# MCCLELLAN AFB
# CALIFORNIA

# ADMINISTRATIVE RECORD
# COVER SHEET

AR File Number 420247

# Record of Decision

# for

# Parcel C-6

Former McClellan Air Force Base,
McClellan, California

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

May 2009

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## Acronyms and Abbreviations

| | |
|---|---|
| AFB | Air Force Base |
| AFRPA | Air Force Real Property Agency |
| AOC | Administrative Order on Consent |
| ARAR | Applicable or Relevant and Appropriate Requirement |
| AST | aboveground storage tank |
| bgs | below ground surface |
| BRAC | Base Realignment and Closure |
| CCR | California Code of Regulations |
| CE | Civil Engineering |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CIP | Community Involvement Plan |
| COC | contaminant of concern |
| CS | confirmed site |
| CUPA | Certified Unified Program Agency |
| DOD | Department of Defense |
| DRMO | Defense Reutilization and Marketing Office |
| DTSC | Department of Toxic Substances Control |
| EPA | Environmental Protection Agency |
| FFA | Federal Facilities Agreement |
| HDPE | high density polyethylene |
| HI | Hazard Index |
| HQ | Hazard Quotient |
| IC (#) | Investigative Cluster (used with a numeral to identify SVE investigation/cleanup areas) |
| ICs | Institutional Controls |
| IP | Initial Parcel |
| IRA | interim remedial action |
| IROD | Interim Record of Decision |
| IRP | Installation Restoration Project |
| LTTD | low temperature thermal desorption |
| MBP | McClellan Business Park, LLC |
| msl | mean sea level |
| NFA | no further action |
| OU | operable unit |
| PAH | polycyclic aromatic hydrocarbon |
| PCB | polychlorinated biphenyl |
| PCE | tetrachloroethene |
| PCG | preliminary cleanup goal |
| pCi/g | picoCuries per gram |
| ppb | parts per billion |
| ppm | parts per million |
| 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 |
| Regional Water Board | Regional Water Quality Control Board, Central Valley Region |
| SA | study area |
| SLUC | State Land Use Covenant |
| SMAQMD | Sacramento Metropolitan Air Quality Management District |
| START | SVE Initiation Evaluation Process |
| STOP | SVE Termination and Optimization Process |
| SVE | Soil Vapor Extraction |
| SVOC | semi-volatile organic compound |
| $TCDD_{eq}$ | 2,3,7,8-tetrachlorodibenzo-*p*-dioxin equivalents |
| TCE | trichloroethene |
| TPH-d | diesel range total petroleum hydrocarbon |
| ug/L | micrograms per liter |
| UST | underground storage tank |
| VOC | volatile organic compound |
| WDRs | waste discharge requirements |

# PART 1: THE DECLARATION

## 1.1 Site Name and Location

This Record of Decision (ROD) addresses contaminated soil on the 62-acre portion of land referred to as Parcel C-6, located in the southwestern section of the former McClellan Air Force Base (AFB) Superfund Site. The former McClellan AFB is located approximately 7 miles northeast of Sacramento, California, and consists of approximately 3,452 acres.

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.

Parcel C-6 ("the Property") was the first portion of the former McClellan AFB selected for early transfer with privatized cleanup ("privatization"). The Air Force transferred Parcel C-6 through the County of Sacramento to McClellan Business Park, LLC (MBP) by means of the Parcel C-6 Finding of Suitability for Early Transfer (FOSET) 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 an August 30, 2007 Administrative Order on Consent (AOC), for the implementation of remedial activities associated with soil contamination in surface and subsurface soils to a depth of 15 feet below ground surface (bgs) at Parcel C-6. Parcel C-6 includes 12 Installation Restoration Program (IRP) sites previously identified by the Air Force: Study Area (SA) 012A, SA 012B, Confirmed Site (CS) 031, SA 012C, Potential Release Location (PRL) P-002, SA 012D, SA 029, SA 008, SA 013, PRL 029, PRL B-009, and PRL B-001. Because of their similarities, the discussions for SA 012A and SA 012B have been combined in this ROD.

## 1.2 Statement of Basis and Purpose

This ROD presents the selected remedies for Parcel C-6, including the 12 IRP sites. Based on previous remedial investigations, contaminants are present in the soil at concentrations that pose an unacceptable risk. Groundwater contamination is present below Parcel C-6; however, volatile organic compound (VOC) contamination, in both the groundwater and in the vadose zone that poses a threat to groundwater, is being addressed under the 2007 *Final Basewide VOC Groundwater Record of Decision* (VOC Groundwater ROD) (AFRPA, 2007b) and is therefore not covered by this ROD. Non-VOCs that may be present in groundwater at these sites will be addressed by an amendment to the VOC Groundwater ROD planned for 2009.

The remedies for Parcel C-6 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 each of the items comprising the

Administrative Record upon which the selection of the remedies is based. This ROD will become part of the Administrative Record for the former McClellan AFB.

The Parcel C-6 Administrative Record file is available for review at the EPA Region 9 Superfund Records Center in San Francisco, California.

The State of California, acting through the Department of Toxic Substance Control (DTSC) and Central Valley Regional Water Quality Control Board (Regional Water Board), concurs with the selected remedies for Parcel C-6.

### 1.3 Assessment of Site

As a result of past industrial activities at Parcel C-6, hazardous substances and pollutants or contaminants have been or may have been released to the soil in this area. The soil contamination at 11 of the 12 sites addressed by this ROD has the potential to negatively impact human health or welfare or the environment if not addressed. The implementation of the remedies selected in this ROD is necessary to protect public health or welfare or the environment from the actual or threatened releases of hazardous substances and pollutants or contaminants into the environment. EPA, in consultation with the State, has determined that No Action is necessary to protect human health or welfare or the environment at SA 012C.

### 1.4 Description of Selected Remedies

Environmental contamination at the former McClellan AFB is being addressed through two different approaches. Unlike most sites at the former McClellan AFB where the Air Force is investigating the sites, determining the nature and extent of contamination, evaluating the risk, and preparing the ROD, Parcel C-6 is being addressed through privatization. Parcel C-6 was deeded to MBP before completion of all the necessary environmental response actions. MBP is completing the site investigation and cleanup for the top 15 feet of soil at Parcel C-6 under the direction of EPA, in consultation with state regulators. The cleanup strategy for Parcel C-6 will complement the overall site cleanup strategy and the other response actions being undertaken by the Air Force to address groundwater and deep soil (15 feet and below) contamination at the remainder of the former McClellan AFB.

The NCP establishes the expectation that EPA will use treatment to address principal threat wastes at Parcel C-6 (NCP §300.430(a)(1)(iii)(A)). 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 Parcel C-6 are not highly mobile and could be reliably contained and therefore, do not constitute principal threat wastes.

The selected remedies for addressing the 12 IRP sites within Parcel C-6 can be found in Table 1. With the exception of SA 012C, all sites at Parcel C-6 require some action to address contamination. Some sites need more than one remedy to address the different types of contamination present. Some of the remedial alternatives include sediment trap monitoring and actions to meet the substantive provisions of Waste Discharge Requirements (WDRs) identified in Appendix A. The remedial alternatives evaluated are described in Section 2.9.

