Use Covenant (SLUC)**—Legal documents that limit land use.

**Soil gas**—Air between soil particles that may be contaminated by contaminants that have vaporized in the soil.

**Soil Vapor Extraction (SVE)**—A method of treating soil contaminants by extracting contaminated soil gas using perforated underground pipes connected to vacuum pumps.

**Study Area (SA)**—Site identified during the IRP process to require further study for potential contamination.

**Total petroleum hydrocarbons (TPH)**—A wide range of liquid hydrocarbons, including gasoline and diesel fuel.

**Unrestricted land use**—Risk is reduced to such a low level as to allow anything to be built, including homes and schools.

**Vapor inhalation pathway**—A pathway used in risk analysis where contaminants in the soil volatilize into soil gas, migrate into buildings, and are inhaled by the occupants.

**Volatile organic compound (VOC)**—An organic compound containing carbon that evaporates (volatilizes) readily at room temperature. VOCs are used in the manufacturing of paints, pharmaceuticals, and refrigerants. VOCs typically are industrial solvents, such as trichloroethene (TCE). Some VOCs are known carcinogens. For more information, go to ToxFAQs at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).

**Attachment A.**  
**Applicable or Relevant and Appropriate Requirements (ARARs)**

The ARARs listed below include provisions which could be triggered by activity associated with the selected remedy, although EPA does not expect or anticipate that a number of these provisions will be triggered. The list does not include provisions which would be triggered by a failure of the selected remedy. Those ARARs would be addressed in an amendment to the ROD.

**Action-Specific ARARS**

<b>Source</b>	<b>Requirement/ Citation</b>	<b>ARAR Determination</b>	<b>Description of Requirement</b>	<b>Comments</b>	<b>Sites</b>
Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins	Chapter III, Water Quality Objectives for Inland Surface Waters	Applicable	The water quality objectives apply to all surface waters in the Sacramento and San Joaquin River Basins, including the Delta or as noted.	Any activity, including, for example, a new discharge of contaminated soils that may affect water quality must not result in water quality exceeding water quality objectives.	IP#3 sites that pose a threat to surface water quality, including the OU B1 drainage ditch.
Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins	Narrative Toxicity Standard in the Water Quality Control Basin	Applicable	Chapter III, Narrative Toxicity Objective, states as a policy that all waters shall be maintained free of toxic substances that produce detrimental physiological responses in human, plant, animal or aquatic life.	The narrative toxicity objective is a federally required water quality objective for surface waters.	
Clean Water Act – National Pollutant Discharge Elimination System (NPDES) Program	California Toxics Rule (CTR) 40 Code of Federal Regulations (CFR) Part 131	Applicable	Water quality standards: EPA adopted water quality criteria that apply in California, called the California Toxics Rule (CTR).  The CTR establishes water quality standards that apply to NPDES discharges when certain conditions are met.	The CTR is an ARAR for the IP#3 sites that pose a threat to surface water quality. The CTR establishes criteria for surface water quality.	

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Discharges of Storm Water from Construction Areas	40 CFR Parts 122, 123, 124, NPDES, implemented by California Storm Water Permit for Construction Activities, State Water Resources Control Board Order 2010-0014-DWQ	Applicable	Regulates pollutants in discharge of storm water associated with construction activity (clearing, grading, or excavation) involving the disturbance of 1 acre or more. Requirements to ensure storm water discharges do not contribute to a violation of surface water quality standards.	Substantive requirements relating to potential discharge of pollutants to Waters of the United States from cleanup and remedial action activities.  Applies to construction areas over 1 acre in size. Includes measures to minimize and/or eliminate pollutants in storm water discharges and monitoring to demonstrate compliance	
Discharges of Storm Water from Industrial Areas	40 CFR Parts 122, 123, 124, NPDES, implemented by California Storm Water Permit for Industrial Activities, SWRCB Order 97-03-DWQ	Applicable	Regulates pollutants in discharge of storm water associated with hazardous waste treatment, storage, and disposal facilities, wastewater treatment plants, landfills, land application sites, and open dumps. Requirements to ensure storm water discharges do not contribute to a violation of surface water quality standards.	The CERCLA permit exemption applies to all discharges that are related to response actions and that are “onsite,” as that term is defined in the NCP. Remedial activities should meet the substantive requirements of the NPDES Program.	

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13269).	Title 23, California Code of Regulations (CCR), Section 2520, 2521	Applicable	Action taken by public agencies to cleanup unauthorized releases are exempt from Title 27/ Title 23 except that wastes removed from immediate place of release and discharged to land must be managed in accordance with classification (Title 27 CCR, Section 20200/ Title 23 CCR, Sections 2520) and siting requirements of Title 27 or Title 23 and wastes contained or left in place must comply with Title 27 or Title 23 to the extent feasible. Requires that waste be sent to the appropriate waste management unit, depending on its classification.	Applies to discharges of waste to land for treatment, storage or disposal.	
Remediation and Monitoring of Sites	Title 27, CCR, Section 20090(d) Title 23 CCR, Section 2511(d)	Applicable		Applies if there is designated waste on site and if hazardous waste is present. Applies to remediation and monitoring of sites. Before action, waste must be classified and disposed of consistent with its classification.	
Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13267, 13304).	Title 27, CCR, Section 20080 (d) Title 23, CCR, Section 2510(d)	Relevant and Applicable	Requires closure of existing waste management units according to Title 27/Title 23.	Applies to “existing” waste management units (i.e., areas where waste was discharged to land on or before 27 November 1984, but that were not closed, abandoned, or inactive prior to that date).	

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13269).	Title 27, CCR Section 20200(c), 20210	Applicable	Requires that designated waste be sent to Class I or Class II waste management units.	Applies to discharges of designated waste (nonhazardous waste that could cause degradation of surface or ground waters) to land for treatment, storage, or disposal.	
Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13269).	Title 27, CCR Section 20200(c), 20220	Applicable	Requires that nonhazardous solid waste be sent to an appropriate waste management unit.	Applies to discharges of nonhazardous solid waste to land for treatment, storage, or disposal.	
Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13267, 13269).	Title 27, CCR, Section 20410 Title 23, CCR, Section 2550.6	Relevant and Appropriate*	Requires monitoring for compliance with remedial action objectives for three years from the date of achieving cleanup levels.	Post remediation sediment trap monitoring shall be conducted to demonstrate that the source of contamination has been eliminated and to assure protection of surface water quality.	

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13267, 13269).	Title 27, CCR Section 20950 (a)(2)(B)	Relevant and Appropriate*	(2) Performance Standards -The performance standards applicable to closure of a Unit and, for Units that are not clean-closed, to post-closure maintenance at the Unit are as follows: (B) Unit Clean-Closed — for Units that are clean-closed, the goal of closure is to physically remove all waste and contaminated materials from the Unit and from its underlying and surrounding environs, such that the waste in the Unit no longer poses a threat to water quality. Successful completion of clean-closure eliminates the need for any post-closure maintenance period and removes the Unit from being subject to the SWRCB-promulgated requirements of this subdivision.	Applicable to excavated soil to determine partial or final closure of waste management units.	
Land Use Covenant	CA Civil Code Section 1471(a)	Relevant and Appropriate	Allows the State (as non-owners) to enter into restrictive land use covenants with landowners and their successors after determining that protection of present or future human health or safety or the environment is necessary. The covenants will run with the land if the affected land is described in the instrument of the covenant, the successive owners are expressly bound in the instrument of the covenant, each act in the covenant relates to use of the land and is reasonably necessary to protect present or future human health or safety or the environment, and the	Permits the State to enter into an agreement to restrict land use with the property owner to protect human health or the environment and invalidates common-law impediments to the restriction running with the land.	VOC3 Sites Building 600 CS 030 CS 036 CS 048 PRL L-005B PRL L-005D PRL L-005F PRL L-005G PRL S-028 PRL S-034 PRL S-035 PRL T-006 PRL T-007 SA 001

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
			covenant is recorded with the county.		SA 002 SA 088 SA 090 SSA 002  NonVOC3 Site CS 030  VOC2 and NonVOC 3 Site CS 023  VOC3 and NonVOC3 Sites PRL 060 PRL L-006A PRL L-006B  VOC3 and NonVOC4a Sites CS 047 CS T-061 PRL L-005C PRL P-009 SA 007 SA 014
California Requirements for Land Use Covenants	Civil Code Section 1471, and California Code of Regulations (CCR), Title 22, Section 6739.1,	Relevant and Appropriate	Requires that a land use covenant imposing appropriate limitations on land use shall be executed and recorded when hazardous substances will remain at the property at levels not suitable for unrestricted use of the land.	Will be implemented by modifications, if appropriate, of existing SLUC. EPA specifically identifies subsections (a) and (d) as relevant and appropriate for this ROD. DTSC's position is that all	VOC3 Sites Building 600 CS 030 CS 036 CS 048 PRL L-005B PRL L-005D PRL L-005F

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
	(a)(1), (2) and (d)			of the State regulation is ARAR.	PRL L-005G PRL S-028 PRL S-034 PRL S-035 PRL T-006 PRL T-007 SA 001 SA 002 SA 088 SA 090 SSA 002  NonVOC3 Site CS 030  VOC2 and NonVOC 3 Site CS 023  VOC3 and NonVOC3 Sites PRL 060 PRL L-006A PRL L-006B  VOC3 and NonVOC4a Sites CS 047 CS T-061 PRL L-005C PRL P-009 SA 007 SA 014

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Hazardous Waste Determination	Title 22, CCR Section 66262.11	Applicable	Defines the methods to be used to determine whether a waste is a hazardous waste.		
Criteria for Identifying Hazardous Waste and Persistent and Bio-accumulative Toxic Substances	Title 22, CCR Ch. 11, § 66261.24	Applicable	Presents criteria for testing and identifying RCRA hazardous wastes, sets levels for TTLC and STLC.	The criteria and TTLC and STLC levels are applicable for the characterization of excavated soils or other wastes generated by remedial actions.	NonVOC4a Sites OU B1 Drainage Ditch PRL S-012 PRL T-060 SA 005 SA 011 SA 014 SA 092 Wastepile
Standards Applicable to Generators of Hazardous Waste	Title 22, CCR Sections 66262.10 and 66262.11	Applicable	Establishes standards for generators of hazardous wastes in California, including those for hazardous waste determination.	Substantive requirements are applicable to management of excavated soils or treatment residuals if they exceed RCRA hazardous waste thresholds.	NonVOC4a Sites OU B1 Drainage Ditch PRL S-012 PRL T-060 SA 005 SA 011 SA 014 SA 092 Wastepile
Use and Management of Containers	Title 22, CCR Sections 66264.171, 66264.172, 66264.173, 66264.174, 66264.175(a) and (b), 66264.177, and 66264.178	Applicable	These regulations define the requirements for using and managing containers, including compatibility between wastes and containers, storage of containers, inspections for leakage/deterioration, containment of container transfer/storage areas, incompatible wastes, and containment system closure.	Applicable to sites where containers will be used for temporary storage or excavated soil / remediation units.	NonVOC4a Sites OU B1 Drainage Ditch PRL S-012 PRL T-060 SA 005 SA 011 SA 014 SA 092 Wastepile

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Land Disposal Restrictions	Title 22, CCR Section 66268.124, Corrective Management Rule, §§ 66264.91; 66262.100, 66264.708; 66270.30; and 66272.1	Applicable	Identifies hazardous wastes that are restricted from land disposal.	If excavated soil or treatment residuals exceed limits they will be evaluated using TTLC/STLC to determine if treatment is required prior to off-site disposal.	NonVOC4a Sites OU B1 Drainage Ditch PRL S-012 PRL T-060 SA 005 SA 011 SA 014 SA 092 Wastepile
Pre-transportation Handling of Hazardous Waste	Title 22, CCR Sections 66262.30, 66262.31, 66262.32, 66262.33, and 66262.34	Applicable	Defines pre-transport requirements for RCRA or California hazardous waste, including packaging, labeling, marking, placarding, and accumulation time limitations.	Applicable to RCRA or California hazardous waste that may be shipped offsite for disposal.	NonVOC4a Sites OU B1 Drainage Ditch PRL S-012 PRL T-060 SA 005 SA 011 SA 014 SA 092 Wastepile
Control of Air Emissions	Rule 403, Fugitive Dusts	Applicable	Limits visible particulate emissions to the property line.	Would be applicable for soil excavation and handling	NonVOC4a Sites OU B1 Drainage Ditch PRL S-012 PRL T-060 SA 005 SA 011 SA 014 SA 092 Wastepile

Source	Requirement/ Citation	ARAR Determination	Description of Requirement	Comments	Sites
Toxic Substances Control Act (TSCA)	40 CFR Parts 750 and 761	Relevant and Appropriate	Regulates PCB-contaminated material.	TSCA provides requirements for sampling, characterization and cleanup of PCB contaminated soils, including the management of excavated material and off-site disposal requirements.	PCB Sites PRL S-013 PRL S-030 CS 047 PRL P-009 OU B1 Drainage Ditch PRL S-012 SA 014 SA 092 Wastepile

\* The State disagrees with EPA’s characterization of these requirements as “relevant and appropriate” as by statute and regulation they apply expressly to the circumstances at the site. The State, however, does not object to the ROD because the State concurs with the selected remedies, and when the ROD is final the performance standards of these ARARs will become the enforceable requirements for the remedial action.

Attachment B. Public Comments on the IP #3 Proposed Plan

## PUBLIC MEETING INQUIRY CARD

I WANT TO

- MAKE A VERBAL PUBLIC COMMENT TONIGHT.  
 MAKE A WRITTEN COMMENT ABOUT THE MEETING.  
 HAVE THE FACILITATOR ASK A CLARIFYING QUESTION ABOUT THE TOPIC.

PLEASE ASK YOUR CLARIFYING QUESTION OR PROVIDE YOUR COMMENTS IN THE SPACE BELOW:

SEVERAL PARCEL #3 SITES ALTERNATIVES REQUIRE INSTITUTIONAL CONTROLS & MONITORING. THIS HAS ALSO <sup>BEEN</sup> PROPOSED/SELECTED FOR NUMEROUS OTHER SITES ON BASE OVER THE YEARS. IS THERE A COMPREHENSIVE MANAGEMENT PLAN FOR MONITORING ALL THESE SITE REMEDIES FOR THE LONG-TERM? ESPECIALLY GIVEN THE LOSS OF INSTITUTIONAL KNOWLEDGE DUE TO STAFF & CONTRACTOR TURNOVER

Note: Commenter's personal information was redacted from the inquiry card



**Fw: Comment: IP#3 Proposed Plan**  
Barbara Maco to: Sandra Farber

06/21/2011 03:08 PM

— Forwarded by Barbara Maco/R9/USEPA/US on 06/21/2011 03:05 PM —

**From:** "Booth, Dana" <BoothD@sacounty.net>  
**To:** Barbara Maco/R9/USEPA/US@EPA  
**Cc:** "Alan Hersh" <ash@mcclellanpark.com>  
**Date:** 05/19/2011 11:11 AM  
**Subject:** Comment: IP#3 Proposed Plan

Barbara,  
Per our conversation, I am sending the enclosed-below comment to the IP#3 proposed Plan.

Thank you for the opportunity to review and provide comment to the IP #3 Proposed Plan. Currently, the Proposed Plan includes (as a remedy for PRL S-34A) the Soil Vapor Extraction (SVE) system that is being operated by the Air Force in accordance with the Groundwater ROD. While we expect the Air Force's SVE system to also be an effective remedy for potential residual contaminants from 0- to 15-feet below ground surface (bgs), the operation of the SVE system is outside the scope of the Administrative Order on Consent (AOC); and therefore, should not be included as a remedy necessary for completion of the IP #3 ROD.

McClellan Business Park is prepared to maintain Institutional Controls (ICs) sufficient to protect the health of potential occupants of the property.

Sacramento County appreciates the opportunity to work with you on this project. Please do not hesitate to contact me via either email [boothd@sacounty.net] or by phone at (916) 874-4389 if I can provide any further assistance.