**Table 1 – Selected Remedies for Parcel C-6**

| Site | Selected Remedy | Contaminants Addressed |
|---|---|---|
| SA 012C | Alternative 1 (No Action) | (Not applicable) |
| CS 031* | Alternative 2A (Excavation, Off-Site Disposal, Institutional Controls) | Arsenic |
| | Alternative 4 (Institutional Controls only) | metals, possible dioxins and furans |
| PRL 029 | Alternative 3A (Excavation, Low Temperature Thermal Desorption, Reuse of Soil, Selective Disposal, Institutional Controls) | PCBs, dioxins and furans |
| SA 012A/B | Alternative 3A (Excavation, Low Temperature Thermal Desorption, Reuse of Soil, Selective Disposal, Institutional Controls) | PCBs, PAHs, dioxins, furans, and TPH |
| | Alternative 4 (Institutional Controls only) | VOCs |
| PRL P-002* | Alternative 4 (Institutional Controls only) | metals, VOCs, possible dioxins and furans |
| SA 012D | Alternative 4 (Institutional Controls only) | Metals |
| SA 029 | Alternative 4 (Institutional Controls only) | VOCs |
| SA 008 | Alternative 4 (Institutional Controls only) | VOCs |
| PRL B-009* | Alternative 4 (Institutional Controls only) | possible PCBs |
| PRL B-001 | Alternative 4 (Institutional Controls only) | PCBs, PAHs, dioxins, furans, and TPH |
| SA 013* | Alternative 4 (Institutional Controls only) | Metals |
| | Alternative 6 (Institutional Controls and Vapor Intrusion Remedy) | VOCs |

Source: EPA, 2008b

CS-confirmed site
LTTD-low temperature thermal desorption
PAH-polycyclic aromatic hydrocarbons
PCB-polychlorinated biphenyl
PRL-potential release location
SA-study area
TPH-total petroleum hydrocarbon

* The selected remedies for these sites are contingent on the results of data gap sampling that will be performed as part of the remedial design and remedial action. See Section 2.12.2.4 for further explanation of contingent remedial actions.

## 1.5 Statutory Determinations

The selected remedies are protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to these remedial actions, and are cost effective. Prior removal actions to address the principal

threats to human health and the environment at the IRP sites within Parcel C-6 have already been completed. These prior actions, taken together with the selected remedies, meet the CERCLA mandate for permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. Selected remedies for several of the IRP sites at Parcel C-6 satisfy the statutory preference for treatment as a principal element of the remedy by reducing the toxicity, mobility, or volume of hazardous substances, pollutants or contaminants through treatment.

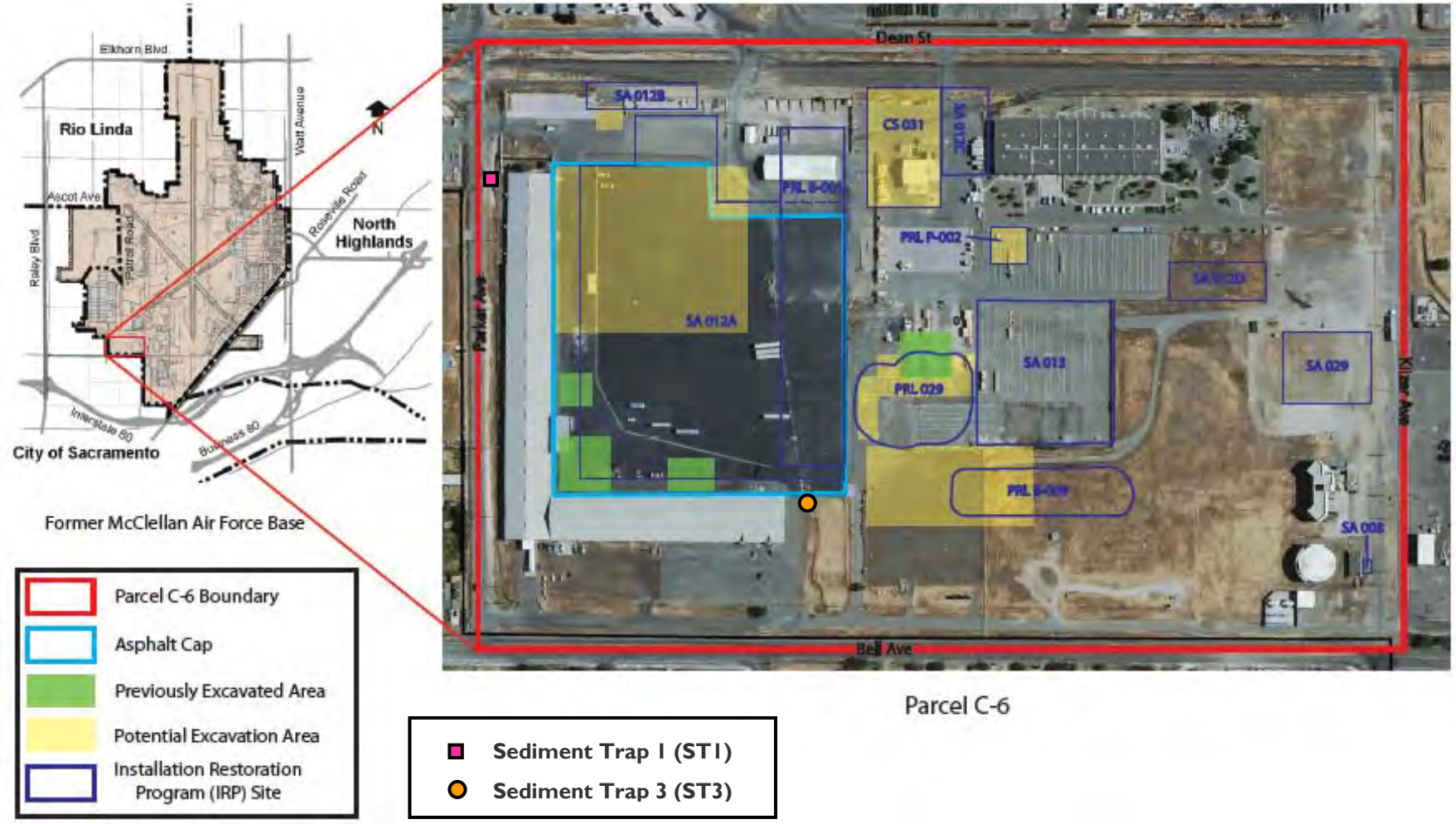
The NCP requires that a Five-Year Review be conducted if a remedial action will leave hazardous substances, pollutants or contaminants above levels that allow for unlimited use and unrestricted exposure. The remedies selected in this ROD for Parcel C-6 and other remedies selected by the Air Force at the former McClellan AFB have or will result in hazardous substances, pollutants, or contaminants remaining in-place above levels that allow for unlimited use and unrestricted exposure. As a result, statutory Five-Year Reviews are required. The Air Force is in the process of completing the third Five-Year Review for the former McClellan AFB and will determine whether 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 Parcel C-6 in all subsequent Five-Year Reviews. The next Five-Year Review will occur in 2014.

## 1.6 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 Parcel C-6.

- Contaminants of concern (COCs) and their respective concentrations (Section 2.2.2; pages 10-16)
- Risk represented by the COCs (Section 2.7; pages 22-28)
- Current and reasonably anticipated future land use and beneficial groundwater use assumptions used in the risk assessment and ROD (Sections 2.5 through 2.7; pages 21-28)
- Potential land and groundwater use that will be available following implementation of the remedial action (Section 2.6; page 22)
- Cleanup levels established for COCs and the basis for these levels (Table 3 in Section 2.8; page 28)
- Estimated cost of the remedial alternatives (Sections 2.10.7 and 2.12.3; pages 39-40 and 47-48)
- How Principal Threat Wastes and COCs are addressed (Section 2.11; pages 40-41)
- Key factor(s) that led to selecting the remedies (Section 2.12; page 41-48)

**Figure 1 - Parcel C-6 Location and IRP Sites Addressed by this ROD**




Source: EPA, 2008b

## 1.7 Authorizing Signature

This is the signature sheet for the Parcel C-6 ROD at former McClellan AFB. The ROD documents the selected remedies for soil contamination at Parcel C-6. Pursuant to Section III of the June 6, 2007, Federal Facilities Agreement Amendment, EPA is selecting response actions for Parcel C-6. These remedies were selected by the EPA in 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

May 28, 2009
Date

**State Acceptance**

The Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board, Central Valley Region (Regional Water Board) had an opportunity to review and comment on the Parcel C-6 ROD, and State concerns have been addressed.

Daniel T. Ward

DANIEL T. WARD
Department of Toxic Substances Control
California Environmental Protection Agency

6/4/09
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 Parcel C-6. It includes background information about Parcel C-6, the nature and extent of contamination found there, and the rationale for the selection of the remedies.

### 2.1 Site Name, Location, and Description

Parcel C-6 is the subject of this ROD and is a 62-acre parcel of land located in the southwestern section of the former McClellan AFB. The former McClellan AFB is located in Sacramento County, approximately 7 miles northeast of Sacramento, California. It is bounded by the city of Sacramento to the west and southwest, unincorporated areas of Antelope to the north, Rio Linda to the northwest and North Highlands to 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 Parcel C-6, 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. The EPA ID number for the former McClellan AFB is CA4570024337.

Parcel C-6 is the first portion of the former McClellan AFB to be remediated through privatized cleanup. The 2007 AOC provides for the selection of remedial actions by EPA and for the participation of DTSC and Regional Water Board in that process. Funds to complete the response actions for Parcel C-6 are being provided to MBP by the Air Force through agreements with Sacramento County.

There are 12 Air Force identified IRP sites contained within the boundaries of Parcel C-6. These sites include: SA 012A, SA 012B, CS 031, SA 012C, PRL P-002, SA 012D, SA 029, SA 008, SA 013, PRL 029, PRL B-009, and PRL B-001. Because of their similarities, the discussions for SA 012A and SA 012B have been combined in this ROD. Activities at these sites included storage of materials or wastes that were associated with aircraft maintenance and repair or incineration of paper and wood wastes.

### 2.2 Site History and Enforcement Activities

#### *2.2.1 Parcel C-6 and McClellan AFB*

The Air Force acquired Parcel C-6 in 1953, and developed and used a majority of the area as the U.S. Air Force Defense Reutilization and Marketing Office (DRMO) storage lot and Civil Engineering (CE) storage yard. More specific former uses of the 12 IRP sites within Parcel C-6 are presented below in Table 2 along with contaminants that were suspected of being a concern. Industrial solvents and cleaners, aviation fuels, and a variety of oils and lubricants were used and stored at Parcel C-6. Paper and wood were also staged and incinerated at the property. The contamination present at the property is associated with spills and improper handling of materials during operation of the former McClellan AFB.

**Table 2 – Summary of IRP Site Information**

| Site Name | Former Uses | Contaminants of Concern |
|---|---|---|
| SA 012C | suspected transformer oil disposal area | none detected |
| CS 031 | paper and wood incinerator with a staging area for unburned materials | metals, possible dioxins and furans |
| PRL 029 | possible storage area or burn pit | PCBs, possible dioxins and furans |
| SA 012A/B | open storage lot and transformer loading and unloading area | PCBs, PAHs, dioxins, furans, TPH, VOCs |
| PRL P-002 | storage area and possible waste disposal pit | metals, VOCs, possible dioxins and furans |
| SA 012D | area of possible spills | Metals |
| SA 029 | aircraft equipment testing and calibration area with 4 underground storage tanks* | VOCs |
| SA 008 | area with 1 underground storage tank and 4 above ground storage tanks* | VOCs |
| PRL B-009 | possible burn pit | possible PCBs |
| PRL B-001 | storage area and possible burial pit | PCBs, PAHs, dioxins, furans, TPH, metals, VOCs |
| SA 013 | storage yard | PCBs, metals, possible VOCs |

Source: EPA, 2008b

CS-confirmed site
PCB-polychlorinated biphenyl
SA-study area
PAH-polycyclic aromatic hydrocarbons
PRL-potential release location
TPH-total petroleum hydrocarbon

* All underground storage tanks have been removed. Four above ground storage tanks at SA 008 remain but are no longer in use.

Following the listing of McClellan AFB on the NPL, the EPA, DTSC, and the Air Force entered into a Federal Facilities Agreement (FFA) on May 2, 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 at McClellan AFB under CERCLA.

The Air Force has undertaken some response actions to clean up Parcel C-6 and reduce the risks to people and the environment. Soil contamination has been addressed through several Air Force actions to date. A total of five underground storage tanks (USTs) were removed from SA 029 and SA 008. In 1987, a small area of contaminated soils was excavated and disposed of off-site. Additional areas of contaminated soil were excavated and consolidated under a newly constructed 10-acre asphalt cap in 1994. The cap and several sediment traps that were installed in nearby drainage ditches were intended to limit contaminated soil from moving off-site in storm water runoff. The Air Force is also conducting ongoing cleanup of groundwater contamination according to the 2007 VOC Groundwater ROD. Because of the depth of groundwater (approximately 105 feet bgs), the contamination in surface and shallow soils at Parcel C-6 is not a source material for groundwater contamination.

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.

With privatization of Parcel C-6, the FFA was amended on June 6, 2007 to suspend the obligation of the Air Force to conduct the investigation and response actions associated with a portion of Parcel C-6 and to authorize EPA to select the associated remedial actions. The Air Force retains responsibility for the groundwater and soil contamination below a depth of 15 feet and, if the selected remedy is not completed by MBP under the AOC, the obligation of the Air Force under the FFA is restored.

### *2.2.2 Site Specific Histories*

The following subsections provide historical information about each of the 12 IRP sites located within Parcel C-6. See Figure 1 for a map of their locations.

#### *2.2.2.1 Suspected Transformer Oil Disposal Area (SA 012C)*

SA 012C is located adjacent to CS 031 and was suspected of being a transformer oil disposal area based on aerial photographs. Transformer oil spills onto the ground have been reported at SA 012C.

Surface scrapes were collected at SA 012C during the 1992 Remedial Investigation (RI) (Radian, 1995). Polychlorinated biphenyls (PCBs), VOCs and semi-volatile organic compounds (SVOCs) were not detected in these soil samples. Arsenic, although detected, did not exceed the established background level for the former McClellan AFB. No contamination above residential or industrial preliminary cleanup goals (PCGs) is present at SA 012C. PCGs are levels of contamination that are associated with conservative exposure assumptions for residential and industrial land uses. PCGs are based on EPA Region 9's Preliminary Remediation Goals (PRGs) in addition to site-specific conditions at the former McClellan AFB and are used to evaluate site risks.

#### *2.2.2.2 Former Wood and Cardboard Box Incinerator (CS 031)*

CS 031 consists of a former incinerator, located north of Building 680, which was reportedly used between 1963 and 1968 to burn paper and wood packaging materials. A staging area for unburned materials and a conveyor belt system for transferring waste from a charging pit to the incinerator were associated with the facility. Some ash generated by the incinerator may have been disposed of in several on-base burial pits of unknown location. The incinerator was dismantled and removed in 1975 and Building 687 was constructed over the conveyor charging pit and the surrounding area was paved.

Soil samples collected during investigations of the site in 1986 and 1992 (McLaren, 1986 and Radian, 1995) did not detect SVOCs, polycyclic aromatic hydrocarbons (PAHs), PCBs, dioxins/furans, or pesticides/herbicides; however, only one location at CS 031 was tested for dioxins/furans.

In previous investigations, VOCs, arsenic, barium, lead, and vanadium were detected in soil samples. While vanadium, lead and arsenic exceeded residential PCGs, arsenic was the only COC to exceed the industrial PCG and McClellan background value.