Sincerely,

*Dana Booth*

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COUNTY OF SACRAMENTO EMAIL DISCLAIMER:

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### USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the IP 3 Proposed Plan for 44 Sites at the Former McClellan Air Force Base is important to the EPA. Comments provided by the public help the EPA select final cleanup remedies for VOCs in shallow soil gas and non-VOCs in soil. All comments received by the deadline will be responded to in writing in the Responsiveness Summary section of the Record of Decision.

**You may use the space below to write your comments. Use additional pages, if needed. Comments must be received by (to be determined). Send your comments to Barbara Maco, Remedial Project Manager 75 Hawthorne Street SFD-8-1, San Francisco, CA 94105, (415) 972-3794, 800-231-3075, Fax: (415) 947-3520**  
[maco.barbara@epa.gov](mailto:maco.barbara@epa.gov)

If you would like to be on the mailing list to receive information about environmental restoration activities at the McClellan Business Park, complete the Name and Address section below.

Re: CS 034

Calling a site "suspected location of 2 USTs" seems rather silly. How about doing just enough investigatory and/or research work to determine whether that site either is or is not a USTs site? To eliminate "suspected" from the title would make it seem more credible. It's even more disturbing to see CS034 attached to a "no action" status, when, in fact, it would not require much "action" to determine whether the site is or is not a UST site.

Note: Commenter's personal information was redacted from the inquiry card

### Attachment C. Past Removal and Interim Remedial Actions (IRA)

#### Summary of Storage Tank Removal Actions

Site	UST Descriptions	Status
Building 600	20,000-gallon double-wall diesel tank	This tank will be closed administratively by this ROD.
CS 030/SA 002	500-gallon tank	This tank will be closed administratively by this ROD after the UST has been removed and sampling under the UST confirms that a no further action determination is appropriate.
CS T-061	200-gallon tank	Removed in 1988; not closed by Central Valley Water Board; this tank will be closed administratively by this ROD after Alternative Non-VOC4a (excavation and off-site disposal) has been implemented and sampling confirms that a no further action determination is appropriate.
PRL S-029	Five USTs total: Four 500-gallon One 1,100-gallon	Removed in 1988 (655A through D). Removed in 2005(655 North). 655A and 655B closed in 2000 by Central Valley Water Board. Tanks 655C, 655D and 655 North will be closed administratively by this ROD.
PRL S-030	Petroleum, oil, and lubricant (POL) UST, capacity unknown	Reportedly removed in 1988; closed by Central Valley Water Board.
PRL T-007	500-gallon tank Replacement diesel tank	Removed/replaced in 1965; subsequent tank Removed in 1984; closure status unknown; this tank will be closed administratively by this ROD.
PRL T-060	27,000-gallon tank	Removed in 1990; closed by Central Valley Water Board in 1996.
SA 006	10,000-gallon and 5,000-gallon tanks (gasoline) Two 750-gallon tanks (diesel)	Removed in 1990 (two gasoline) and 1991 (two diesel); closed by Central Valley Water Board in 1999.
SA 007	Three 1,000-gallon tanks	Removed in 1987; not closed by Central Valley Water Board. These tanks will be closed administratively by this ROD after Alternative Non-VOC4a (excavation and off-site disposal) has been implemented and sampling confirms that a no further action determination is appropriate.
SA 011	200-gallon gasoline	Removed in 1987: not closed by Central Valley Water Board; this tank will be closed administratively by this ROD after sampling confirms that a no further action determination is appropriate.
SA 092	7,500-gallon tank	Removed in 1989, closed by county in 1995 and Central Valley Water Board in 1996.
SA 095	Former UST (contents unknown) covered by grassland.	No documentation of removal; 1957 drawing shows 10,000-gallon UST abandoned in place with sand. This tank will be closed administratively by this ROD.

**Summary of SVE Systems**

<b>SVE System</b>	<b>SVE System Description</b>	<b>IP#3 Sites within or adjacent to SVE System</b>
Investigation Cluster (IC) 1 SVE System[a]	<b>Status:</b> Currently operational <b>Primary COCs:</b> TCE and PCE <b>Cumulative Mass Removed:</b> 8,241 lbs of total VOCs	PRL L-005
IC 7 SVE System[a]	<b>Status:</b> Currently operational <b>Primary COCs:</b> TCE and PCE <b>Cumulative Mass Removed:</b> 10,714 lbs of total VOCs	PRL L-005, PRL S-035, SA 006, and SA 018
IC 43 SVE System[b]	<b>Status:</b> Decommissioned 2009 <b>Primary COCs:</b> PCE, Toluene, and Freon 113 <b>Cumulative Mass Removed:</b> 1,800 lbs of total VOCs	PRL L-005, PRL T-006, and SA 090
SSA 002 SVE System[b]	<b>Status:</b> Decommissioned 2009 <b>Primary COCs:</b> PCE and Freon 113 <b>Cumulative Mass Removed:</b> 170 lbs of total VOCs	SSA 002

Notes:

[a] 2011 Annual Report, Groundwater and Soil Vapor Extraction RA-O and Monitoring Program (Volume 2, Soil Vapor Extraction Removal Action) (URS, 2/1/2012).

[b] IP #3 Feasibility Study (CH2MHill, 2008b).

**Attachment D. Summary of Site Risks**

Table D-1. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft bgs+) IP#3 Record of Decision							
Site	Outdoor Occupational				Indoor Occupational		
	Total Chemical Risk	Drivers/ Pathway	Radiological Risk	Noncarcinogenic HI	Total Chemical Risk	Radiological Risk	Noncarcinogenic HI
<b>Alternative 1 – No Action</b>							
AOC 322	a	NA	5.E-05	a	<1E-06	2.E-05	<1
CS 034	a	NA	NE	a	b	NE	c
PRL S-009	a	NA	NC	a	<1E-06	NC	<1
PRL S-042	<1E-06	NA	NE	<1	b	NE	c
SA 006	b	NA	NE	c	9.E-06	NE	<1
SA 089	1.E-05	Arsenic/Ing	NE	<1	<1E-06	NE	<1
SA 093	b	NA	4.E-05	<1	b	2.E-05	c
SA 104	a	NA	NE	a	<1E-06	NE	<1
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use</b>							
PRL S-030	<1E-06	NA	<1E-06	<1	4.E-05	3.E-04	3
SA 001 (combined with SSA 002)	<1E-06	NA	NE	<1	<1E-06	NE	<1
SA 018	<1E-06	NA	NE	<1	9.E-06	NE	<1
SA 095	<1E-06	NA	NE	<1	<1E-06	NE	<1
SSA 002 (combined with SA 001)	<1E-06	NA	NE	<1	<1E-06	NE	<1
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal</b>							
PRL S-013	4.E-05	Arsenic/Ing and Derm	NE	<1	3.E-06	NE	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use</b>							
CS 030 (combined with SA 002)	a	NA	4.E-05	<1	<1E-06	2.E-05	<1
CS 036 EA 1 <sup>f</sup>	<1E-06	NA	NE	<1	1E-03	NE	16
CS 036 EA 2 <sup>g</sup>	2.E-06	PCB-1254 / Derm, Ing	NE	<1	1E-03	NE	16
CS 048 <sup>g</sup>	2.E-06	PCB-1254 / Derm, Ing	NE	<1	1E-03	NE	16
PRL L-005B, D, F and G EA 1 <sup>h</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005B, D, F and G EA 2 <sup>h</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005B, D, F and G EA 3 <sup>h</sup>	e	NA	NC	e	4.E-04	NC	5
PRL L-005B, D, F and G EA 4 <sup>h</sup>	b	NA	NC	<1	4.E-04	NC	5
PRL S-028	a	NA	NE	<1	<1E-06	NE	<1
PRL S-035	<1E-06	NA	NE	<1	4.E-04	NE	5
PRL T-006	<1E-06	NA	NE	<1	6.E-06	NE	<1

Table D-1. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft bgs+) IP#3 Record of Decision							
Site	Outdoor Occupational				Indoor Occupational		
	Total Chemical Risk	Drivers/ Pathway	Radiological Risk	Noncarcinogenic HI	Total Chemical Risk	Radiological Risk	Noncarcinogenic HI
PRL T-007	<1E-06	NA	NE	<1	<1E-06	NE	<1
SA 002 (combined with CS %030)	a	NA	4.E-05	<1	<1E-06	2.E-05	<1
SA 088	b	NA	NE	c	b	NE	c
SA 090	<1E-06	NA	NE	<1	2.E-06	NE	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use Sites</b>							
Building 600	b	NA	NE	<1	<1E-06	NE	<1
PRL L-006A-B EA 1	a	NA	d	a	4.E-04	d	5
PRL L-006A-B EA 2	b	NA	d	<1	4.E-04	d	5
PRL L-006A-B EA 3	b	NA	d	c	4.E-04	d	5
PRL S-034	<1E-06	NA	NE	<1	4.E-05	NE	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation/Disposal</b>							
CS 047 <sup>f</sup>	<1E-06	NA	NE	<1	1E-03	NE	16
CS 047 <sup>g</sup>	2.E-06	PCB-1254,PCB-1260 / Derm, Ing	NE	<1	1E-03	NE	16
CS T-061	a	NA	NE	a	3.E-04	NE	352
PRL L-005 EA 1 <sup>j</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005 EA 2 <sup>j</sup>	<1E-06	NA	NC	<1	4.E-04	NC	5
PRL L-005 EA 3 <sup>j</sup>	e	NA	NC	e	4.E-04	NC	5
PRL S-005	b	NA	NE	<1	9.E-06	NE	<1
PRL S-029	<1E-06	NA	NE	<1	9.E-06	NE	<1
PRL P-009	<1E-06	NA	NE	<1	4.E-04	NE	5
SA 007	<1E-06	NA	NE	<1	4.E-04	NE	5
SA 014 / Wastepile <sup>k</sup>	2.E-06	PCB-1254, BaP / Derm, Ing	NE	<1	4.E-04	NE	5
SA 014 North	1.E-06	BaP / Derm, Ing	NE	<1	4.E-04	NE	5
<b>Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use Site</b>							
PRL 060	a	NA	5.E-05	a	<1E-06	2.E-05	<1
<b>Alternative Non-VOC4a – Excavation and Offsite Disposal</b>							
OU B1 Drainage Ditch EA1	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA2	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA3	<1E-06	NA	NE	<1	NE	NE	NE
OU B1 Drainage Ditch EA4	<1E-06	NA	NE	<1	NE	NE	NE

<b>Table D-1. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft bgs+) IP#3 Record of Decision</b>							
Site	Outdoor Occupational				Indoor Occupational		
	Total Chemical Risk	Drivers/ Pathway	Radiological Risk	Noncarcinogenic HI	Total Chemical Risk	Radiological Risk	Noncarcinogenic HI
OU B1 Drainage Ditch EA5 <sup>i</sup>	2.E-06	PCB-1260 / Derm, Ing	NE	<1	NE	NE	NE
PRL S-012	<1E-06	NA	NE	<1	<1E-06	NE	<1
PRL T-060	a	NA	NE	a	9.E-06	NE	<1
SA 005	a	NA	NE	a	9.E-06	NE	<1
SA 011	b	NA	NE	<1	4.E-04	NE	5
SA 092 EA 1	3.E-06	PCB-1254, PCB-1260 / Derm, Ing	NE	<1	<1E-06	NE	<1
<b>Alternative VOC2 – Institutional Controls to Prevent Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Site Uses</b>							
CS 023	3.E-05	Arsenic/Ing	NE	<1	5.E-05	NE	2
<b>Notes:</b> HI = Hazard Index SGEA = Soil Gas Exposure Area EA = Exposure Area NA = Not applicable NE = Not evaluated VOCs = Volatile Organic Compounds PCB = Polychlorinated biphenyl compounds BaP = Benzo(a)pyrene Ing = Ingestion route of exposure Derm = Dermal route of exposure							
<1E-06	Cells in green highlight indicate risk <1E-06 or HI <1.						
4.E-05	Cells in yellow highlight indicate risk within risk management range, i.e. 10 <sup>-6</sup> to 10 <sup>-4</sup> .						
3.E-04	Cells highlighted in red indicate risk greater than 10 <sup>-4</sup> or HI>1.						
	Cells highlighted in gray indicate radiological risk.						
+ Soil data from 0-2 feet (ft) below ground surface (bgs) were used to evaluate the incidental ingestion, dermal contact, and inhalation pathways. a No data collected at 0-2 ft bgs interval b No carcinogenic contaminants of potential concern (COPCs) identified in the 0-2 ft bgs interval. c No non-carcinogenic COPCs identified in the 0-2 ft bgs interval. d No radiologic COPCs identified in the 0-2 ft bgs interval. e No analytes detected in the 0-2 ft bgs interval. f Risk assessment for CS 036, CS 047, and CS 048 EA 1 does not include transformer yard. g Risk assessment for CS 036, CS 047, and CS 048 EA 2 includes transformer yard. h Exposure areas include portions of PRL L-005 B, D, F and G: EA 1 includes the area south PRL L-005B; EA 2 includes north PRL L-005B; EA 3 includes PRL L-005D and northwestern portions of PRL L-005D; EA 4 includes northeastern PRL L-005F.							

<b>Table D-1. Summary of Cancer Risks and Hazards for the Occupational Worker (Surface Soil, 0-2 ft bgs+) IP#3 Record of Decision</b>							
<b>Site</b>	<b>Outdoor Occupational</b>				<b>Indoor Occupational</b>		
	<b>Total Chemical Risk</b>	<b>Drivers/ Pathway</b>	<b>Radiological Risk</b>	<b>Noncarcinogenic HI</b>	<b>Total Chemical Risk</b>	<b>Radiological Risk</b>	<b>Noncarcinogenic HI</b>
i OU1 B Drainage Ditch EA 5 consists of the row of sampling locations in the ditch located just inside the western boundary of the former McClellan AFB, west of Buildings 786-A through 786-J, and flows north, draining into Magpie Creek.							
j Exposure areas include portions of PRL L-005C: EA 1 includes the western edge of PRL L-005C; EA 2 includes north PRL L-005C; EA 3 includes south PRL L-005C.							
k Risk assessment for SA 014 and the Wastepile are combined.							

Table D-2. Summary of Cancer Risk and Hazard for the Residential Receptor (0-2 feet bgs) IP#3 Record of Decision

Site	Included in Soil Gas Area	Adult Resident									Child Resident			
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	
<b>Alternative 1 – No Action</b>														
AOC 322	none	a	NA	a	1.E-04	4.E-06	a	NA	a	<1	a	NA	NA	
CS 034	none	a	NA	NA	NE	NA	a	NA	a		c	NA	NA	
PRL S-009	SGEA 19	a	NA	NA	NC	NA	a	NA	a	<1	<1	NA	NA	
PRL S-042	none	<1E-06	NA	<1E-06	NE	<1E-06	<1	NA	<1		c	NA	<1	
SA 006	SGEA 3	b	NA	NA	NE	2.E-04	c	NA	c	6	c	NA	NA	
SA 089	SGEA 10	2.E-04	As/Prod	5.0E-05	NE	1.E-05	<1	NA	<1	<1	<1	NA	<1	
SA 093	SGEA 20	b	NA	b	1.E-04	<1E-06	1	TI / Prod	<1	<1	4	TI	2	
SA 104	none	b	NA	b	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use</b>														
PRL S-030	SGEA 8	2.E-06	PCB-1260, PCB 1254 / Prod	5.0E-07	2.E-03	6.E-04	<1	NA	<1	38	<1	NA	<1	
SA 001	SGEA 9	<1E-06	NA	<1E-06	<1E-06	2.E-05	<1	NA	<1	<1	<1	NA	<1	
SA 018	SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	<1	NA		6	<1	NA	<1	
SA 095	SGEA 10	<1E-06	NA	<1E-06	NE	1.E-05	1	TI, V / Prod	<1	<1	5	TI, V / Prod	2	
SSA 002 (combined with SA 001)	SGEA 9	b	NA	b	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal</b>														
PRL S-013	SGEA 22	6.E-04	As/Prod, Ing	1.0E-04	NE	5.E-05	2	PCB-1260, TI / Prod, Ing	<1	<1	7	PCB-1260, TI/Prod, Ing	3	
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use</b>														
CS 030 (combined with SA 002)	SGEA 9	3.E-04	As / Prod	7.0E-05	1.E-04	2.E-05	<1	NA	<1	<1	3	V, As / Prod, Ing	1	
CS 036 EA 1 <sup>f</sup>	SGEA 2	<1E-06	NA	<1E-06	NE	2.E-02	<1	NA	<1	240	1	Cd, Ni / Prod	<1	
CS 048 <sup>g</sup>	SGEA 2	<1E-06	NA	<1E-06	NE	2.E-02	<1	NA	<1	240	2	PCB-1254, PCB-1260 / Prod	1	
PRL L-005B, D, F and G EA 1 <sup>h</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	<1E-06	NA	<1E-06	NC	6.E-03	3	Cu, Sb, TI /Prod	<1	73	11	Cu, Sb, Th / Prod	5	
PRL L-005B, D, F and G EA 2 <sup>h</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	2.E-06	PCB-1260	<1E-06	NC	6.E-03	2	Cd, Al / Prod	<1	73	5	Cd, Al / Prod	<1	
PRL L-005B, D, F and G EA 3 <sup>h</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	e	NA	e	NC	6.E-03	e	NA	e	73	e	NA	NA	
PRL L-005B, D, F and G EA 4 <sup>h</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	b	NA	e	NC	6.E-03	e	NA	<1	73	<1	NA	<1	
PRL S-005	SGEA 3	b	NA	NA	NE	6.E-03	<1	NA	<1	6	<1	NA	<1	
PRL S-028	SGEA 16, SGEA 21	a	NA	NA	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1	
PRL S-029	SGEA 1, SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	<1	NA	<1	6	<1	NA	<1	
PRL S-035	SGEA 6, SGEA 7	6.E-06	PCB-1260	2.0E-06	NE	6.E-03	3	Cd, PCB-1260 / Prod	<1	73	9	Cd, PCB-1260 / Prod	1	
PRL T-006	SGEA 11, SGEA 13	<1E-06	NA	<1E-06	NE	1.E-04	<1	NA	<1	11	<1	NA	1	
PRL T-007	SGEA 11, SGEA 12	<1E-06	NA	<1E-06	NE	1.E-04	<1	NA	<1	11	<1	NA	<1	

Table D-2. Summary of Cancer Risk and Hazard for the Residential Receptor (0-2 feet bgs) IP#3 Record of Decision

Site	Included in Soil Gas Area	Adult Resident									Child Resident			
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	
SA 002 (combined with CS 030)	SGEA 9	3.E-04	As / Prod	7.0E-05	1.E-04	2.E-05	<1	NA	<1	<1	3	V, As / Prod, Ing	1	
SA 088	none	b	NA	b	NE	NA	NA	NA	NA		c	NA	NA	
SA 090	SGEA 12	3.E-04	As/Prod	4.0E-05	NE	4.E-05	1	NA	<1	1	2	As, Cd	<1	
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use</b>														
Building 600	SGEA 16, SGEA 21	b	NA	b	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1	
PRL L-006A-B EA 1	SGEA 5, SGEA 7, SGEA 9	a	NA	a	d	6.E-03	a	NA	a	73	a	NA	NA	
PRL L-006A-B EA 2	SGEA 5, SGEA 7, SGEA 9	b	NA	b	d	6.E-03	<1	NA	<1	73	<1	NA	<1	
PRL L-006A-B EA 3	SGEA 5, SGEA 7, SGEA 9	b	NA	b	d	6.E-03	c	NA	NA	73	c	NA	NA	
PRL S-034	SGEA 4, SGEA 5	<1E-06	NA	<1E-06	NE	7.E-04	<1	NA	<1	8	<1	NA	1	
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation/Disposal Sites</b>														
CS 047 <sup>f</sup>	SGEA 2	<1E-06	NA	<1E-06	NE	2.E-02	<1	NA	<1	240	1	NA	<1	
CS 047 <sup>g</sup>	SGEA 2	<1E-06	NA	<1E-06	NE	2.E-02	<1	NA	<1	240	2	PCB-1254 / Prod, Ing	1	
CS T-061	SGEA 18	a	NA	NA	NE	5.E-03	b	NA	b	5130	b	NA	NA	
PRL L-005 EA 1 <sup>j</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	<1E-06	NA	<1E-06	NC	6.E-03	3	Cu, Sb / Prod	2	73	11	Cu, Sb / Prod	6	
PRL L-005 EA 2 <sup>j</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	2E-06	NA	<1E-06	NC	6.E-03	2	Cd / Prod	2	73	5	Cd	4	
PRL L-005 EA 3 <sup>j</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	e	NA	NA	NC	6.E-03	e	NA	NA	73	e	NA	NA	
PRL P-009	SGEA 7	7.E-06	PCB-1260 / Prod	2.0E-06	NE	6.E-03	11	Cd/Prod	<1	73	31	Cd / Prod	3	
SA 007	SGEA 7, SGEA 8	<1E-06	NA	<1E-06	NE	6.E-03	<1	NA	<1	73	<1	NA	<1	
SA 014 / Wastepile <sup>k</sup>	SGEA 7	2.E-05	PCB, BaP / Prod, Ing	6.0E-06	NE	6.E-03	1	Cd, PCB-1254/Prod	<1	73	3	Cd, PCB-1254 / Prod	<1	
SA 014 North	SGEA 7	1.E-05	BaP / Derm, Ing	4.0E-06	NE	6.E-03	<1	NA	<1	73	2	Cd, Al / Prod	<1	
<b>Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use</b>														
PRL 060	SGEA 23	a	NA	NA	1.5E-04	3.E-06	b	NA	b	<1	<1	NA	<1	
<b>Alternative Non-VOC4a – Excavation and Offsite Disposal</b>														
OU B1 Drainage Ditch EA1	none	2.E-06	PCB-1260 / Ing, Prod	<1E-06	NE	NE	<1	NA	<1	<1	<1	NA	<1	
OU B1 Drainage Ditch EA2	none	<1E-06	NA	<1E-06	NE	NE	<1	NA	<1	<1	<1	NA	<1	
OU B1 Drainage Ditch EA3	none	4.E-06	PCB-1260 / Ing, Prod	1.0E-06	NE	NE	<1	NA	<1	<1	<1	NA	<1	
OU B1 Drainage Ditch EA4	none	1.E-06	NA	<1E-06	NE	NE	<1	NA	<1	<1	<1	NA	<1	
OU B1 Drainage Ditch EA5 <sup>i</sup>	none	1.E-05	PCB-1260 / Ing, Prod	4.0E-06	NE	NE	3	NA	<1	<1	<1	PCB-1260 / Prod, Ing	<1	
PRL S-012	SGEA 9	6.E-06	NA	2.0E-06	NE	2.E-05	<1	NA	<1	<1	<1	NA	<1	
PRL T-060	SGEA 3	a	NA	NA	NE	2.E-04	a	NA	NA	6	a	NA	NA	
SA 005	SGEA 3	a	NA	NA	NE	2.E-04	a	NA	NA	6	a	NA	NA	
SA 011	SGEA 7	b	NA	NA	NE	6.E-03	<1	NA	<1	73	<1	NA	<1	

Table D-2. Summary of Cancer Risk and Hazard for the Residential Receptor (0-2 feet bgs) IP#3 Record of Decision

Site	Included in Soil Gas Area	Adult Resident							Child Resident				
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway
SA 092 EA 1	SGEA 15	2.E-05	PCB-1254, PCB-1260 / Prod, Ing	<1E-06	NE	1.E-06	<1	NA	<1	<1	3	PCB-1254, PCB-1260/Prod	1
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use</b>													
CS 023	SGEA 17	4.E-04	As/Prod	9.0E-05	NE	8.E-04	<1	NA	NA	29	2	As, Cd, Al	<1

**Notes:**  
 HI = Hazard Index  
 SGEA = Soil Gas Exposure Area  
 EA = Exposure Area  
 NA = Not applicable  
 NE = Not evaluated  
 Not calculated = Site was evaluated in IP #3 Radiological Remedial Investigation Characterization Addenda but radiological risk was not quantified.  
 Al = Aluminum  
 As = Arsenic  
 Cd = Cadmium  
 Sb = Antimony  
 Tl = Thallium  
 V = Vanadium  
 PCB = Polychlorinated biphenyl compounds  
 BaP = Benzo(a)pyrene  
 Ing = Ingestion route of exposure  
 Derm = Dermal route of exposure  
 Prod = Homegrown produce route of exposure

<1E-06	Cells in green highlight indicate risk <1E-06 or HI <1.
4.E-05	Cells in yellow highlight indicate risk within risk management range, i.e. 10 <sup>-6</sup> to 10 <sup>-4</sup> .
3.E-04	Cells highlighted in red indicate risk greater than 10 <sup>-4</sup> or HI>1.
	Cells highlighted in gray indicate that site has unrestricted release by CDPH.

<sup>a</sup> Soil data from 0-10 feet (ft) below ground surface (bgs) were used to evaluate the incidental ingestion, dermal contact, and inhalation pathways.  
<sup>b</sup> No data collected at 0-2 ft bgs interval.  
<sup>c</sup> No carcinogenic COCs identified in the 0-2 ft interval.  
<sup>d</sup> No non-carcinogenic COCs identified in 0-2 ft interval.  
<sup>e</sup> No radiologic COCs identified in 0-2 ft interval.  
<sup>f</sup> No analytes detected in the 0-2 ft interval.  
<sup>g</sup> Risk assessment for CS 036, CS 047, and CS 048 EA 1 does not include transformer yard.  
<sup>h</sup> Risk assessment for CS 036, CS 047, and CS 048 EA 2 includes transformer yard.  
<sup>i</sup> Exposure areas include portions of PRL L-005 B, D, F, and G: EA 1 includes the area south PRL L-005B; EA 2 includes north PRL L-005B; EA 3 includes PRL L-005D and northwestern portions of PRL L-005F; EA 4 includes northeastern PRL L-005F.  
<sup>j</sup> EA 5 consists of the row of sampling locations in the ditch located just inside the western boundary of the former McClellan AFB, west of Buildings 786-A through 786-J, and flows north, draining into Magpie Creek.  
<sup>k</sup> Exposure areas include portions of PRL L-005C: EA 1 includes the western edge of PRL L-005C; EA 2 includes north PRL L-005C; EA 3 includes south PRL L-005C.  
<sup>l</sup> Risk assessment for SA 014 and Wastepile are combined.

Table D-3. Summary of Cancer Risk and Hazard for the Residential Receptor (0-10 ft bgs ++) IP#3 Record of Decision

Site	Included in Soil Gas Area	Adult Resident									Child Resident		
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway
<b>Alternative 1 – No Action</b>													
AOC 322	none	<1E-06	NA	<1E-06	1.E-04	4.E-06	<1	NA	<1	<1	<1	NA	<1
CS 034	none	a	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PRL S-009	SGEA 19	<1E-06	NA	<1E-06	1.E-04	1.E-06	<1	NA	<1	<1	<1	NA	<1
PRL S-042	none	<1E-06	NA	<1E-06	NE	<1E-06	<1	NA	<1	<1	2	V / Prod	1
SA 006	SGEA 3	a	NA	NA	NE	2.E-04	<1	NA	<1	6	<1	NA	<1
SA 089	SGEA 10	2.E-04	As/Produce	5.0E-05	NE	1.E-05	<1	NA	<1	<1	2	Ti / Prod, Ing	<1
SA 093	SGEA 20	<1E-06	NA	<1E-06	1.E-04	<1E-06	1	Ti / Prod	<1	<1	4	Ti / Prod, Ing	2
SA 104	none	a	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use</b>													
PRL S-030	SGEA 8	7.E-04	Naphthalene / Prod	9.0E-05	7.E-04	6.E-04	1	Naphthalene / Prod	<1	38	5	Cu, Naphthalene / Prod, Ing	2
SA 001 (combined with SSA 002)	SGEA 9	2.E-04	As/ Prod	4.E-05	<1E-06	2.E-05	<1	NA	<1	<1	<1	NA	<1
SA 018	SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	1	Ti / Prod	<1	6	4	Th / Prod	2
SA 095	SGEA 10	3.E-04	As / Prod	7.E-05	NE	1.E-05	<1	NA	<1	<1	3	Ti, As / Prod, Ing	1
SSA 002 (combined with SA 001)	SGEA 9	2.E-04	As/ Prod	4.E-05	<1E-06	2.E-05	<1	NA	<1	1	<1	NA	<1
<b>Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation and Offsite Disposal</b>													
PRL S-013	SGEA 22	6.E-04	As/Prod, Ing	1.0E-04	NE	5.E-05	2	PCB-1260, Th / Prod, Ing	<1	<1	7	PCB-1260, Th/Prod, Ing	3
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use</b>													
CS 030 (combined with SA 002)	SGEA 9	3.E-04	As/ Prod	<1E-06	1.E-04	2.E-05	<1	NA	<1	<1	3	V, As / Prod, Ing	1
CS 036 EA 1 <sup>c</sup>	SGEA 2	2.E-04	As/ Prod	1.E-04	NE	2.E-02	1	Cd, V / Prod	<1	240	4	Cd, V / Prod, Ing	<1
CS 048 <sup>d</sup>	SGEA 2	1.E-05	PCB-1254 / Prod, Ing	1.E-06	NE	2.E-02	<1	NA	<1	240	2	PCB-1254, PCB-1260	1
PRL L-005B, D, F and G EA 1 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	7.E-04	Naphthalene, As / Prod, Ing	1.E-04	NC	6.E-03	1	Naphthalene, Sb / Prod, Inh	<1	73	5	TCE, Sb, naphthalene / Prod, Ing	3
PRL L-005B, D, F and G EA 2 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	5.E-06	PCB-1260 / Prod	1.E-06	5.E-04	6.E-03	2	Cd / Prod	<1	73	7	Cd / Prod, Inh	2

Table D-3. Summary of Cancer Risk and Hazard for the Residential Receptor (0-10 ft bgs ++) IP#3 Record of Decision