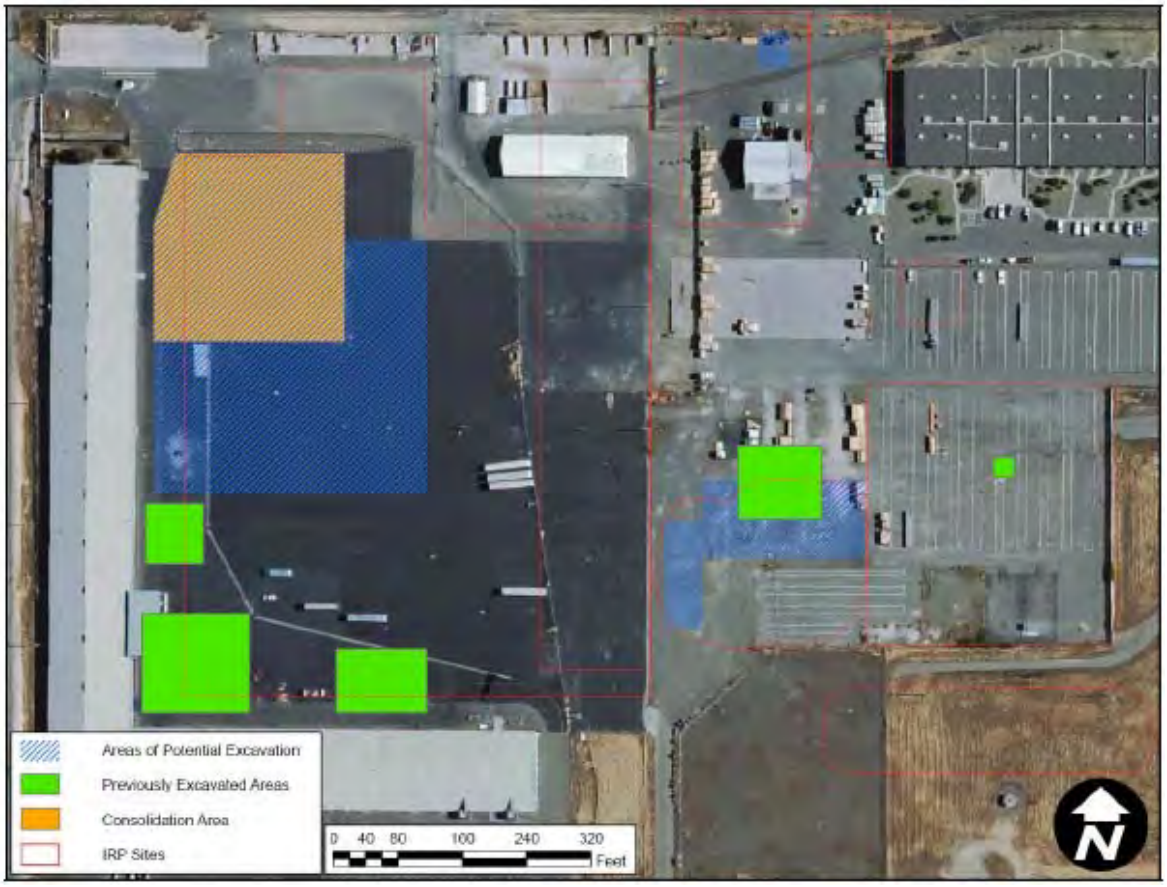
*2.2.2.3 Suspected Landfill (PRL 029)*

PRL 029 was suspected of being the possible location of a former scrap material burn pit used during the 1950s and 1960s and the possible 1974 burial site for approximately 50 to 60 aircraft generators. No evidence of a burn pit or burial site could be found from aerial photographs and interviews. Ground penetrating radar was used to investigate disturbed soil and delineate the site boundaries in 1985. Partial excavation of the site during the 1994 OU B1 interim remedial action (IRA) did not uncover any buried generators.

During the 1994 IRA, PCB and lead-contaminated soils were removed from hot spots that included portions of PRL 029. Figure 2 depicts the areas of soil that were excavated during the 1994 IRA. The upper 18 inches of soil were removed from PRL 029. The volume of soil excavated and precise locations of the removals from PRL 029 were not documented. Results from recent sampling efforts conducted for the OU B1 Drainage (south of PRL 029) have shown a persistent presence of low-level PCB-containing sediments. Currently, the site is an open graveled area with a small asphalt cap in the central area and a paved area in the lower southeast corner.

Additional sampling was performed at PRL 029 and reported in the 2001 Remedial Investigation/Feasibility (RI/FS) Addendum (URS, 2001). PCB concentrations above industrial PCGs were reported. Dioxins/furans were detected above residential and industrial PCGs during the remedial investigation conducted prior to the 1994 IRA; however, the *Operable Unit B1 Interim Record of Decision* (OU B1 IROD) (Radian, 1993c) focused on PCB consolidation and did not delineate the dioxin/furans contamination.

**Figure 2 – Previous and Potential Future Excavation Areas at Parcel C-6**




*2.2.2.4 Former Open Storage Lot and Equipment Loading/Unloading Area (SA 012A/B)*

Because of their similarities, the discussions for SA 012A and SA 012B have been combined in this ROD. SA 012A/B consists of a former open storage lot and a transformer loading/unloading area. These sites were used by the DRMO for the receipt, storage and resale of various materials, including liquid chemicals, scrap metals and transformers containing PCBs. These sites are bordered on the south and west by Building 700, on the east by a paved area, and on the north by Dean Street. Building 700 was constructed in the early 1960s and served as the DRMO warehouse.

These sites have historically been impacted by PCB contamination which has been addressed to some extent through various CERCLA response actions undertaken by the Air Force. Time critical removal actions were conducted by the Air Force in 1992 and 1993 to install security fencing around and a high density polyethylene (HDPE) liner over areas with high PCB contamination.

PCB-contaminated soils from these sites have also been excavated and disposed of off-site or consolidated on-site through actions in 1987 and 1994. Figure 2 depicts the areas of soil that were excavated during the 1994 IRA. The upper 18 inches of soil were removed from

SA 012A. Approximately 3,200 cubic yards of the total 3,300 cubic yards excavated from these sites were placed under an asphalt cap as part of the OU B1 IROD. Several sediment traps were also installed in nearby drainage ditches as part of the OU B1 IROD to limit the movement of contaminated soil off-site in storm water runoff.

The 1993 OU B1 RI/FS reported contaminant concentrations prior to the OU B1 IROD remedial action that exceeded the PCGs for surface and shallow soils established in the 2008 *Final Remedial Investigation/Feasibility Study Addendum* (Tetra Tech, 2008). Occurrences of elevated levels of dioxin/furans and total petroleum hydrocarbons (TPH-d) were found in areas where PCB concentrations were highest. Two PAHs (benzo[a]pyrene and benzo[b]fluoranthene) exceeded the industrial PCGs in one of the 54 samples analyzed. The residential, but not industrial PCGs, were also exceeded for benzo[a]anthracene in that sample, as well as for benzo[b]fluoranthene in an adjacent sample. Lead and arsenic concentrations also exceeded McClellan site-specific background levels and PCGs.

During the OU B soil gas investigation documented in the 1991 *Draft Installation Restoration Program, Stage 7, Operable Unit B Soil Gas Investigation, Data Summary* (OU B SGI), 21 shallow soil gas samples were collected within SA 012A/B (Radian, 1991a). Various VOCs were detected; however, additional samples collected in 1992 indicated that all VOC concentrations were below the industrial shallow soil gas screening levels selected in the *Final Local Reuse Authority Initial Parcel Record of Decision #2* (IP ROD #2, AFRPA, 2008a). The IP ROD #2 established screening and cleanup levels for the former McClellan AFB that were based upon site-specific information. Concentrations of 1,2-DCE, chloroform, vinyl chloride, and o-xylene, however, did exceed unrestricted use screening levels.

Samples collected after the OU B1 remedial action as part of the 1999 Data Gap investigation did not confirm many of the earlier exceedances of PCGs or screening levels. Dioxin/furans did not exceed residential or industrial PCGs. No other SVOCs were detected in soil above industrial PCGs. One lead sample exceeded the residential PCG and McClellan background value but all other metals, including arsenic, did not.