Site	Included in Soil Gas Area	Adult Resident									Child Resident		
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway
PRL L-005B, D, F and G EA 3 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	<1E-06	NA	<1E-06	5.E-04	6.E-03	<1	NA	<1	73	2	V / Prod, Ing	<1
PRL L-005B, D, F and G EA 4 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	<1E-06	NA	<1E-06	5.E-04	6.E-03	<1	NA	<1	73	1	Al / Prod, Ing	<1
PRL S-005	SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	<1	NA	<1	6	<1	NA	<1
PRL S-028	SGEA 16, SGEA 21	<1E-06	NA	<1E-06	NE	<1E-06	<1	NA	<1	<1	3	TI / Prod	2
PRL S-029	SGEA 1, SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	<1	NA	<1	6	2	V / Prod, Ing	<1
PRL S-035	SGEA 6, SGEA 7	1.E-05	PCB-1260, naphthalene / Prod, Ing	3.0E-06	NE	6.E-03	2	Cd, PCB-1260 / Prod	<1	73	8	Cd, PCB-1260 / Prod	1
PRL T-006	SGEA 11, SGEA 13	<1E-06	NA	<1E-06	NE	1.E-04	<1	NA	<1	11	<1	NA	<1
PRL T-007	SGEA 11, SGEA 12	<1E-06	NA	<1E-06	NE	1.E-04	<1	NA	<1	11	<1	NA	<1
SA 002 (combined with CS 030)	SGEA 9	3.E-04	As/ Prod	<1E-06	1.E-04	2.E-05	<1	NA	<1	<1	3	V, As / Prod, Ing	1
SA 007	SGEA 7, SGEA 8	<1E-06	NA	<1E-06	NE	6.E-03	<1	NA	<1	73	<1	NA	<1
SA 088	none	a	NA	NA	NE	NA	NA	NA	NA	NA	NA	NA	NA
SA 090	SGEA 12	3.E-04	As/Produce	6.0E-05	NE	4.E-05	1	NA	<1	1	<1	NA	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use</b>													
Building 600	SGEA 16, SGEA 21	<1E-06	NA	<1E-06	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1
PRL L-006A-B EA 1	SGEA 5, SGEA 7, SGEA 9	<1E-06	NA	<1E-06	b	6.E-03	<1	NA	<1	73	2	V / Prod, Ing	<1
PRL L-006A-B EA 2	SGEA 5, SGEA 7, SGEA 9	b	NA	b	d	6.E-03	<1	NA	<1	73	<1	NA	<1
PRL L-006A-B EA 3	SGEA 5, SGEA 7, SGEA 9	b	NA	b	d	6.E-03	c	NA	NA	73	c	NA	NA
PRL S-034	SGEA 4, SGEA 5	3.E-04	As / Prod, Ing	7.E-05	NE	7.E-04	<1	NA	<1	8	1	Al, As / Prod	<1
<b>Alternative VOC3 – Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use and Alternative Non-VOC4a – Excavation/Disposal Sites</b>													
CS 047 <sup>c</sup>	SGEA 2	<1E-06	NA	<1E-06	NE	2.E-02	<1	NA	<1	240	1	NA	<1
CS 047 <sup>d</sup>	SGEA 2	<1E-06	NA	<1E-06	NE	2.E-02	<1	NA	<1	240	2	PCB-1254 / Prod, Ing	1
CS T-061	SGEA 18	2.E-05	Naphthalene / Prod	1.0E-06	NE	5.E-03	<1	NA	<1	5130	<1	NA	<1
PRL L-005 EA 1 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	7.E-04	Naphthalene, As / Prod, Ing	1.0E-04	5.E-04	6.E-03	1	Naphthalene, Sb / Prod, Inh	<1	73	5	TCE, Sb, naphthalene / Prod, Ing	3
PRL L-005 EA 2 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13, and SGEA 14	5.E-06	PCB-1260 / Prod	1.0E-06	5.E-04	6.E-03	2	Cd /Prod	2	73	7	Cd	2

**Table D-3. Summary of Cancer Risk and Hazard for the Residential Receptor (0-10 ft bgs ++) IP#3 Record of Decision**

Site	Included in Soil Gas Area	Adult Resident									Child Resident		
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway
PRL L-005 EA 3 <sup>e</sup>	SGEA 3, SGEA 7, SGEA 8, SGEA 12, SGEA 13 and SGEA 14	<1E-06	NA	<1E-06	5.E-04	6.E-03	<1	NA	<1	73	2	V / Prod, Ing	<1
PRL P-009	SGEA 7	3.E-04	As / Prod	6.0E-06	NE	6.E-03	9	Cd/Prod	<1	73	25	Cd / Prod	3
SA 007	SGEA 7, SGEA 8	<1E-06	NA	<1E-06	NE	6.E-03	<1	NA	<1	73	<1	NA	<1
SA 014/ Wastepile <sup>h</sup>	SGEA 7	3.E-04	As, naphthalene / Prod	6.0E-05	NE	6.E-03	2	Cd, PCB-1254/Prod	<1	73	6	Cd, PCB-1254 / Prod	2
SA 014 North	SGEA 7	2.E-04	As / Prod	6.0E-05	NE	6.E-03	1	V, Cd / Prod	<1	73	4	V, Cd / Prod, Ing	1
<b>Alternative Non-VOC2 – Institutional Controls to Prohibit Residential Use</b>													
PRL 060	SGEA 23	2.E-04	As/ Prod	5.0E-05	1.5E-04	3.E-06	2	Cd / Prod, Ing	<1	<1	5	Cd, PCB-1260 / Prod, Ing	1
<b>Alternative Non-VOC4a – Excavation and Offsite Disposal</b>													
OU B1 Drainage Ditch EA1	none	2.E-06	PCB-1260 / Ing, Prod	<1E-06	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1
OU B1 Drainage Ditch EA2	none	<1E-06	NA	<1E-06	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1
OU B1 Drainage Ditch EA3	none	4.E-06	PCB-1260 / Ing, Prod	1.0E-06	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1
OU B1 Drainage Ditch EA4	none	1.E-06	PCB-1260 / Prod	<1E-06	NE	<1E-06	<1	NA	<1	<1	<1	NA	<1
OU B1 Drainage Ditch EA5 <sup>f</sup>	none	1.E-05	PCB-1260 / Ing, Prod	4.0E-06	NE	<1E-06	<1	NA	<1	<1	2	PCB-1260 / Prod, Ing	<1

**Table D-3. Summary of Cancer Risk and Hazard for the Residential Receptor (0-10 ft bgs ++) IP#3 Record of Decision**

Site	Included in Soil Gas Area	Adult Resident									Child Resident		
		Total Chemical Risk	Drivers/ Pathway	Total Chemical Risk without the produce pathway	Radiological Risk	Indoor Air Risk	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway	Inhalation Indoor Air HI	Noncarcinogenic HI	Drivers/ Pathway	Total Hazard without the produce pathway
PRL S-012	SGEA 9	4.E-06	PCB-1260 / Prod	1.0E-06	NE	2.E-05	<1	NA	<1	<1	<1	NA	<1
PRL T-060	SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	<1	NA	<1	6	<1	NA	<1
SA 005	SGEA 3	<1E-06	NA	<1E-06	NE	2.E-04	<1	NA	<1	6	<1	NA	<1
SA 011	SGEA 7	2.E-04	As / Prod, Ing	4.0E-05	NE	6.E-03	2	Cd / Prod	<1	73	18	NA	7
SA 092 EA 1	SGEA 15	3.E-04	As / Prod, Ing	6.0E-05	NE	1.E-06	<1	NA	<1	<1	4	PCB-1254, PCB-1260/Prod	1
Alternative VOC2 – Institutional Controls to Prohibit Residential Use and Alternative Non-VOC3 – Engineered Controls and Institutional Controls to Prohibit Residential Use													
CS 023	SGEA 17	4.E-04	As / Produce	9.0E-05	NE	8.E-04	<1	NA	<1	29	3	V, As / Prod, Ing	1

# McClellan IP #3 ROD Draft Final (September 2012)

**Notes:**

HI = Hazard Index

SGEA = Soil Gas Exposure Area

EA = Exposure Area

NA = Not applicable

NE = Not evaluated

Not calculated = Site was evaluated in IP #3 Radiological Remedial Investigation Characterization Addenda but radiological risk was not quantified.

Al = Aluminum

As = Arsenic

Cd = Cadmium

Sb = Antimony

Tl = Thallium

V = Vanadium

PCB = Polychlorinated biphenyl compound

BaP = Benzo(a)pyrene

TCE = Trichloroethylene

Ing = Ingestion route of exposure

Derm = Dermal route of exposure

Prod = Homegrown produce route of exposure

<1E-06	Cells in green highlight indicate risk <1E-06 or HI <1.
4.E-05	Cells in yellow highlight indicate risk within risk management range, i.e. $10^{-6}$ to $10^{-4}$ .
3.E-04	Cells highlighted in red indicate risk greater than $10^{-4}$ or HI >1.
	Cells highlighted in gray indicate that site has unrestricted release by CDPH.

++ Soil data from 0-10 feet (ft) below ground surface (bgs) were used to evaluate the incidental ingestion, dermal contact, and inhalation pathways; soil gas data from 0-15 ft bgs were used to evaluate the indoor air pathway.

<sup>a</sup> No carcinogenic COCs identified in the 0-10 ft interval.

<sup>b</sup> No radiologic COCs identified in 0-10 ft interval.

<sup>c</sup> Risk assessment for CS 036, CS 047, and CS 048 EA 1 does not include transformer yard.

<sup>d</sup> Risk assessment for CS 036, CS 047, and CS 048 EA 2 includes transformer yard.

<sup>e</sup> Exposure areas include portions of PRL L-005 B, D, F, and G: EA 1 includes the area south PRL L-005B; EA 2 includes north PRL L-005B; EA 3 includes PRL L-005D and northwestern portions of PRL L-005F; EA 4 includes northeastern PRL L-005F

<sup>f</sup> EA 5 consists of the row of sampling locations in the ditch located just inside the western boundary of the former McClellan AFB, west of Buildings 786-A through 786-J, and flows north, draining into Maggie Creek.

<sup>g</sup> Exposure areas include portions of PRL L-005C: EA 1 includes the western edge of PRL L-005C; EA 2 includes north PRL L-005C; EA 3 includes south PRL L-005C.

<sup>h</sup> Risk assessment for SA 014 and Wastepile are combined.

**Attachment E1. Cost Summary for IP #3 Sites with Revised Alternatives**

Site Name	Proposed Plan Alternative	Proposed Plan Costs	Selected Alternative	Selected Alternative Cost (PW <sub>30</sub> )
Building 600 [a]	No Action	\$ 0	VOC3 and Non-VOC3	\$184,000
CS 023 [a]	VOC2	\$ 81,000	VOC2 and non-VOC3	\$184,000
CS 030 [a]	No Action	\$ 0	VOC3	\$184,000
PRL L-005C [b]	Non-VOC4a	\$ 555,000 [c]	VOC3 and Non-VOC4a	\$739,000
PRL S-028 [a]	No Action	\$ 0	VOC3	\$184,000
PRL S-034 [b]	VOC4	\$126,000	VOC3 and Non-VOC3	\$184,000
PRL T-007 [b]	No Action	\$ 0	VOC3	\$184,000
SA 001 [a]	No Action	\$ 0	VOC2	\$81,000
SA 002 [a]	No Action	\$ 0	VOC3	\$184,000
SA 014 [a]	Non-VOC4a	\$ 534,000	VOC3 and Non-VOC4a	\$718,000
SA 088 [b]	No Action	\$ 0	VOC3	\$184,000
SA 090 [b]	No Action	\$ 0	VOC3	\$184,000
SSA 002 [a]	No Action	\$ 0	VOC2	\$81,000

Notes:

- [a] Selected alternative costs were estimated based on an estimated per unit cost of the Alternative VOC3 of \$184,000.
- [b] Selected alternative costs were based on calculations presented in Appendix D of the IP #3 FS (CH2MHill, 2008b).
- [c] Costs for PRL L-005C include all segments of PRL L-005.

**Attachment E2. Rationale for Change in Alternatives**

Site Name	Proposed Plan Alternative	Selected Alternative	Industrial Waste Line (IWL) Buffer Zone
Building 600	No Action	VOC3 and Non-VOC3	Site within IWL Buffer Zone and no non-VOC sampling beneath building.
CS 023	VOC2	VOC2 and non-VOC3	No sampling beneath building.
CS 030	No Action	VOC3	Site within IWL Buffer Zone.
PRL L-005C	Non-VOC4a	VOC3 and Non-VOC4a	IWL Site.
PRL S-028	No Action	VOC3	Site within IWL Buffer Zone.
PRL S-034	VOC4	VOC3 and non-VOC3	SVE is retained condition; no sampling beneath building.
PRL T-007	No Action	VOC3	Site within IWL Buffer Zone.
SA 001	No Action	VOC2	Uncertainty in VOC sampling.
SA 002	No Action	VOC3	Site within IWL Buffer Zone.
SA 014	Non-VOC4a	VOC3 and Non-VOC4a	Site within IWL Buffer Zone.
SA 088	No Action	VOC3	Site within IWL Buffer Zone.
SA 090	No Action	VOC3	Site within IWL Buffer Zone.
SSA 002	No Action	VOC2	Uncertainty in VOC sampling.

Notes:

Due to proximity (within 100 ft) of the current or former IWL with respect to some of the IP #3 Sites, the uncertainties associated with the IWL at McClellan (specifically, the adequacy of site characterization of known or potential IWL breaks), and the future impacts of revised VOC toxicity criteria on potential indoor air inhalation risk, EPA is now requiring the Alternative VOC3—Engineered Controls to Address Shallow Soil Gas Contamination and Institutional Controls to Prohibit Residential Use—to be implemented at these sites. VOC2 and Non-VOC3 were added to sites due to uncertainty in characterization.

## Attachment F.

### Initial Parcel #3 ROD Risk Summaries and Rationale for Selected Remedies submitted by the State of California

**AOC 322:** Site is a former segment of Magpie Creek. Site includes Bay R of Building 783, which was constructed over the central portion of the abandoned creek channel.

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** Not Applicable (NA)

**Shallow Soil Gas (SSG):** VOCs in shallow soil gas were detected. For those VOCs, based on the risk assessment, the residential risks are within the acceptable risk range and the industrial risks are less than the acceptable risk range.

**Soil:** The risk assessment for soils at AOC 322 indicates the risks are below or within the acceptable risk range for unrestricted use. Impacts to surface water and groundwater are not expected. Radium 226 was detected, but only one sample contains radium 226 greater than the unrestricted use PCGs. However, sampling for radium 226 was not conducted beneath Building 783 in the abandoned creek channel. Some uncertainty was identified in the FS risk modeling.

**Rationale for Selected Remedy:** Alternative 1 – No Action is the selected remedy because boring logs indicate the bottom of the former creek channel, where contamination would most likely be located, is now at approximately 5 to 7 feet bgs, and risks identified in the RICS and FS are minimal.

**Building 600:** Former Electronics repair facility and 20,000 gallon diesel UST. Prior to the construction of Building 600, the location was operated as a motor pool that contained a washrack facility. The UST was abandoned and closed in place per Sacramento County approval in March 2000. One soil sample was collected on the west side of the UST at a depth of approximately 20 feet below ground surface (bgs) and was analyzed for TPH-D, VOCs, metals, and mercury. No analytes were detected above the method reporting limit or background concentrations for metals. All method reporting limits were less than screening levels. The UST has not been granted No Further Action status by the Regional Water Board. This tank will be closed administratively by this ROD.

**Selected Remedies:** Alternative VOC3 and Non-VOC3

**Contaminants Addressed:** VOCs in Shallow Soil Gas (SSG), total petroleum hydrocarbons (TPH), metals

**Shallow Soil Gas (SSG):** Building 600 is partially within the radius of influence of the IC 1 SVE system. No VOCs were detected above screening levels in soil gas mostly due to the operation of the SVE system. There is some uncertainty in the characterization because soil samples have not been collected beneath Building 600 from the former motor pool area due to access issues.

**Soil:** The risk assessment for soils at Building 600 indicates the risks are below or within the acceptable risk range for unrestricted use. However, there is some uncertainty in the characterization because soil samples have not been collected beneath Building 600 from the former motor pool area due to access issues. Impacts to surface water and groundwater are not expected as long as the building remains.

**Rationale for Selected Remedies:** Alternatives VOC3 and Non-VOC3 were selected to address the uncertainties in the characterization of VOCs and Non-VOCs under Building 600. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 600 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**CS 023:** Site includes Building 781 (chemical storage warehouse), Building 789, area of debris in the northern portion of the site, area of soil disturbance in the southern portion of the site.

**Selected Remedies:** Alternative VOC2 and Non-VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** VOCs in SSG were detected and the residential risks are greater than the risk management range, and the industrial risks are within the risk management range. CS 023 is not acceptable for residential use, but is acceptable for industrial use.

**Soil:** The risk assessment for soils at CS 023 indicates the risks are within the acceptable risk range for industrial use. However, there is some uncertainty in the characterization because soil samples have not been collected beneath Building 781. Impacts to surface water and groundwater are not expected from minor detections of cadmium and arsenic.

**Rationale for Selected Remedies:** Alternatives VOC2 and Non-VOC3 were selected to address the uncertainties in the characterization of VOCs and Non-VOCs under Building 781. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 781 is demolished, the property owner must sample VOCs and metals to address uncertainties or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**CS 030:** Investigated with SA 002 and associated with the IWL. Site includes former Buildings 629 and 631, hazardous materials storage area, former rail car loading/unloading dock, asphalt-covered wash water release area with storm drain, three former transformer areas, staging area, and a 500 gallon diesel/gas UST. The UST associated with former Building 628 (located near former Building 629) remains in place and has not been closed. During previous investigations, three borings were advanced near the location of the UST to investigate whether subsurface releases had occurred. With the exception of a minor detection of TPG-G of 0.51 mg/kg at 7.5 feet bgs and lead at a concentration less than screening levels, no other TPH or TPH related compounds were detected. Based on the concentrations of fuel-related contaminants and depths of the samples, it does not appear that significant releases from the UST have occurred. This tank will be closed administratively by this ROD after the UST has been removed and sampling under the UST confirms that a no further action determination is appropriate.

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** VOCs were detected at concentrations exceeding unrestricted use screening levels. There is some uncertainty regarding the magnitude of VOC contamination beneath former Building 628. For VOCs, the residential risks are within the risk management range and the industrial risks are less than the risk management range.

**Soil:** The risk assessment for soils at CS 030 indicates the risks are below or within the acceptable risk range for unrestricted use. Impacts to surface water and groundwater are not expected from minor detections of thallium, arsenic and PCBs.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the uncertainties in the characterization of VOCs under the former Building 628 and the IWL. If new construction takes place on the property, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**CS 034:** Reportedly the location of two waste solvent USTs. The existence of the USTs or their location was never confirmed.

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** No unacceptable risks to human health were identified.

**Soil:** No unacceptable risks to human health or threats to groundwater or surface water were identified.

**Rationale for Selected Remedy:** No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**CS 036:** Investigated with CS 047 and CS 048. Site includes Building 683 and the storage yard north of former Building 666.

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** For VOCs, the industrial risks are greater than the risk management range. However, the site is associated with the IC 1 SVE system. Operation of the IC 1 SVE system has reduced concentrations in the vadose zone and has likely reduced risks to human health in SSG. Alternative VOC3 addresses the concern with protection of human health for industrial use with engineering controls.

**Soil:** CS 036, CS 047, and CS 048 were investigated together. There is uncertainty regarding potential metals contamination at these sites. Sites may be a source area for chromium and hexavalent chromium contamination in groundwater. Only CS 047 has PCB contamination in soil that exceeds the industrial use PCGs and for protection of surface water quality.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If the buildings on the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting

residential and other use restrictions. Engineering controls of surface cover and sediment trap installation and monitoring are identified for CS 036, but are justified under the requirements for adjacent site CS 047.

**CS 047:** Investigated with CS 036 and CS 048. Site includes former Building 666 (electroplating facility).

**Selected Remedies:** Alternative VOC3 and Non-VOC4a

**Contaminants Addressed:** VOCs in SSG, PCBs

**Shallow Soil Gas (SSG):** For VOCs, the industrial risks are greater than the risk management range. However, the site is associated with the IC 1 SVE system. Operation of the IC 1 SVE system has reduced concentrations in the vadose zone and has likely reduced risks to human health in SSG.

**Soil:** CS 036, CS 047, and CS 048 were investigated together. There is uncertainty regarding potential metals contamination at these sites. Sites may be a source area for chromium and hexavalent chromium contamination in groundwater. Groundwater chromium and hexavalent chromium contamination is addressed in the *Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision*. Only CS 047 has PCB contamination in soil that exceeds the industrial use PCGs and for protection of surface water quality.

**Rationale for Selected Remedies:** Alternatives VOC3 and Non-VOC4a were selected to address the VOCs in SSG and to remove PCBs in soil that exceed the industrial risk management range. The industrial use target volume of 100 cubic yards was selected to remove PCBs in soil that exceeds industrial use PCGs. The unrestricted use target volume of 400 cubic yards includes all areas where concentrations of PCBs in soil exceed unrestricted use PCGs and PCGs for protection of surface water. Since the site use will remain industrial, the smaller target volume is selected. Areas not excavated that exceed protection of surface water quality will require an engineering control of maintaining surface cover to protect surface water quality. Surface water from the transformer yard at CS 047 drains to a storm drain. Surface water impacts will be addressed by installing a sediment collection system at the storm drain south of the former transformer yard at CS 047. If new construction is built on the site, the property owner must sample for VOCs, metals, and PCBs or maintain a surface cover or other engineered controls, as warranted to address VOCs in SSG and to maintain surface cover to protect surface water quality from metals and PCB contamination. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**CS 048:** Investigated with CS 036 and CS 047. Former industrial wastewater treatment plant (IWTP) #4.

**Selected Remedies:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** For VOCs, the industrial risks are greater than the risk management range. However, the site is associated with the IC 1 SVE system. Operation of the IC 1 SVE system has reduced concentrations in the vadose zone and has likely reduced risks to human health in SSG. Alternative VOC3 addresses the concern with protection of human health for industrial use with engineering controls.

**Soil:** CS 036, CS 047, and CS 048 were investigated together. There is uncertainty regarding potential metals contamination at these sites. Sites may be a source area for chromium and hexavalent chromium contamination in groundwater. Only CS 047 has PCB contamination in soil that exceeds the industrial use PCGs and for protection of surface water quality.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If the buildings on the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions. Engineering controls of surface cover and sediment trap installation and monitoring are identified for CS 048, but are justified under the requirements for adjacent site CS 047.

**CS T-061:** Site includes former UST 614 (200-gallon diesel/gasoline UST – removed in 1988). The UST supplied fuel to the pump at base well #13, which was located in Building 614. The UST has not been granted No Further Action status by the Regional Water Board. This tank will be closed administratively by this ROD after Alternative Non-VOC4a (excavation and off-site disposal) has been implemented and sampling confirms that a no further action determination is appropriate.

**Selected Remedies:** Alternative VOC3 and Non-VOC4a

**Contaminants Addressed:** VOCs in SSG, TPH

**Shallow Soil Gas (SSG):** For VOCs, the industrial risks are higher than the risk management range. VOCs will likely be removed by excavation.

**Soil:** For Non-VOCs, naphthalene in soil exceeds the risk ranges for protection of human health for both unrestricted and industrial use. TPH exceeds the screening levels for protection of groundwater quality. There is uncertainty in the lateral extent of soil contamination beneath Building 614 (Note: Building 614 includes a basement).

**Rationale for Selected Remedies:** Alternative VOC3 and Non-VOC4a were selected to address the VOCs in SSG and TPH in soil that exceeds the industrial risk range and poses a threat to groundwater quality. A single target volume of 200 cubic yards was estimated for removal to address concentrations of contaminants in soil that exceed the PCGs for protection of human health and groundwater quality. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 614 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**OU B1 Drainage Ditch:** The drainage ditch begins along the southern portion of OUB/B1 and empties into Magpie Creek (Considered a portion of IRP site SA 012).

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** PCBs

**Shallow Soil Gas (SSG):** VOCs were not identified as a potential contaminant at this site.

**Soil:** The unlined portions of the OU B1 Drainage Ditch were remediated as part of the OU B1 Interim Record of Decision in 2003. After the remediation the drainage ditch was backfilled, graded, and compacted to restore the original drainage. Sediment traps ST2 and ST4 were installed to collect sediment and monitor the site. An Austin Media Filter was installed near ST2 to also collect sediment in the ditch. Sampling data subsequent to the interim remedial action shows PCBs are again present at concentrations greater than industrial risk levels and levels protective of surface water quality.

**Rationale for Selected Remedy:** Alternative Non-VOC4a was selected to address the PCBs in soil that exceeds the industrial risk range. The industrial use target volume of 60 cubic yards was selected to remove PCBs in soil that exceeds industrial use PCGs. This volume does not include other areas identified with the potential to impact surface water. A separate target volume of 210 cubic yards was estimated for locations where concentrations exceed the PCG for protection of surface water. There is uncertainty in the source of PCBs since the interim remedial action was completed. Since the site use will remain industrial, the site was remediated in 2003 to levels protective of surface water, and the site has a long-term monitoring program, the smaller target volume is selected. The site will continue to have long-term monitoring and maintenance of the sediment traps and media filter (engineering controls). The site conditions and protectiveness will be reevaluated during the next five-year review. The selected alternative results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL 060:** Former oxidation ponds, currently a parking lot.

**Selected Remedy:** Alternative Non-VOC2

**Contaminants Addressed:** metals, pesticides, polyaromatic hydrocarbons (PAHs), PCBs

**Shallow Soil Gas (SSG):** For VOCs, the residential risks are within the risk management range, and the industrial risks are less than the risk management range.

**Soil:** For Non-VOCs, the residential risks are greater than the risk management range, and the industrial risks are within the risk management range.

**Rationale for Selected Remedy:** Alternative Non-VOC2 was selected to address residual non-VOCs remaining at the site subsequent to the construction of a paved parking lot at the site. Recent construction activities at PRL 060 included the removal of approximately the top 18 inches of soil. Soil characterization at PRL 060 was determined by using the data for the contaminants left in place after soil removal. The soil removed from the ponds was returned to PRL 060 as construction fill. This soil was sampled prior to returning it to the site, and these data were used in the human health risk assessment along with data for the contaminants left in place. The selected alternative results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-005B:** Segment of the Industrial Waste Line (IWL).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** Residual VOC contamination is present at concentrations above screening levels in the shallow vadose zone at IC 7 in the southern portion of PRL L-005B. In this area, the industrial risks are greater than the risk management range. Portions of PRL S-005B are within the radius of influence of the IC 7 SVE system. Ongoing SVE monitoring data indicate that this contamination has been significantly reduced due to the operation of the IC 7 SVE system and has likely reduced risks to human health in SSG.

**Soil:** TPH-D was detected above screening levels at concentrations up to 1,800 mg/kg. However, these concentrations are less than the PCG for protection of groundwater.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. If the buildings on or near the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-005C:** Segment of the Industrial Waste Line (IWL).

**Selected Remedies:** Alternative VOC3 and Non-VOC4a

**Contaminants Addressed:** TPH, PCBs, VOCs in SSG

**Shallow Soil Gas (SSG):** The northern portion of the IWL at PRL L-005C is not considered within the influence of the SVE systems adjacent to the site (IC 1 and IC 7 SVE systems), but concentrations of VOCs in soil gas have decreased. In this area, residential risks are greater than the risk management range, but industrial risks are within the risk management range.

**Soil:** TPH-D and PCBs were detected above screening levels in an area west of Building 603 (a former vehicle refueling and maintenance facility). A former 1,000 gallon UST, 300 gallon oil/water separator, and associated piping west of Building 603 are the suspected source of the TPH and PCB contamination. The PCB contamination is limited to the petroleum hot spot. The UST was removed and granted no further action status by the Central Valley Water Board. There is some uncertainty regarding the extent of contamination beneath Building 603.

**Rationale for Selected Remedies:** Alternative VOC3 and Non-VOC4a were selected to address the VOCs in SSG and TPH in soil that poses a threat to groundwater quality. A target volume of 710 cubic yards was estimated for removal to address concentrations of contaminants in soil that exceed the PCGs for protection of human health and groundwater quality associated with Building 603. **Because the soil contamination and industrial target volume of 150 cubic yards associated with PRL S-030 (Building 658) is actually within the PRL L-005C boundary, the remedy of Alternative VOC4a for the TPH at PRL S-030 will be associated and implemented with the remedies for PRL L-005C.** If new construction is built on or near the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-005D:** Segment of the Industrial Waste Line (IWL).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** This area of IWL at PRL L-005D is within the radius of influence of the IC 1 SVE system. For VOCs in this area along the IWL, the residential risks are within the risk management range, and the industrial risks are less than the risk management range. Ongoing SVE monitoring data indicate that this contamination has been significantly reduced due to the operation of the IC 1 SVE system and has likely reduced risks to human health in SSG.

**Soil:** Arsenic, manganese, and thallium were detected above screening levels along the southern border of PRL L-005D, near a documented break in the IWL. Because arsenic was detected at concentrations within the range of background concentrations, there is no clear indication of arsenic contamination. Manganese and thallium were detected at elevated concentrations. However, other contaminants were not reported in soil samples collected from this area, indicating the manganese and thallium are either unlikely site contaminants or isolated occurrences.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. If the buildings on or near the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-005F:** Segment of the Industrial Waste Line (IWL).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** SSG risks for PRL L-005F were evaluated in three sections. The northeast portion of PRL L-005F is within the radius of influence of the IC 1 SVE system. For VOCs in this area along the IWL, the residential risks are within the risk management range, and the industrial risks are less than the risk management range. The central portion of PRL L-005F is outside of SVE influence. Concentrations in this area have decreased significantly. Ongoing SVE monitoring data show that no VOCs were detected at concentrations greater than screening levels. Residential risks are less than the risk management range. The southern portion of PRL L-005F is within the influence of the IC 43 SVE system. Low-level VOC contamination is still present in the shallow vadose zone along the southern portion of PRL L-005F in IC 43. In this area, residential risks are greater than the risk management range, but industrial risks are within the risk management range.

**Soil:** The RICS does not identify any specific non-VOC contamination in this segment of the IWL.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. If the buildings on near the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-005G:** Segment of the Industrial Waste Line (IWL).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** For VOCs, the residential risks are greater than the risk management range, and the industrial risks are greater than the risk management range.

**Soil:** The RICS does not identify any specific non-VOC contamination in this segment of the IWL. Impacts to surface water and groundwater are not expected.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. If the buildings on or near the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-006A:** Segment of the Industrial Waste Line (IWL) and corresponding lift stations, IWL connects to Building 628 and Building 652.

**Selected Remedies:** Alternatives VOC3 and Non-VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** For VOCs in this area, the residential risks are within the risk management range, and the industrial risks are less than the risk management range. PRL L-006A is within the radius of influence of the IC 7 SVE system. VOC contamination was detected at concentrations exceeding depth-specific MCLs along all sections of PRL L-006 within IC 7. This contamination likely affected the groundwater beneath IC 7. Soil gas data from the IP#3 investigation and ongoing SVE monitoring indicate that significant progress has been made in remediating VOCs in this area. The current and future use of Building 628 near PRL L-006A is industrial.

**Soil:** For non-VOCs in this area, the carcinogenic risks for the construction worker scenario are less than the risk management range. Manganese, iron, arsenic, and thallium were detected at concentrations exceeding background and screening levels for protection of human health. However, these metals were not identified as COCs because of the sporadic detections, or for arsenic and thallium, deemed unreliable because of the analytical method used (Method SW6010). Because of the nature of the IWL and potential heterogeneity of the distribution of contamination, there is some uncertainty regarding the characterization of soil around the IWL.

**Rationale for Selected Remedies:** Alternative VOC3 was selected to address the VOCs in SSG, and Alternative Non-VOC3 was selected to address the uncertainty in the characterization of metals and to prohibit intrusive activities (e.g., digging) without regulatory approval. If the buildings on or near the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL L-006B:** Segment of the Industrial Waste Line (IWL) and corresponding lift stations, IWL connects to Building 628 and Building 652.

**Selected Remedies:** Alternatives VOC3 and Non-VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** An area of PCE and TCE contamination at levels exceeding industrial screening levels is present along the central and eastern portions of PRL L-006B. The current and future use of Building 652 near PRL L-006B is industrial. For VOCs in this area, the residential risks are higher than the risk management range, and the industrial risks are within the risk management range. PRL L-006B is within the radius of influence of the IC 7 SVE system. VOC contamination was detected at concentrations exceeding depth-specific MCLs along all sections of PRL

L-006 within IC 7. This contamination likely affected the groundwater beneath IC 7. Soil gas data from the IP#3 investigation and ongoing SVE monitoring indicate that significant progress has been made in remediating VOCs in this area.