*2.2.2.5 Suspected Waste Disposal Pit (PRL P-002)*

PRL P-002 was suspected of being a waste disposal pit based on aerial photographs. An oblique aerial photograph instead shows this area was actually an open lot where ash from the incinerator was sifted and piled. By 1971 PRL P-002 was covered with asphalt and was being used for storage.

A field screening soil gas investigation performed in 1991 at PRL P-002 detected a number of VOCs; however, none of the VOCs exceeded the industrial shallow soil gas screening levels delineated in the IP ROD #2. Concentrations of 1,2-DCE and chloroform exceeded only the unrestricted use scenario screening levels.

In 2001, a soil vapor extraction (SVE) system was installed by the Air Force as a CERCLA removal action to address the 1,1-DCE and TCE source area for Investigative Cluster (IC) 5 (Radian, 1995). A STOP evaluation for IC 5, a component of the Air Force's 2007 VOC groundwater remedy, is undergoing regulatory review to determine the appropriateness of turning off that SVE system.

During the 1995 OU B RICS, concentrations of all VOCs and SVOCs were below residential and industrial screening levels. Several metal concentrations exceeded combined background levels; however, only concentrations of arsenic and vanadium exceeded residential PCGs. Arsenic also exceeded the industrial PCG. PCBs, detected in only one sample on the west side of the site, were below residential and industrial screening levels.

*2.2.2.6 Suspected Waste Disposal Pit (SA 012D)*

SA 012D was suspected of being a waste disposal pit and spill area. Piles of material and other dark areas seen in aerial photographs of the site may have created the illusion of surface elevations and depressions that led to the original identification of this area as a waste disposal pit and spill area. These areas were later determined upon re-evaluation to be wood and cardboard debris piles destined for the incinerator and pools of surface water that had collected at the site.

During the 1992 RI, VOCs and PCBs were not detected in soil. One SVOC, bis(2-ethylhexyl)phthalate, was detected below residential and industrial screening levels. Seven metals were reported above combined background values but none exceeded industrial PCGs. One vanadium concentration exceeded residential screening levels.

*2.2.2.7 Former Calibration Shop and Underground Storage Tanks (SA 029)*

SA 029 consists of the former location of Building 677 and four underground storage tanks (USTs) which stored hydraulic and calibration fluids. Building 677 was built in 1974 and was used for testing and calibrating aircraft equipment which involved petroleum products, silicone dampening fluid, calibration fluid, Freon, and krypton-35, plutonium-239, and cesium-137 in sealed sources. Building 677 has been demolished. The four USTs were last leak tested in December 1994 and were removed in December 1995. A No Further Action (NFA) status was provided by the Sacramento County Certified Unified Program Agency (CUPA) in February 1996 and the Regional Water Board concurred in July 1996.

During the 1992 RI, no SVOCs were detected in any soil samples. Using EPA Method E901.1, gross beta radioactivity was reported above the lithology specific background values in samples taken around the outside of Building 677. Only one sample of potassium-40 exceeded the combined background value. Shallow soil gas samples collected around the border of the site detected VOCs but did not exceed the industrial use screening levels in IP ROD #2.

*2.2.2.8 Former Underground Storage Tank (SA 008)*

SA 008 is the location of the former UST immediately east of Building 663. The UST was used to supply gasoline to pumps in Building 663 that were associated with a 750,000-gallon aboveground storage tank (AST) for water. The UST was in use from 1955 until 1987, when it was removed. Immediately north of the former UST, four diesel ASTs are still present; however, they were cleaned on May 21, 1999, and are no longer in use.

Based on the results of the 1996 tank closure investigation, NFA status was granted for the UST site in 1997 by the Sacramento County CUPA and in 1998 by the Regional Water Board. The UST has been removed and there were no reports of contaminants above residential or industrial PCGs.

Two samples were tested for VOCs in shallow soil gas at SA 008. No VOCs exceeded the industrial shallow soil gas screening levels in the IP ROD #2. Concentrations of 1,2-DCE and chloroform exceeded the unrestricted use screening levels. SA 008 is within the radius of influence of the IC 7 SVE system which may have contributed to reduced concentrations of VOCs in shallow soil gas in the area.

*2.2.2.9 Suspected Landfill (PRL B-009)*

PRL B-009 was suspected of being a potential burial pit based on review of 1956 aerial photographs. Further review of these photographs, in addition to documentary and eyewitness evidence and the 1995 OU B RICS could not establish the existence of a landfill. The soil disturbance seen on aerial photographs is likely the result of demolition of residential structures that existed when the Air Force acquired the Property.

PRL B-009 is down- and cross-gradient from the surface water pathway of SA 013 which has previously been contaminated with PCBs. The low elevation area to the west of PRL B-009 is down-gradient from PRL 029, which also contains PCB contamination. Additional sampling is necessary to determine to what extent the site may have been impacted by surface water transport of PCBs from adjacent areas.

PRL B-009 is within the radius of influence of the IC 5 SVE system, which was installed to remediate elevated deep soil gas VOC contamination at PRL P-002. No VOCs have been detected at PRL B-009.

*2.2.2.10 Suspected Burial Pit (PRL B-001)*

PRL B-001 was suspected of being a possible burial pit likely associated with runway activities based on review of 1956 aerial photographs (Radian, 1991c). Subsequent review did not suggest any evidence of soil disturbance and did not support this designation. From 1971 on, this site was used for storage by DRMO. The site boundaries of PRL B-001 and SA-012A/B significantly overlap therefore soil samples collected within the boundaries of the PRL B-001 area are discussed in the sections on SA 012A/B.

Because no evidence could be found to support the claim of a burial pit in the area, the Air Force recommended PRL B-001 for NFA in the 1991 *Stage 7 Remedial Investigation/Feasibility Study Decision Document, Operable Unit B Locations Recommended for No Further Action* (Radian, 1991b).

Contour maps for SA 012A/B were drawn for the 2008 RI/FS based on the sampling results from the 2001 OU B1 RI/FS. The contour maps suggest that PCB concentrations in surface and shallow soils exceed screening levels within the area where the footprints of SA 012A/B and PRL B-001 overlap and also extend north into the area defined solely as PRL B-001.

*2.2.2.11 Former Civil Engineering Storage Yard (SA 013)*

SA 013 is the former CE storage yard used to store non-hazardous materials from 1962 through 2000. Transformers containing PCBs were reportedly stored between 1960 and 1987. Originally unpaved, the storage yard was paved with asphalt by 1977, based on photographs. During the 1994 IRA, PCB-contaminated soils above 10 ppm were removed from portions of SA 013, and consolidated in the northwest section of SA 012A. Figure 2 depicts the areas of soil that were excavated during the 1994 IRA. The upper 18 inches of soil were removed from SA 013. The volume of excavated soil and precise locations of soil removal from SA 013 are not documented. The excavated areas were backfilled with roadbase material but SA 013 was not capped as part of the remedial action.

SA 013 is within the radius of influence of the IC 5 SVE system installed to address deep soil gas contamination that impacts groundwater at PRL P-002 (URS, 2008a). No shallow soil gas sampling has been performed at SA 013. Shallow soil gas sampling will be conducted during the RD/RA to determine if contaminant concentrations are elevated and require response actions.

During the 1999 Data Gap investigation, reported PCB concentrations did not exceed residential or industrial screening levels, but did exceed screening levels for the protection of surface water quality (URS, 2001). Several metals were detected above combined background values. Only vanadium concentrations exceeded residential screening levels but not industrial PCGs. The single sample analyzed for dioxins/furans was non-detect.