**Soil:** For non-VOCs in this area, the carcinogenic risks for the construction worker scenario are less than the risk management range. Manganese, iron, arsenic, and thallium were detected at concentrations exceeding background and screening levels for protection of human health. However, these metals were not identified as COCs because of the sporadic detections, or for arsenic and thallium, deemed unreliable because of the analytical method used (Method SW6010). TPH-D was detected at concentrations exceeding the screening level for protection of groundwater in shallow soil samples collected from four borings advanced along PRL L-006B, near the northeast corner of Building 652. The elevated TPH-D concentrations were not confirmed during the IP#3 investigation, indicating that the IC 7 SVE system has likely reduced the TPH-D contamination detected along the northeast end of PRL L-006B.

**Rationale for Selected Remedies:** Alternative VOC3 was selected to address the VOCs in SSG, and Alternative Non-VOC3 was selected to address the uncertainty in the characterization of metals and to prohibit intrusive activities (e.g., digging) without regulatory approval. If the buildings on or near the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL P-009:** Shallow unlined drainage ditch, IWL (PRL L-005B) passes beneath PRL P-009

**Selected Remedy:** Alternatives VOC3 and Non-VOC4a

**Contaminants Addressed:** VOCs in SSG, metals, PCBs

**Shallow Soil Gas (SSG):** Contamination within the drainage ditch at PRL P-009 is likely due to runoff from surrounding sites and pre-treated wastewater from IWTP #4. These contaminants, including metals and PCBs in soil and VOCs in soil gas, were reported at concentrations greater than screening levels for protection of surface water and/or human health. For VOCs in this area, the residential risks are greater than the risk management range and the industrial risks are within the risk management range.

**Soil:** For non-VOCs in this area, the carcinogenic risks for the outdoor occupational and construction worker scenarios are less than or within the risk management range, respectively. The HI for the outdoor occupational scenario is less than 1. For the construction worker scenario, the HI is 13. The primary risk drivers are cadmium, nickel, and aluminum. However, contamination at the site has the potential to impact surface water. Arsenic, aluminum, cadmium, copper, iron, lead, silver, nickel, and manganese were detected at concentrations greater than screening levels for protection of surface water or human health. Arsenic, however, was detected at concentrations within the range of background and was not identified as a COC. PCBs were detected at concentrations greater than the screening level for protection of surface water and human health.

**Rationale for Selected Remedy:** Alternatives VOC3 and Non-VOC4a were selected to address the VOCs in SSG and PCBs and metals in soil that exceed the industrial use PCGs. An industrial use target volume of 100 cubic yards was estimated for removal to address concentrations of contaminants in soil that exceed the industrial use PCGs for protection of human health. A second target volume, of 2,800 cubic yards of soil, was estimated to evaluate cleanup to unrestricted use. This target volume includes all areas where concentrations of contaminants in soil exceed unrestricted use PCGs and PCGs for protection of surface water. Surface water from PRL P-009 discharges to SA 014. A sediment

trap/media filter will be installed at SA 014. The costs for this sediment trap/media filter are associated with SA 014. Monitoring of the sediment trap/media filter will be required to evaluate potential threats to surface water quality in future five-year reviews. Because the site will be industrial and potential surface water impacts will be addressed by the installation of a sediment trap/media filter and will receive long-term monitoring, the smaller target volume was selected for the Non-VOC4a remedy. If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-005:** Former location of industrial wastewater treatment plant (IWTP) No. 2 (included multiple process tanks, piping, a sump, and an effluent discharge point as potential sources)

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** PCE and naphthalene were detected at concentrations greater than screening levels and were identified as COCs for soil gas at PRL S-005. The current and future use of PRL S-005 is industrial. For VOCs in this area, the residential risks are greater than the risk management range and the industrial risks are within the risk management range. The PRL S-005 site is within the radius of influence of the IC 7 SVE system.

**Soil:** The carcinogenic risk for the construction worker scenario is well below the risk management range. For the outdoor occupational and construction worker scenarios, the HIs are less than 1. One isolated detection of PCB greater than the unrestricted use screening level for protection of human health was found at 14 feet bgs. PCBs were not detected in the other samples collected at the site. However, there is some uncertainty regarding the lateral extent of PCB contamination. It is assumed that the institutional control is protective unless the site uses change.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. If buildings are constructed on the site in the future, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-009:** Building 644 of this site was a former hazardous waste storage area and a small fenced, covered concrete storage area adjacent to the south side of Building 644.

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** Naphthalene was the only VOC detected at a concentration greater than unrestricted use screening levels. The current and future use of Building 644 is industrial. For VOCs, the residential risks are at the low end of the risk range and the industrial risks are less than the risks management range.

**Soil:** The carcinogenic risk for the construction worker scenario is well below the risk management range. Slightly elevated concentrations of radium 226 are homogeneously distributed in the surface soil at the site. However, the concentrations of radium 226 do not appear to be contamination, but rather a variation in background concentrations in subsurface soil.

**Rationale for Selected Remedy:** Alternative 1 - No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**PRL S-012:** Bays C and D of former Building 624 (624C and 624D, respectively) where surface spills and leaks from transformers occurred, including the documented spill (200 gallons of oil containing PCBs) in 1979 and the release of TCE that was used to clean the spill.

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** PCBs

**Shallow Soil Gas (SSG):** Naphthalene was detected at concentrations greater than unrestricted use screening levels. The current and future use of PRL S-012 is industrial. For VOCs, the residential risks are within the risk management range, and the industrial risks are less than the risk management range.

**Soil:** PCB-1260 was detected at concentrations exceeding screening levels for protection of human health (both unrestricted and industrial use) and surface water. TPH-D is correlated with the PCB source area and will be addressed with the PCB contamination. Although the estimated risk is within the risk management range, there is uncertainty regarding the maximum PCB-1260 concentrations present at the site as indicated by the higher concentrations detected during the sampling conducted as part of the slab removal.

**Rationale for Selected Remedy:** Alternative Non-VOC4a was selected to remove PCBs in soil that exceeds the industrial risk management range. The industrial use target volume of 2,810 cubic yards was selected to remove PCBs in soil that exceeds industrial use PCGs. The unrestricted use target volume of 4,340 cubic yards includes all areas where concentrations of PCBs in soil exceed unrestricted use PCGs. The estimated target volumes do not include the soil east of Building 624 that exceeds the PCG for protection of surface water. The additional volume associated with this soil is 180 cubic yards, assuming an area of 80 feet by 60 feet to a depth of 1 foot bgs. The area is currently paved and impacts to surface water are not anticipated while the pavement is in place. Since the site use will remain industrial, the smaller target volume is selected. Areas not excavated that exceed protection of surface water quality will require an engineering control of maintaining surface cover to protect surface water quality. If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted to protect surface water quality. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-013:** Building 679, Building 709, Building 727 (formerly known as Storage Lot No. 3) where spills and leaks in the drainage system to the subsurface occurred. Use oil containing PCBs may have been sprayed for dust control.

**Selected Remedies:** Alternatives VOC2 and Non-VOC4a

**Contaminants Addressed:** PCBs, VOCs in SSG

**Shallow Soil Gas (SSG):** Several VOCs were detected at concentrations greater than screening levels. The low-level contamination is adequately characterized in accordance with the conceptual model. The current and future use of PRL S-013 is industrial. For VOCs, the residential risks are within the risk management range and the industrial risks are also within the risk management range. There is some uncertainty in the lateral extent of shallow soil gas contamination west of soil boring PS13SB067. An SVE system was installed at PRL S-013 to address the soil gas contamination.

**Soil:** The carcinogenic risk for the outdoor occupational and construction worker scenarios are within the risk management range. The non-carcinogenic HI for the outdoor occupational scenario is less than 1. For the construction worker, the HI is 3. The primary risk driver is PCB-1260. PCB contamination at the site has the potential to impact surface water.

**Rationale for Selected Remedies:** Alternatives VOC2 and Non-VOC4a were selected to address the VOCs in SSG and to remove PCBs in soil that exceeds the industrial risk management range. The industrial use target volume of 1,400 cubic yards was selected to remove PCBs in soil that exceeds industrial use PCGs. The unrestricted use target volume of 2,700 cubic yards includes all areas where concentrations of PCBs in soil exceed unrestricted use PCGs and PCGs for protection of surface water. Since the site use will remain industrial, the smaller target volume is selected. Areas not excavated that exceed protection of surface water quality will require an engineering control of maintaining surface cover to protect surface water quality. Surface water from PRL S-013 flows into the OU B1 Drainage Ditch. Any potential surface water impacts from PRL S-013 will be captured by the sediment trap/media filter at the OU B1 Drainage Ditch. The costs for maintenance of this sediment trap/media filter are associated with the OU B1 Drainage Ditch. The OU B1 Drainage Ditch will have long-term monitoring and maintenance of the sediment traps and media filter (engineering controls). If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted to protect surface water quality. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-028:** Site is adjacent to, and was investigated with, Building 600. Building 615, associated with PRL S-028, was a portable building (technical laboratory for oil and paint storage).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** PRL S-028 is partially within the radius of influence of the IC 1 SVE system. No VOCs were detected above screening levels in soil gas mostly due to the operation of the SVE system. There is some uncertainty in the characterization because soil samples have not been collected beneath the adjacent Building 600 from the former motor pool area due to access issues.

**Soil:** The risk assessment for soils at PRL S-028 indicates the risks are below or within the acceptable risk range for unrestricted use. However, there is some uncertainty in the characterization because soil samples have not been collected beneath adjacent Building 600 from the former motor pool area due to access issues. Impacts to surface water and groundwater are not expected.

**Soil:** For subsurface soil at PRL S-028, the carcinogenic risks for the residential and construction worker scenarios are less than the risk management range. The HIs for each scenario are less than 1 and 6, respectively. The primary risk drivers for the construction worker HI are

metals. However, the metals detected in soil at PRL S-028 are not considered COCs. The concentrations and distribution of the detected metals do not indicate that a release occurred. The metals in soil are most likely the result of naturally varying metal concentrations in soil.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the uncertainties in the characterization of VOCs under adjacent Building 600. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 600 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternative results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-029:** Site includes Building 655 and five former USTs (USTs 655A, 655B, 655C, 655D, and 655 North). USTs 655A and 655B received no further action determinations from the Central Valley Water Board in September 2000. USTs 655C and 655D are two 500 gallon fuel USTs located near the southwest corner of Building 655. These USTs were removed in 1988. Low concentrations of metals and no concentrations of TPH were detected in samples collected at USTs 655C and 655D. UST 655 North is a 1,100 gallon UST that was removed in 2005. Two soil samples were collected beneath the removed tank. TPH-D was detected above screening levels in one sample at 200 mg/kg (“J” flagged), but less than the PCG for protection of groundwater (3,900 mg/kg). TPH is not considered a COC for soil at PRL S-029. Tanks 655C, 655D and 655 North will be closed administratively by this ROD.

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** Several VOCs were detected at concentrations greater than screening levels and were identified as COCs for soil gas. The current and future use of Building 655 at PRL S-029 is industrial. For VOCs in this area, the residential risks are greater than the risk management range and the industrial risks are within the risk management range. The site is within the radius of influence of the IC 1 and IC 7 SVE systems.

**Soil:** The carcinogenic risk for the outdoor occupational and construction worker scenarios are at or below the low end of the risk management range. For both scenarios, the HIs are less than 1. Impacts to surface water and groundwater are not expected.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 655 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternative results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-030:** Site includes a wash rack and associated piping, a former automobile grease rack, storage pad, and drainage systems at Building 658, a petroleum, oil, and lubricant (POL) UST, and grassy area. The POL UST was reportedly removed in 1988. Based on the results of confirmation samples collected during removal of the UST, soil beneath the UST was excavated to 15 feet bgs and the excavation was backfilled with clean soil. In August 2000, the UST was granted no further action status by the Central Valley Water Board.

**Selected Remedy:** Alternative VOC2

**Contaminants Addressed:** VOCs in SSG, PCBs, and TPH

**Shallow Soil Gas (SSG):** Several VOCs were detected at concentrations greater than screening levels and were identified as COCs for soil gas at PRL S-030. The current and future use of the area around PRL S-030 is industrial. For VOCs in this area, the residential risks are greater than the risk management range, and the industrial risks are within the risk management range.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are within the risk management range. The HIs for the outdoor occupational and construction worker scenarios are less than 1 and 1, respectively. However, contamination at the site has the potential to impact groundwater and / or surface water. Metals were detected at concentrations exceeding screening levels. Copper and lead were identified as COCs. TPH-D and TPH-G were detected at concentrations greater than screening levels protective of groundwater. PCBs, including PCB-1254 and PCB-1260, were detected at concentrations greater than screening levels for protection of human health for unrestricted use and surface water. The surface soil in the grassy area east of Building 658 (now PRL S-030A, Exposure Area D in the Radiological RICS) is contaminated with radium 226 to a depth of 1 to 2 feet bgs. The radium 226 contamination is an Air Force retained condition in the FOSET #1 AOC, and will be remediated as a non-time critical removal action conducted by the Air Force.

**Rationale for Selected Remedy:** Alternative VOC2 was selected to address the VOCs in SSG. A portion of PRL S-030 is located within the radius of influence of the IC 7 SVE system. VOCs have likely been reduced due to operation of the IC 7 SVE system. For the area southwest of Building 658, approximately 1,630 cubic yards were estimated for the unrestricted use scenario target volume. Approximately 150 cubic yards of soil were estimated for the industrial scenario target volume to address potential impacts to groundwater from the TPH-D and TPH-G and potential impacts to surface water from the copper and lead. The excavation depth is estimated at 10 feet bgs. **Because the soil contamination and industrial target volume of 150 cubic yards associated with PRL S-030 (Building 658) is actually within the PRL L-005C boundary, the remedy of Alternative VOC4a for the TPH at PRL S-030 will be associated and implemented with the remedies for PRL L-005C.** Potential surface water impacts are predicted around and beneath Building 658. Future anticipated land use for this area includes a paved area for bus parking. Surface water impacts will be addressed by maintaining the surface cover in this area. Because the remedy for PRL L-005C (Non-VOC4a) includes that if new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted, the smaller target volume of 150 cubic yards was selected. The selected alternative for PRL S-030 of Alternative VOC2 results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-034:** Site includes Building 652 (current woodworking shop, formerly used for automotive repair, painting, and depainting), and a pad mounted transformer.

**Selected Remedies:** Alternatives VOC3 and Non-VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** PRL S-034 is within the radius of influence of the IC 7 SVE system. Ongoing monitoring associated with IC 7 SVE system shows no VOCs detected at concentrations exceeding screening levels. However, VOCs were detected at concentrations exceeding screening

levels in samples collected north and northeast of PRL S-034. Because there is not a shallow soil vapor monitoring well located in the northern portion of Building 652, there is some uncertainty regarding the concentrations of VOCs beneath the building in this area.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are at or below the low end of the risk management range. For the outdoor occupational scenario, the HI is less than 1. The HI for the construction worker is 3. TPH-D was detected during previous investigations at concentrations exceeding the screening level for protection of groundwater in shallow soil samples collected from borings near the northeast corner of the building. No TPH-D was detected in the IP#3 boring at concentrations exceeding screening levels, indicating that the IC 7 SVE system has reduced the TPH-D contamination detected near the northeast corner of Building 652. No COCs were identified for soil at PRL S-034. However, there is uncertainty regarding the presence of non-VOC contamination beneath Building 652.