## 2.3 Community Participation

From the initial Parcel C-6 planning stages prior to the transfer of the property and cleanup obligations, the EPA, the State, Air Force and McClellan Business Park 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 2008, in preparation for the Parcel C-6 cleanup, the EPA and DTSC conducted interviews with ten individuals representing five MBP tenants on and around Parcel C-6. The information gathered from these interviews formed the basis for how the community and businesses on and around Parcel C-6 would be informed about cleanup activities. They also helped to identify how to best address the public's concerns regarding the cleanup of Parcel C-6. In September 2008, EPA developed and distributed a fact sheet that explained privatization and the transition of cleanup responsibility from the Air Force to MBP. The fact sheet was mailed to approximately 1,000 on- or near-base recipients and also served to notify the public about the upcoming Proposed Plan and opportunity for public comment.

### *2.3.2 Informational Booth*

Representatives from EPA and MBP shared information about the history and plans for Parcel C-6 cleanup with members of the community at the annual MBP Spare the Air Transportation Fair. During the September 25, 2008 outdoor event, base tenants and the general public were able to learn about environmental cleanup and discuss their ideas and concerns. Additional copies of the fact sheet explaining privatization and the transition of cleanup responsibility to MBP were distributed at this event.

### *2.3.3 Community Involvement Plan*

The *Final Supplemental Community Involvement Plan* (CIP), a supplement to the McClellan Community Relations Plan, was developed to keep the communities on and around Parcel C-6 informed of plans, activities, and findings, and to ensure that the public has opportunities to express preferences and concerns regarding the cleanup of Parcel C-6 (EPA, 2008a). The CIP was finalized in September 2008 and identifies numerous community dialogue building opportunities and documents 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 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. Members of the public are 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.

The EPA website is: www.epa.gov/region09/McClellanAFB
The Air Force website is: https://afrpaar.lackland.af.mil/ar
The DTSC website is: www.envirostor.dtsc.ca.gov
The Regional Water Board website is: www.geotracker.waterboards.ca.gov

### *2.3.6 Administrative Record*

Copies of documentation pertaining to Parcel C-6 cleanup are available at the following location:

**EPA Region 9 Superfund Records Center**
95 Hawthorne Street, Suite 403 S
San Francisco, California 94105
415-536-2000
Hours: Monday - Friday 8 a.m. to 5 p.m.

### *2.3.7 Public Notifications*

On October 24, 2008 the EPA ran news releases in the Sacramento Bee and Rio Linda News to announce the release of the *Parcel C-6 Proposed Plan for Soil Cleanup* (Proposed Plan). The notices invited the surrounding communities to attend an availability session and a public meeting on November 5, 2008 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 RI/FS could be obtained for further information and review.

### *2.3.8 Parcel C-6 Proposed Plan for Soil Cleanup*

The Proposed Plan had a two-fold purpose: 1) present alternatives to the public that were being considered for cleanup of Parcel C-6 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 October 24, 2008 and closed on November 24, 2008. The Proposed Plan was distributed by mail to neighbors within a quarter mile radius surrounding Parcel C-6. Also contained within the Proposed Plan was an invitation to learn more about the cleanup at Parcel C-6 at the availability session and public meeting held on November 5, 2008.

### *2.3.9 Parcel C-6 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 November 5, 2008 at the Lions Gate Hotel. EPA formally presented the Proposed Plan and written and verbal comments were formally documented during the Public Meeting Session. Comments were collected through November 24, 2008 and carefully considered in the development of the ROD. Responses to public comments are found in the ROD Responsiveness Summary. No public comments were received at the Proposed Plan Public Meeting.

## 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 previous and planned response activities that affect the sites in this ROD are explained. EPA will select the remedy for Parcel C-6, in consultation with the State. Privatization does not affect the Air Force's responsibility to clean up contamination in deeper soils (soil below 15 feet bgs) or in groundwater at the former McClellan AFB.

### *2.4.1 Overall Site Cleanup Strategy*

The initial strategy at 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), 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 and the SVE Initiation Evaluation process known as START and SVE Termination and Optimization Process known as STOP. A future ROD Amendment to address non-VOCs in groundwater is planned. The VOC Groundwater ROD, non-VOC ROD Amendment and the START and STOP processes are being handled in parallel to Parcel C-6 and are not a part of this ROD. The contamination addressed by this ROD is located within the upper 15 feet of soil at OU B and OU B1. Because of the complexity and extent of contamination and the different media (the soil, sediment, and groundwater) affected, the practice of organizing the cleanup process geographically was abandoned. Site cleanup is now organized according to similar cleanup approaches or type of contamination.

This discussion of the interaction of remedial programs is focused on those that relate to the non-VOC and VOC contamination in the soils addressed by this ROD. The remedies presented herein are consistent with the overall cleanup strategy for the former base. Individual site remedies involving excavation for on-site treatment with low temperature thermal desorption (LTTD) or off-site disposal activities and/or institutional controls are necessary to protect human health and the environment. The LTTD unit will be situated on a soil treatment pad that complies with the substantive waste discharge requirements specified in this ROD. This ROD selects the final response action for surface and shallow soil contamination within Parcel C-6 and will be coordinated to the extent possible with any subsequent remedial actions conducted at McClellan AFB. EPA considered federal and state ARARs in determining the remedy. The cleanup levels proposed to address soil contamination are based on health risk levels that are at least as stringent as similar state standards and are expected to be protective of human health and the environment, including surface water quality. Continued monitoring of sediment traps is required by this ROD to monitor the effectiveness of the remedial action and to ensure regional protection of surface water quality. While remedies selected in this ROD are expected to remove source materials that may have been transported by surface water to drainage ditches on the southern and western boundaries of Parcel C-6, the planned Final Local Reuse Authority Initial Parcel Record of Decision #3 (IP ROD #3) will address and

determine the final remedy for the entire 6,000 foot OU B1 Drainage Ditch, including the portions which bound Parcel C-6 and any potential discharge from the ditch to surface water (Magpie Creek).

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

### *2.4.2 Past Removal Actions*

Time critical removal actions were conducted by the Air Force at SA 012A/B in 1992 and 1993 to install security fencing around and a high density polyethylene (HDPE) liner over areas with high PCB contamination.

The Air Force removed five USTs at SA 029 and SA 008. NFA status was granted by the Sacramento County CUPA and by the Regional Water Board for these tanks.

Three SVE systems were installed by the Air Force under past CERCLA removal actions to address the potential threat to groundwater from VOCs at these sites: IC 5, which is located within Parcel C-6, and two off-site systems, IC 7 and PRL S-013, which have SVE wells with a radius of influence that encompass portions of Parcel C-6.

### *2.4.3 Past Remedial Actions*

Following the RI/FS completed in 1993 at OU B1, which comprises approximately 18 acres of Parcel C-6, the OU B1 IROD was signed. Interim remedial actions described in the OU B1 IROD, including soil excavation and consolidation, installation of an asphalt cap, and installation of sediment traps, were performed in 1994. The HDPE liner installed in 1993 was removed and replaced by the asphalt cap installed as part of the OU B1 ROD. Between 2001 and 2003, the Air Force excavated 2,164 cubic yards of soil from the OU B1 Drainage Ditch, portions of which border the southern and western boundaries of Parcel C-6. This remedial action removed PCBs and PAHs to non-detect levels; dioxins/furans to no-adverse ecological effect levels and metals to McClellan background levels.