**Rationale for Selected Remedies:** Alternative VOC3 was selected to address the uncertainty of VOC characterization in SSG beneath Building 652. Alternative Non-VOC3 was selected to address the uncertainty in the characterization non-VOCs beneath Building 652. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 652 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-035:** Site includes Building 654 (small engine test and maintenance facility and steam cleaning washrack).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** Several VOCs were detected at concentrations greater than screening levels in samples collected north of Building 654 and were identified as COCs for soil gas at PRL S-035. No VOCs were detected at concentrations exceeding screening levels in samples collected beneath the building. The current and future use of Building 654 (and the surrounding area) at PRL S-035 is industrial. For VOCs in the area north of Building 654, the industrial risks are greater than the risk management range. However, the site is within the radius of influence of the IC 7 SVE system, and there is sufficient evidence to conclude that soil gas contamination detected along the eastern, southern, and western sites of Building 654 has been greatly reduced by the IC 7 SVE system. There does appear to be a shallow zone of naphthalene contamination throughout the paved area north of Building 654. This northern area of shallow soil gas contamination is outside the estimated radius of influence of the IC7 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are less than and within the risk management range, respectively. The HI for the outdoor occupational scenario is less than 1. For the construction worker scenario, the HI is 6. The primary risk drivers are metals. TPH-G was detected in one boring at a concentration exceeding the PCG for protection of groundwater. Based on the extensive TPH contamination to the west of Building 659 (SA 007), this contamination likely originated from the former fueling facility at SA 007 and will be addressed under SA 007.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air

risks are not a concern. If Building 654 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL S-042:** Includes Buildings 1439 (auto shop) and 1441 (maintenance shop), a wash rack, former UST, segments of the industrial waste line (IWL), a former unlined drainage ditch, and a former hazardous waste staging area. The former 500 gallon waste oil UST (UST 1439) received a no further action determination from the Central Valley Water Board.

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** No VOCs were detected at concentrations exceeding screening levels. Residual levels of VOCs in soil gas are less than industrial use human health screening levels. There is no unacceptable risk to human health and no significant threat to groundwater or surface water.

**Soil:** Residual levels of non-VOCs in soils are less than industrial use human health screening levels. There is no unacceptable risk to human health and no significant threat to groundwater or surface water.

**Rationale for Selected Remedy:** Alternative 1- No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**PRL T-006:** Site includes a former parts cleaning room with a solvent spray booth in the western portion of Building 640 (currently vacant).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** Several VOCs were detected at concentrations greater than screening levels in samples collected beneath and outside Building 640 and were identified as COCs for soil gas at PRL T-006. The current and future use of Building 640 is industrial. For VOCs, the residential risks are greater than the risks management range, and the industrial risks are within the risk management range. The site is within the radius of influence of the IC 43 SVE system. The VOCs in soil have decreased as a result of the operation of the IC 43 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are well below the  $1 \times 10^{-6}$ . The non-carcinogenic HIs for both scenarios are less than 1. No non-VOCs were identified as COCs for soil at PRL T-006.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 640 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternative results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL T-007:** Site includes a former 500-gallon UST and a paint spray booth and associated floor sump, located inside the southern portion of Building 640. Volatile wastes were stored in the UST located outside of PRL T-007, south of Building 640. The UST was replaced in 1965. The replacement UST reportedly stored diesel fuel and was removed in preparation of new construction in 1984. During removal of the diesel fuel UST in 1984, several small holes were observed in the tank and an undetermined amount of liquid was released onto the ground. Soil samples collected near the former tank location contained high concentrations of TPH-D. Subsequent to the tank removal, approximately 70 cubic yards of soil was excavated from the former tank location. The excavation was left open for 6 months before the backfilling of the excavation was approved by Sacramento County and the Central Valley Water Board. The excavation was backfilled with cement and paved over with a 2-foot thick slab of concrete. The UST has not been closed. During the IP#3 investigation, soil samples were collected near the former UST location to determine if the TPH contamination in soil had decreased as a result of the operation of the IC 43 SVE system. The results of this investigation indicated that TPH in soil has apparently been remediated as a result of the SVE system and potentially as a result of natural attenuation. The UST will be closed administratively by this ROD.

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** Soil gas sampling shows VOCs detected at concentrations greater than unrestricted use screening levels. The current and future use of Building 640 at PRL T-007 is industrial. For VOCs, the residential risks are within the risk management range and the industrial risks are less than the risk management range. However, there is some uncertainty in the shallow soil gas characterization at the site because of the relatively limited number of shallow soil gas samples collected beneath Building 640. PRL T-007 is within the radius of influence of the IC 43 SVE system. The VOCs in soil have decreased as a result of the operation of the IC 43 SVE system.

**Soil:** The carcinogenic risk and non-carcinogenic HI estimates are well below  $1 \times 10^{-6}$  and 1, respectively, for all evaluated scenarios. During previous investigations, TPH-D and TPG-G were detected at concentrations greater than screening levels; however, these concentrations were not confirmed during the IP#3 investigation. TPH contamination in soil has decreased as a result of the operation of the IC 43 SVE system.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the VOCs in SSG. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 640 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternative results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**PRL T-060:** Site includes a former 27,000-gallon bunker oil UST. The UST received a no further action determination by the Central Valley Water Board. PRL T-060 was investigated with adjacent site SA 005 (Building 656).

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** TPH

**Shallow Soil Gas (SSG):** Naphthalene in one sample was detected at a concentration greater than unrestricted use screening level. The current and future use of the area around PRL T-060 and SA 005 is industrial. For VOCs, the residential risks are within the risk management range, and the industrial risks are less than the risk management range. Therefore, no COCs were identified for soil gas at PRL T-060 and SA 005. PRL T-060 and SA 005 are within the radius of influence of the IC 7 SVE system.

**Soil:** The carcinogenic risk for the outdoor occupational and construction worker scenarios are less than the risk management range. For both scenarios, the HIs are less than 1. TPH-D and TPG-G in soil exceeded the screening levels for protection of groundwater. TPH-D and TPH-G were identified as COCs for PRL T-060 and SA 005. In 2000, bunker oil was discovered leaking from oil lines that had connected the former UST to the boilers in Building 656. The oil lines and approximately 10 cubic yards of soil were removed from the excavation. Some uncertainty remains regarding the extent of TPH contamination beneath Building 656. Note that Building 656 includes a basement extending to 13 feet bgs.

**Rationale for Selected Remedy:** Alternative Non-VOC4a was selected to address the TPH in soil that poses a threat to groundwater quality. A single target volume of 230 cubic yards was estimated for removal to address concentrations of contaminants in soil that exceed the PCGs for protection of groundwater. The excavation depth is estimated at 13 feet bgs. The excavation is assumed to extend to the east beneath Building 656 and includes the excavated area where bunker oil was found to be leaking from the oil lines connecting the bunker oil UST to the boilers in Building 656. If Building 656 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions. Note that Building 656 is planned for demolition as Sacramento Regional Transit redevelops the lot surrounding Building 655. Potential soil contamination beneath the building will be removed after the building is demolished.

**SA 001:** Site includes a former portable wash rack and solvent tank on east side of Bay A or D (there is uncertainty in the precise location of the wash rack operation) of the former Building 626.

**Selected Remedy:** Alternative VOC2

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** No VOCs were detected at concentrations greater than screening levels. Therefore, no COCs were identified for soil gas at SA 001. It is likely that the emptying of the solvent tank associated with SA 001 has contributed to the VOC contamination in groundwater attributed to SSA 002. SA 001 is within the radius of influence of the SSA 002 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are less than the risk management range (excluding arsenic for the construction worker scenario). For both scenarios, the HIs were less than 1. No analytes were detected in soil at concentrations greater than screening levels, including screening levels for protection of surface water and groundwater.

**Rationale for Selected Remedy:** Alternative VOC2 was selected to address VOCs in SSG and the uncertainty in the precise location of the solvent spills that likely occurred in association with the operation of the washrack east of Building 626. SA 001 is located within the radius of influence of the SSA 002 SVE system. VOCs have likely been reduced due to operation of the SSA 002 SVE system. The selected alternative for SA 001 of Alternative VOC2 results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 002:** Site includes former Building 628 (McClellan Central Laboratory). SA 002 was investigated with adjacent site CS 030 and is associated with the IWL. A 500 gallon diesel/gas UST, associated with former Building 628, (located near Building 629) remains in place and has not been closed. This tank is associated with CS 030 and will be closed administratively by this ROD (see site summary for CS 030 for details on the UST).

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** VOCs were detected at concentrations exceeding unrestricted use screening levels. There is some uncertainty regarding the magnitude of VOC contamination beneath Building 628. For VOCs, the residential risks are within the risk management range and the industrial risks are less than the risk management range.

**Soil:** The risk assessment for soils at CS 030 indicates the risks are below or within the acceptable risk range for unrestricted use. Impacts to surface water and groundwater are not expected from minor detections of thallium, arsenic and PCBs.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the uncertainties in the characterization of VOCs under former Building 628 and the IWL. If new construction is built on the site the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 005:** Site includes Building 656 (steam generation plant and paint storage facility). SA 005 (Building 656) was investigated with adjacent site PRL T-060.

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** TPH

**Shallow Soil Gas (SSG):** Naphthalene in one sample was detected at a concentration greater than unrestricted use screening level. The current and future use of the area around PRL T-060 and SA 005 is industrial. For VOCs, the residential risks are within the risk management range, and the industrial risks are less than the risk management range. Therefore, no COCs were identified for soil gas at PRL T-060 and SA 005. PRL T-060 and SA 005 are within the radius of influence of the IC 7 SVE system.

**Soil:** The carcinogenic risk for the outdoor occupational and construction worker scenarios are less than the risk management range. For both scenarios, the HIs are less than 1. TPH-D and TPG-G in soil exceeded the screening levels for protection of groundwater. TPH-D and TPH-G were identified as COCs for PRL T-060 and SA 005. In 2000, bunker oil was discovered leaking from oil lines that had connected the former UST to the boilers in Building 656. The oil lines and approximately 10 cubic yards of soil were removed from the excavation. Some uncertainty remains regarding the extent of TPH contamination beneath Building 656. Note that Building 656 includes a basement extending to 13 feet bgs.

**Rationale for Selected Remedy:** Alternative Non-VOC4a was selected to address the TPH in soil that poses a threat to groundwater quality. A single target volume of 230 cubic yards (same target volume as indicated for PRL T-060) was estimated for removal to address concentrations of contaminants in soil that exceed the PCGs for protection of groundwater. The excavation depth is estimated at 13 feet bgs. The excavation is assumed to extend to the east beneath Building 656 and includes the excavated area where bunker oil was found to be leaking from the oil lines

connecting the bunker oil UST to the boilers in Building 656. If Building 656 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions. Note that Building 656 is planned for demolition as Sacramento Regional Transit redevelops the lot surrounding Building 655. Potential soil contamination beneath the building will be removed after the building is demolished.

**SA 006:** Former Building 657 (a service station) and four USTs, which included a 10,000-gallon gasoline tank (657A), a 5,000-gallon gasoline tank (657B), and two 750-gallon diesel tanks (657C and 657D).

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** Chloroform was the only VOC detected at a concentration greater than unrestricted use screening levels. The risk associated with this exceedance is  $1.7 \times 10^{-6}$ . The current and future use SA 006 is industrial. For VOCs, the residential risks are at the low end of the risk management range and the industrial risks are less than the risk management range. Therefore, no COCs were identified for shallow soil gas at SA 006. SA 006 is within the radius of influence of the IC 7 SVE system.

**Soil:** The carcinogenic risk and non-carcinogenic HI estimates associated with the residential and construction worker scenarios are all well below  $1 \times 10^{-6}$  and 1, respectively. To address elevated concentrations of TPH and TPH derived constituents at the site; a bioventing system was installed in 1993. The system operated approximately 4.5 years before it was shut down. In April 1999, the Central Valley Water Board granted the site a no further action determination. SA 006 is within the radius of influence of the IC 7 SVE system. Therefore, the residual fuel-related contamination detected during the decommissioning of the biovent system has most likely decreased.

**Rationale for Selected Remedy:** Alternative 1- No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**SA 007:** Site includes Building 659 (former wash rack and fuel tanker refueling area), and three former 1000 gallon USTs. These USTs will be closed administratively by this ROD after Alternative Non-VOC4a (excavation and off-site disposal) has been implemented and sampling confirms that a no further action determination is appropriate.

**Selected Remedies:** Alternatives VOC3 and Non-VOC4a

**Contaminants Addressed:** VOCs in SSG, PAHs, and TPH

**Shallow Soil Gas (SSG):** Several VOCs were detected at concentrations greater than screening levels and were identified as COCs for soil gas at SA 007. The current and future use of SA 007 is industrial. For VOCs, the industrial risks are greater than the risk management range. SA 007 is considered outside the radius of influence of the IC 7 SVE system; however, it appears that the VOC contamination detected during the RI has been significantly reduced by the IC 7 SVE system which operates at an adjacent site.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are at or below the low end of the risk management range. The non-carcinogenic HI for the outdoor occupational worker is less than 1. THE HI for the construction worker scenario is 1. However,

contamination at the site has the potential to impact groundwater. TPH-G and TPH-D were detected at concentrations greater than screening levels for protection of groundwater. Several PAHs were detected at concentrations greater than unrestricted use screening levels. Naphthalene also exceeded the industrial use screening level. The extent of PAHs detected in soil boring SA07SB11 is uncertain. TPH-G, TPH-D, naphthalene, and PAHs were identified as COCs in soil for SA 007.

**Rationale for Selected Remedies:** Alternative VOC3 and Non-VOC4a were selected to address the VOCs in SSG, PAHs that pose a threat to human health, and TPH in soil that poses a threat to groundwater. An industrial use target volume of 890 cubic yards was estimated for removal to address concentrations of contaminants in soil that exceed the PCGs for protection of human health and groundwater quality. If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 011:** Site includes Building 699 (pump house for Base Well 17), former 200-gallon gasoline UST, fill pit area, and IC 7 SVE system. The UST will be closed administratively by this ROD after the IC 7 SVE system pad is removed and sampling under the former UST confirms that a no further action determination is appropriate.

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** metals

**Shallow Soil Gas (SSG):** No VOCs were detected at concentrations exceeding screening levels. Therefore, no COCs were identified for soil gas at SA 011.

**Soil:** The carcinogenic risk for the construction worker scenario is at the low end of the risk management range. The HIs for the outdoor occupational and construction worker scenarios are less than 1 and 1, respectively. However, contamination at the site has the potential to impact groundwater and / or surface water. Concentrations of 10 metals in soil exceed screening levels, and 9 metals were identified as COCs for SA 011. The location of the former 200 gallon UST is currently overlain by the pad for the IC7 SVE system. It will not be possible to characterize the former UST until the IC 7 SVE system has been removed.

**Rationale for Selected Remedy:** Non-VOC4a was selected to remove metals in soil that exceed the industrial risk management range. The industrial use target volume of 2,050 cubic yards was selected to remove metals in soil that exceed the industrial use PCGs. The unrestricted use target volume of 6,800 cubic yards includes all areas where concentrations of metals in soil exceed the PCGs for protection of human health for unrestricted use. Since the site use will remain industrial, the smaller target volume is selected. Areas not excavated that exceed protection of surface water quality will require an engineering control of maintaining surface cover to protect surface water quality. If new construction is built on the site or Building 699 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted to protect surface water quality. There is uncertainty related to the former UST area, which could not be sampled because of access issues due to the presence of the IC7 SVE system. The property owner must sample for non-VOCs under the former location of UST 699 following removal of the SVE system. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 014:** Site consists of an unlined drainage ditch (approximately 1,600 feet long).

**Selected Remedies:** Alternatives VOC3 and Non-VOC4a

**Contaminants Addressed:** metals, TPH, pesticides, PCBs, VOCs in SSG

**Shallow Soil Gas (SSG):** Naphthalene and benzene were the only VOCs detected at concentrations greater than unrestricted use screening levels. The current and future use of the area around SA 014 is industrial. For VOCs, the residential risks are at the low end of the risk management range and the industrial risks are less than the risk management range. Therefore, no COCs were identified for soil gas at SA 014. The southern portion of SA 014 is within the radius of influence of the IC 7 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are within the risk management range. The HIs for the outdoor occupational and construction worker scenarios are less than 1 and 1, respectively. However, contamination at the site has the potential to impact surface water quality. Contaminants including PCBs, pesticides, metals, and PAHs were detected in soil samples collected within the ditch at concentrations exceeding screening levels. The COCs identified for soil at SA 014 include PCBs, (PCB-1254 and PCB-1260), pesticides (alpha chlordane, gamma chlordane, and dieldrin), metals (aluminum, cadmium, lead, thallium, and vanadium), and PAHs (2-methylnaphthalene, benzo(a)pyrene, benzo(b)fluoranthene, and naphthalene). **Note that the RICS states some uncertainty exists in the concentration of pesticides in the northern segment of the ditch, and that this uncertainty can be considered during the remedial efforts and confirmation sampling.**

**Rationale for Selected Remedies:** Alternatives VOC3 and Non-VOC4a were selected to address the VOCs in SSG and PCBs, pesticides, metals, and PAHs in soils that exceed the PCGs for protection of human health and surface water quality. Alternative VOC3 was selected because SA 014 is within the IWL buffer zone. Alternative VOC3 addresses the uncertainty in the characterization of the IWL. An industrial use target volume of 2,010 cubic yards was estimated for removal to address concentrations of contaminants in soil that exceed the industrial use PCGs for protection of human health. A second target volume, of 3,280 cubic yards of soil, was estimated to evaluate cleanup to unrestricted use PCGs and / or PCGs for protection of surface water. This target volume includes all areas where concentrations of contaminants in soil exceed unrestricted use PCGs and PCGs for protection of surface water. Surface water impacts will be addressed by installing a sediment trap/media filter at the downstream (southern) end of the SA 014 drainage ditch. Monitoring of the sediment trap/media filter will be required to evaluate potential threats to surface water quality in future five-year reviews. Because the site will be industrial and potential surface water impacts will be addressed by the installation of a sediment trap/media filter and will receive long-term monitoring, the smaller target volume was selected for the Non-VOC4a remedy. If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 018:** Site is the former location of a paved outdoor fuel and oil storage yard. Site is currently used by Sacramento Regional Transit Authority (RT) for bus parking. The entire area is currently being redeveloped by RT as a bus maintenance, fueling (natural gas) and parking facility.

**Selected Remedy:** Alternative VOC 2

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** PCE and 2-methylnaphthalene were detected at concentrations greater than screening levels and were identified as COCs for soil gas at SA 018. The current and future use of SA 014 is industrial. For VOCs in this area, the residential risks are greater than the risk management range and the industrial risks are within the risk management range. SA 018 is within the radius of influence of the IC 7 SVE system.

**Soil:** The carcinogenic risk and non-carcinogenic HI for the construction worker scenario are well below  $1 \times 10^{-6}$  and 1, respectively. No contaminants in soil were identified as COCs for SA 018.

**Rationale for Selected Remedy:** Alternative VOC2 was selected to address VOCs in SSG. SA 018 is located within the radius of influence of the IC 7 SVE system. VOCs have likely been reduced due to operation of the IC 7 SVE system. The selected alternative for SA 018 of Alternative VOC2 results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 088:** Site includes Building 610 (communication storage) and a drainage ditch. Site is within the IWL buffer zone.

**Selected Remedy:** Alternative VOC3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** PCE was the only VOC detected at concentrations greater than unrestricted use screening levels. No sources have been identified at SA 088; the low-level contamination has likely migrated from IC 43. The current and future use of Building 610 at SA 088 is industrial. For VOCs, the residential risks are within the acceptable risk range and the industrial risks are less than the acceptable risk range. Therefore, no COCs were identified for soil gas at SA 088. There are uncertainties associated with shallow soil gas in this area.

**Soil:** No contaminants in soil were identified as COCs for this site. Impacts to surface water and groundwater are not expected.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the uncertainties in the characterization of VOCs in SSG under the area around SA 088, Building 610, and the IWL. The concentrations of VOCs detected at SA 088 are likely related to releases from confirmed sources at PRL T-007 or SA 090. Soil gas contamination at PRL T-007 and SA 090 is being addressed by the IC 43 SVE system. U.S. EPA and the State conducted a survey of buildings potentially impacted by VOCs in shallow soil gas. It was determined that as the buildings are currently configured and used indoor air risks are not a concern. If Building 610 is demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 089:** Site includes former location of Building 611 and an unpaved storage area.

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** The compound 1,2-DCA was the only VOC detected at concentrations greater than unrestricted use screening levels. The risk associated with this exceedance is  $6.6 \times 10^{-6}$ . This low-level contamination is adequately characterized in accordance with the

conceptual model. The current and future use of SA 089 is industrial. For VOCs, the residential risks are at the low end of the risk management range and the industrial risks are less than the risk management range. Therefore, No COCs were identified for shallow soil gas at SA 089. VOCs in soil gas at SA 089 are most likely the result of soil gas contamination that migrated from SA 095, located just east of SA 089. VOCs in soil gas have decreased due to the operation of the IC 41 SVE system. A portion of SA 089 is located within the radius of influence of the IC 41 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenario are within the risk management range. The non-carcinogenic HIs for both scenarios are less than 1. Copper was reported at a concentration exceeding the screening level for protection of surface water. Benzo(a)pyrene was the only other non-VOC contaminant at concentrations exceeding screening levels, and it was reported in the same sample where copper was reported. This contamination appears to be an isolated occurrence and limited in extent because SVOCs were not reported in other samples from SA 089 at concentrations greater than screening levels. Copper and benzo(a)pyrene are not considered COCs for SA 089 because this contamination appears to be isolated and limited in extent. SA 089 is currently paved; therefore, impacts to surface water are unlikely.

**Rationale for Selected Remedy:** Alternative 1 - No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**SA 090:** Site includes former Building 613 and several former hazardous materials staging areas and a washrack.

**Selected Remedy:** Alternative VOC 3

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** Naphthalene and PCE were the only VOCs detected at concentrations greater than screening levels, and are identified as COCs for shallow soil gas at SA 090. The current and future use of SA 090 and nearby Building 640 is industrial. For VOCs, the residential risks are within the risk management range and the industrial risks are also within the risk management range. Note that the shallow soil gas contamination (detected at SA90SB007) is not fully defined. However, this location is associated with SA 088 rather than SA 090. The IC 43 SVE system was installed to remediate the soil gas contamination at nearby PRL T-007. SA 090 is within the radius of influence of the IC 43 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are at or below the low end of the risk management range. The HIs for both scenarios are less than 1. No COCs in soil were identified for SA 090.

**Rationale for Selected Remedy:** Alternative VOC3 was selected to address the uncertainties in the characterization of VOCs in SSG under the area northeast of nearby Building 610, and the IWL. Soil gas contamination at nearby PRL T-007 and SA 090 is being addressed by the IC 43 SVE system. If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 092:** Includes Building 641 (steam generation plant), a former 7,500-gallon diesel UST, and a surface disposal site east of Building 616. The former UST received a no further action determination from the Central Valley Water Board (letter dated 15 July 1996).

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** PCBs and lead

**Shallow Soil Gas (SSG):** Shallow soil gas samples were collected from six locations at and around the former tank location and near the surface disposal sites. VOCs were only detected in one sample and benzene was the only VOC detected at a concentration greater than unrestricted use screening levels. The risk associated with this exceedance is  $1.1 \times 10^{-6}$ . The low-level contamination is adequately characterized in accordance with the conceptual model. The current and future use of Building 641 at SA 092 is industrial. For VOCs, the residential risks are at the low end of the risk management range, and the industrial risks are less than the risk management range. Therefore, no COCs were identified for soil gas at SA 092. SA 092 (including Building 616) may have been influenced by the IC 43 SVE system even though the entire site is not within the 300-foot radius of influence.

**Soil:** The carcinogenic risk for the outdoor occupational and construction worker scenarios for both exposure areas are less than or within the risk management range. The HIs for both scenarios are less than or equal to 1. PCBs were detected at concentrations exceeding screening levels in several samples collected east of Building 616 and 619. This contamination is likely the result of leaking transformers. PCBs were identified as COCs for soil at SA 092. An isolated detection of lead (1,500 mg/kg) was reported above screening levels at 5 feet bgs. The isolated detection was vertically and laterally defined. The source is unknown but may be associated fill material. Lead is identified as a COC in soil.

**Rationale for Selected Remedy:** Alternative Non-VOC4a was selected to remove PCBs and lead in soil that exceeds the industrial risk management range. The industrial use target volume of 550 cubic yards was selected to remove PCBs and lead in soil that exceeds the industrial use PCGs. The unrestricted use target volume of 5,720 cubic yards includes all areas where concentrations of PCBs and lead in soil exceed the PCGs for protection of human health for unrestricted use. It should be noted these estimated target volumes do not take into account the soil that exceeds PCGs for protection of surface water. For the unrestricted use scenario, approximately 210 cubic yards of additional soil would need to be excavated to address impacts to surface water. For the industrial use scenario, approximately 1,510 cubic yards of additional soil would need to be excavated to address impacts to surface water. Since the site use will remain industrial, the smaller target volume is selected. Areas not excavated that exceed protection of surface water quality will require an engineering control of maintaining surface cover to protect surface water quality. Surface water from the impacted area flows into the grassy swale east of Building 616. Potential surface water impacts will be addressed by installing a sediment trap/media filter at the downstream (southern) end of the swale. If new construction is built on the site or the buildings on the site are demolished, the property owner must sample or maintain a surface cover or other engineered controls, as warranted to protect surface water quality. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 093:** Site includes Building 646 (Tritium Gas Laboratory).

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** No VOCs were detected at concentrations exceeding screening levels. Therefore, no COCs were identified for soil gas at SA 093.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are well below the risk management range. The HIs for both scenarios are less than 1. No COCs in soil were identified for SA 093.

**Rationale for Selected Remedy:** Alternative 1 - No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**SA 095:** Site includes a former UST (contents unknown) and is covered by grassland. The UST is thought to be a 10,000 gallon tank that was reportedly abandoned in place and filled with grout. The UST has not been closed. The UST will be administratively closed by this ROD.

**Selected Remedy:** Alternative VOC2

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** TCE was detected at concentrations greater than screening levels and was identified as a COC for soil gas at SA 095. The current and future use of SA 095 is industrial. For VOCs in this area, the residential risks are within the risk management range and the industrial risks are less than the risk management range. SA 095 is located within the radius of influence of the IC 41 SVE system. Concentrations of VOCs at SA 095 have decreased due to the operation of the IC 41 SVE system.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are less than the risk management range. The HIs for the outdoor occupational and construction worker scenarios are less than 1. TPH-D was detected above screening levels at concentrations up to 2,200 mg/kg. However, these concentrations are less than the PCG for protection of groundwater (3,900 mg/kg). Therefore, TPH-D was not identified as a COC for soil at SA 095. The data indicate that residual contamination in soil consists of heavy-end hydrocarbons with a low potential for migration. Concentrations of non-VOCs in soil are less than screening levels for protection of groundwater and surface water. No COCs were identified for soil at SA 095.

**Rationale for Selected Remedy:** Alternative VOC2 was selected to address VOCs in SSG. SA 095 is located within the radius of influence of the IC 41 SVE system. VOCs have likely been reduced due to operation of the IC 41 SVE system. The selected alternative for SA 095 of Alternative VOC2 results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**SA 104:** Site includes Building 637 (communication repair shop with two solvent spray and blast booths, and a hazardous waste staging area), soil stockpiles, and former Warehouse Buildings 620 and 622.

**Selected Remedy:** Alternative 1 – No Action

**Contaminants Addressed:** NA

**Shallow Soil Gas (SSG):** Benzene was the only VOC detected at concentrations greater than unrestricted use screening levels. No sources have been identified at SA 104; the low-level contamination is likely migrated from another source (IC 43 or SSA 002). The current and future use of Building 637 at SA 104 is industrial. For VOCs, the residential risks are within the acceptable risk range and the industrial risks are less than the

acceptable risk range. Therefore, no COCs were identified for soil gas at SA 104. VOCs detected in SA 104 soil gas samples do not pose a threat to human health, groundwater, or surface water.

**Soil:** Because no potential release mechanisms or COPCs were identified for Buildings 620 and 622, no soil samples have been collected from SA 104.

**Rationale for Selected Remedy:** Alternative 1 - No Action is the selected remedy because no unacceptable risks to human health or threats to groundwater or surface water were identified.

**SSA 002:** Site includes former Buildings 624 and 626. The IWL is located in eastern part of the site. SSA 002 is within the IWL Buffer Zone where there is some uncertainty regarding the presence of VOCs in SSG.

**Selected Remedy:** Alternative VOC2

**Contaminants Addressed:** VOCs in SSG

**Shallow Soil Gas (SSG):** SSA 002 is the location of previously identified VOC groundwater contamination. It is likely that the emptying of the solvent tank associated with SA 001 contributed to the VOC contamination in groundwater attributed to SSA 002. An SVE system was installed at SSA 002 in 2001. Soil gas results from the IP#3 investigation indicate that the SSA 002 SVE system has effectively reduced VOCs in shallow soil gas to concentrations that are below industrial use screening levels. During ongoing soil gas sampling, benzene and PCE were the only VOCs detected at concentrations greater than unrestricted use screening levels. The current and future use of SSA 002 is industrial. For VOCs, the residential risks are within the risk management range, and the industrial risks are less than the risk management range. Although the residential risks are within the risk management range, the area has been under the influence of the SSA 002 SVE system. No COCs were identified for soil gas at SSA 002.

**Soil:** The carcinogenic risks for the outdoor occupational and construction worker scenarios are less than the risk management range. The HIs for both scenarios are less than 1. No contaminants were detected in soil at concentrations exceeding screening levels. Therefore, no COCs in soil were identified for SSA 002.

**Rationale for Selected Remedy:** Alternative VOC2 was selected to address VOCs in SSG. SSA 002 is located within the radius of influence of the SSA 002 SVE system. VOCs have likely been reduced due to operation of the SSA 002 SVE system. The selected alternative for SSA 002 of Alternative VOC2 results in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.

**Wastepile:** Site consists of a former wastepile and chemical storage area. The wastepile site was formerly used to store fill dirt, rubble, and concrete slabs.

**Selected Remedy:** Alternative Non-VOC4a

**Contaminants Addressed:** metals, pesticides, and PCBs

**Shallow Soil Gas (SSG):** No VOCs were detected at concentrations exceeding screening levels. Therefore, no COCs were identified for soil gas at the Wastepile site.

**Soil:** Contamination at the Wastepile site is likely the result of surface deposition from the storage of fill dirt potentially contaminated with metals, PCBs, and pesticides, and aerial deposition of PCBs from a nearby former transformer storage area. The carcinogenic risks for the outdoor occupational and construction worker scenarios are within the risk management range. The HI for the outdoor occupational scenario is less than 1. For the construction worker scenario, the HI is 2. The primary risk drivers for the construction worker HI are PCB-1254, arsenic, and cadmium. Additionally, contamination at the site has the potential to impact surface water. Metals, pesticides, and PCBs were detected in soil samples at concentrations exceeding screening levels. The COCs in soil identified for the Wastepile include metals (antimony, cadmium, and lead), pesticides (alpha chlordane, gamma chlordane, and dieldrin), and PCBs (PCB-1254 and PCB-1260).

**Rationale for Selected Remedy:** Alternative Non-VOC4a was selected to remove metals, pesticides, and PCBs in soil that exceeds the industrial risk management range. The industrial use target volume of 200 cubic yards was selected to remove metals, pesticides, and PCBs in soil that exceeds the industrial use PCGs. The unrestricted use target volume of 1,430 cubic yards includes all areas where concentrations of metals, pesticides, and PCBs in soil exceed the PCGs for protection of human health for unrestricted use and protection of surface water. Since the site use will remain industrial, the smaller target volume is selected. Areas not excavated that exceed protection of surface water quality will require an engineering control of maintaining and / or constructing (e.g., chip seal) surface cover to protect surface water quality. Surface water from the Wastepile discharges to SA 014. A sediment trap/media filter will be installed at SA 014 downstream of the Wastepile. The costs for this sediment trap/media filter are associated with SA 014. If new construction is built on the site, the property owner must sample or maintain a surface cover or other engineered controls, as warranted to protect surface water quality. The selected alternatives result in restricted land use with ICs (deed restrictions and SLUC) prohibiting residential and other use restrictions.