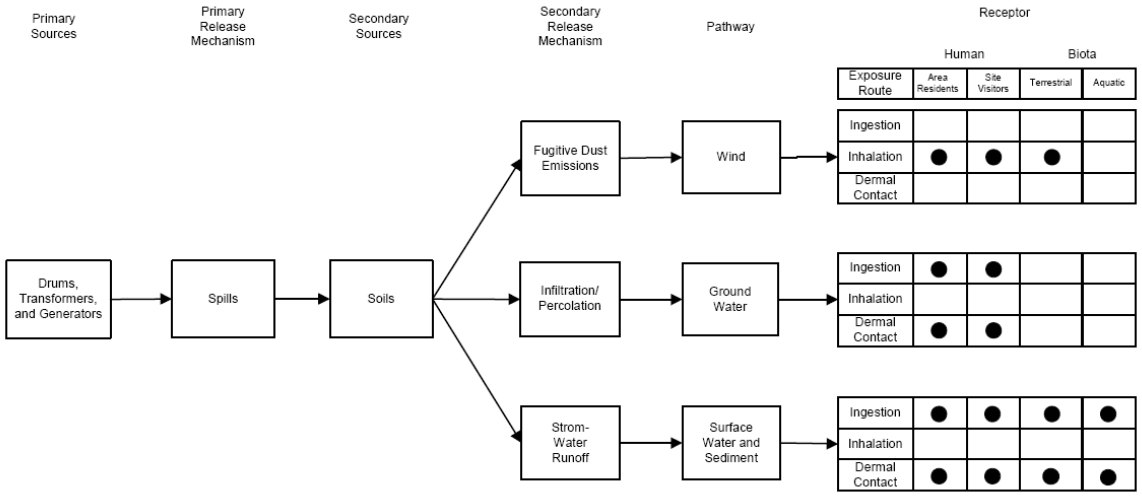
This ROD for Parcel C-6 will determine the final cleanup for the OU B1 area and will supersede the 1993 OU B1 IROD. The planned IP ROD #3 will determine the final remedy for the OU B1 Drainage Ditch, including the portions adjacent to Parcel C-6.

Groundwater contamination is present below Parcel C-6. According to the 2007 VOC Groundwater ROD, monitoring data indicate the underlying groundwater is contaminated by VOCs, primarily TCE, PCE, *cis*-1,2-DCE, 1,1-DCE, and carbon tetrachloride. Contaminated groundwater beneath Parcel C-6 is being addressed by the Air Force pursuant to the 2007 VOC Groundwater ROD through a groundwater extraction and treatment program with in-situ SVE and ICs. Non-VOCs that may be present in groundwater at these sites will be addressed by an amendment to the VOC Groundwater ROD planned for 2009.

## 2.5 Site Characteristics

A conceptual site model (CSM) was developed for Parcel C-6 which involved examination and representation of potentially contaminated media, sources of contamination, and potential migration pathways. Potential sources of contamination and methods of deposition in various media (surface air, soil gas, surface water, soil, and groundwater) were considered. Figure 3 presents the CSM for Parcel C-6 and depicts the contamination sources, release mechanisms, pathways, and receptors.

**Figure 3 - Parcel C-6 Conceptual Site Model**




### *2.5.1 Topography/Geology*

Former McClellan AFB is located in the Sacramento Valley. The regional topography slopes gently westward toward the Sacramento River. Parcel C-6 is located in the southwestern section of McClellan and the surface elevation in this area is approximately 60 feet above mean sea level (msl). The Property is underlain by highly variable percentages of alternating discontinuous sands, silts, gravels, and clays typical of the alluvial overbank and fluvial deposits of the region. Stratigraphic contacts between soil types vary from sharp to gradational in the vadose zone (0 to 105 feet bgs) and shallow saturated zone (105 to 400 feet bgs). The top 6 to 8 inches of soil consist mostly of a mixture of sand, silt, and gravels. A thin hardpan layer is present at depths ranging from 3 to 8 feet bgs and along with fine-grained lithologies, has restricted but not prevented the vertical movement of contaminants (Radian, 1993b).

### *2.5.2 Hydrology*

The water table beneath Parcel C-6 was reportedly 105 feet bgs at the time of the 1993 OU B1 IROD, but during the 1960s, when the area was first used for open storage, the water table was as shallow as 75 feet bgs. In general, groundwater flows beneath the former

McClellan AFB from the northeast and is drawn toward depressions in the groundwater surface created by pumping wells. The most recent groundwater flow data suggests flow in the vicinity of the Parcel C-6 is from the northwest to the southeast toward a regional depression. A number of groundwater extraction wells to the east and southeast of Parcel C-6 influence the groundwater flow direction (URS, 2008b). Recharge of groundwater by surface water is limited due to the extensive paving and storm drainage system and the shallow hardpan layers that occur in the vadose zone soils (Radian, 1993b).

### *2.5.3 Ecological Characteristics*

No significant ecological resources at Parcel C-6 were specifically identified in the 1993 Preliminary Ecological Survey (EPA, 1993). Most of the area is covered with buildings and asphalt. Vegetation or wildlife food sources are not present with the exception of the grass between the DRMO and CE storage yards. The only wildlife that may be present at the DRMO storage yard is small mammals and birds that are typically found in non-natural areas. The drainage ditches from the DRMO storage yard may occasionally be used by wildlife as a water source but their value is minimized by fences restricting access and 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 (Tetra Tech, 2008).

## 2.6 Current and Potential Future Land and Resource Uses

Historical land use at Parcel C-6 included industrial and commercial usages. Until 2008, Parcel C-6 was used by a number of private industrial and commercial tenants through lease agreements with MBP. The property is currently unoccupied. Much of the land surrounding the former McClellan AFB, particularly to the west, is zoned for low-density residential and agricultural use. Future land use is expected to be consistent with prior land use and current zoning laws which provide for industrial and commercial uses for all portions of Parcel C-6. Current zoning does not prohibit residential or other sensitive uses of the Property. Given the history of development of the surrounding area, the Property could be used for residential or similar uses in the future.

## 2.7 Summary of Site Risks

A series of remedial investigations were conducted to obtain data for the evaluation of potential risks to human health from chemicals detected in the soil and soil gas at Parcel C-6. Assessing potential risk is a way to determine how the public or the environment may be impacted if receptors or resources are exposed to site-related contaminants at current levels.

Potential human health effects associated with exposure to contaminants at each IRP site were estimated qualitatively or quantitatively through the development of several current and future receptor scenarios and exposure pathways. These pathways were developed to reflect the potential for receptor exposure to hazardous substances based on the location of each site, the current site uses, and potential future site uses. The current land use of Parcel

C-6 is industrial/commercial. Although use of Parcel C-6 will likely be industrial, a future residential use evaluation was included to demonstrate if land use restrictions must be implemented and maintained as part of site cleanup.

Chemicals detected at each site were separated into two groups: 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 sites with less data, the risks were evaluated qualitatively through the comparison to health-based screening levels based on conservative exposure assumptions for residential and industrial land uses and specified target risk.

A health risk assessment conducted in the 1993 OU B1 RI/FS to assess the potential health risks posed by the COCs at OU B1 evaluated three current and one hypothetical scenario. Two post-remediation scenarios evaluated the effectiveness of remediation alternatives in reducing risks. Using average and reasonable maximum exposure cases, the health risk assessment results indicated that excess cancer risk in the current off-site residential scenario ranged between $1.3 \times 10^{5}$ and $1.2 \times 10^{4}$. Calculated risks in the current worker scenario ranged between $2.0 \times 10^{5}$ and $3.8 \times 10^{4}$. Calculated risks in the visitor scenario were even lower at $2.7 \times 10^{6}$.

Calculated risk in the hypothetical on-site residential scenario, if the area was not remediated and residences were built on it, was much higher. Risks were calculated to be greater than 1.0, which because these numbers are probabilities, is unrealistic. The risks in this scenario result primarily from the ingestion of homegrown produce. Dioxins and PCBs were the major contributors to risk in all scenarios.

Individual risk assessments were not performed for each of the individual IRP sites at Parcel C-6. This ROD addresses contamination in an area where a series of prior response actions, including removal and interim remedial actions conducted by the Air Force, have resulted in the disturbance of much of the surface soil, the off-site disposal of some contaminated soil and the consolidation of some of the contaminated soil within a defined area. Site conditions no longer reflect the contamination distribution associated with historical activities or releases. Therefore, conducting a typical risk assessment which would rely on measured and predicted distributions of soil contamination was determined to not be feasible. Available data indicates that soil contamination in some portions of the parcel exceed both residential and industrial risk-based levels. Because the reasonably anticipated use of the property is industrial, the selected remedy is intended to actively remediate all contamination that exceeds industrial risk based levels and to maintain residential use restrictions on the balance of the Property where residential risk based levels are exceeded. Additional data will be collected during the Remedial Design or Remedial Action (RD/RA) phase to confirm the specific areas requiring residential use restrictions.

Risk-based soil and soil gas screening levels were selected for Parcel C-6 in the RI/FS based on those calculated in the IP ROD #2 to be protective of residential receptors or industrial/commercial workers. Using procedures consistent with the EPA Region 9 PRGs, the risk-based screening levels were calculated for IP #2 ROD using a combination of current human health toxicity values with standard exposure factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered to be health protective of human exposures (including sensitive groups) over a lifetime. In most cases, where a substance causes both cancer and noncancer (systemic) effects, those based on a 10-6 cancer risk result in a more stringent criterion. Thus, screening levels used for the RI/FS are the lesser of the concentrations equivalent to 10-6 carcinogenic risk or a noncarcinogenic hazard quotient (HQ) of 1. Screening levels were applied using a two step process to identify COCs and proposed PCGs for this parcel. In cases where the McClellan soil background level exceeded the IP ROD #2 risk-based screening levels, the soil background value was used as the screening level. A two-step process was used to determine PCGs for this site. First, COCs were identified for each IRP site within Parcel C-6 by comparing detected contaminant concentrations in soil to the complete list of screening levels for the contaminants. A contaminant that exceeded its residential screening level was designated a COC. The screening levels are also referred to as PCGs. PCGs are based on EPA Region 9's PRGs in addition to site-specific conditions at the former McClellan AFB and used to evaluate site risks under conservative exposure assumptions for residential and industrial land use scenarios. Second, the PCGs applicable to the COCs within Parcel C-6 were determined. In most cases the industrial screening levels was selected as the PCG since the future intended land use for the Property includes the commercial/industrial scenario.

In general, calculated cumulative cancer risks greater than $1 \times 10^{-4}$ require consideration of cleanup alternatives. Cancer risks between $1 \times 10^{-4}$ and $1 \times 10^{-6}$ (between 1 in 10,000 and 1 in 1,000,000) fall within the EPA's risk management range. Determination of what constitutes acceptable levels of residual risk within this range is made on a site-specific basis, considering the degree of conservatism and inherent uncertainty underpinning the risk assessment. This is often referred to as the "point of departure." Cumulative incremental lifetime cancer risk related to site contamination below a level of $1 \times 10^{-6}$ is considered a *de minimis* level and typically does not warrant active risk/exposure mitigation. For noncarcinogens, the potential impact to human health is expressed as a hazard quotient (HQ) for each exposure route (e.g. ingestion, dermal contact, and inhalation) and the hazard index (HI) is the sum of all the HQs for all chemicals to which the same individual may reasonably be exposed. An HI greater than 1 suggests that adverse health effects are possible. Increasing HI values do not follow a linear progression relative to the likelihood of resulting health effects. For the qualitative risk estimates, exceedances of the PCGs indicate further characterization or remediation is required (Tetra Tech, 2008).

The response actions selected in this ROD are necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances and pollutants or contaminants into the environment. A summary of the quantitative and

qualitative human health risks for each IRP site within Parcel C-6 is presented below. Additional information is provided in Sections 2.2.2.1 through 2.2.2.11 and in the RI/FS.

### *2.7.1 SA 012C*

SA 012C was initially suspected to have been a transformer oil disposal area; however, samples collected during the 1992 RI did not result in any detections of PCBs, VOCs, or SVOCs. Further, detections of metals were reported as below background. Based on the results of soil sampling at this site, no contamination above residential or industrial PCGs is believed to be present.

### *2.7.2 CS 031*

Environmental media within CS 031 were sampled in 1986, 1992, 1994, and 1999 and analyzed for metals, VOCs, SVOCs, PCBs, dioxins/furans, and pesticides/herbicides; however, only arsenic was detected in one sample above industrial PCGs. Although all other compounds for which analyses were conducted were reported below industrial PCGs or background, vanadium and lead exceeded the residential screening level. Subsequent sampling could not replicate the one elevated arsenic concentration; therefore a data gap for arsenic remains. A data gap also remains for dioxins/furans in soil since only one sample was collected below the surface. Dioxins and furans are likely products of incomplete combustion (ash component) resulting from operations at the former incinerator.

Additional sampling will be conducted during the RD/RA to resolve the dioxins/furans data gap and determine if additional active remediation is necessary. CS 031 covers an area of approximately 45,000 square feet. Considering the low mobility of dioxins/furans in soil, contamination at CS 031 is not anticipated to exceed a depth of 1 foot bgs. Figure 2 depicts the area of potential excavation at CS 031.

### *2.7.3 PRL 029*

In 1994 excavations were conducted under the 1993 OU B1 IROD to remove PCB and lead-contaminated soils from hot spots at PRL 029. Soil samples collected as part of the 2001 RI/FS Addendum indicate the presence of PCBs at concentrations above industrial PCGs at several locations; however, all detected metal concentrations were reported as below all relevant screening levels. Dioxins/furans were detected above residential and industrial PCGs prior to the interim remedial action; however, subsequent sampling focused on PCBs and did not delineate dioxin/furan contamination.

It is likely as determined in the 1993 OU B1 RI/FS that elevated levels of dioxin/furans exist in areas where PCB concentrations are highest. Additional sampling during the RD/RA will determine the extent of PCB remediation. The contaminated area within PRL 029 covers an area of approximately 9,000 to 20,000 square feet. Considering the low mobility of dioxins/furans in soil, contamination at PRL 029 is not anticipated to exceed a depth of 1 foot bgs. Figure 2 depicts the area of potential excavation at PRL 029.

### *2.7.4 SA 012A/B*

Based on the results of the risk assessment conducted in 1993, PCBs, PAHs, dioxins/furans, TPH and metals were identified as COCs. The presence of these COCs is primarily the result of historical activities at the site such as the storage of electrical equipment and the incineration of wood and paper. Due to estimated unacceptable human health risks greater than $1 \times 10^{-4}$, the 1994 IRA was conducted, which called for the excavation of PCB-contaminated soil and placement under an asphalt cap in the northwestern portion of SA 012A/B. As a further precaution against off-site migration, sediment traps were installed in the drainage ditches to the south and west of SA 012A. However, based on 1999 and 2004 *Five Year Review Reports* (FYRR), data gaps were identified which called into question the effectiveness of the interim remedial actions (Radian, 1999 and MWH, 2004). The data gap field activities in 2001 reported that PCB concentrations, although significantly reduced, were still present throughout SA 012A/B above residential and industrial PCGs. VOCs in shallow soil gas exceeded the screening levels for an unrestricted use scenario.

The contaminated soil within SA 012A/B covers an area of approximately 100,000 square feet. The majority of the contamination is located within the upper 5 feet of soil. Figure 2 depicts the area of potential excavation at SA 012A/B.

### *2.7.5 PRL P-002*

Several VOCs were detected at concentrations which exceed screening levels for unrestricted land use. Soil samples were collected in 1995. All samples were reported with concentrations below residential and industrial PCB health-based screening criteria. Concentrations of arsenic and vanadium exceeded residential PCGs. Samples collected within PRL P-002 were not tested for dioxins/furans, which may be associated with waste ash formerly stored at this area. Therefore, the potential for dioxins/furans in soil remains a data gap at this site.

Additional sampling will be conducted during the RD/RA to resolve the dioxins/furans data gap and determine if additional active remediation is necessary. PRL P-002 covers an area of approximately 5,500 square feet. Considering the low mobility of dioxins/furans in soil, contamination at PRL P-002 is not anticipated to exceed a depth of 1 foot bgs.

### *2.7.6 SA 012D*

Aerial photographs from 1963 to 1965 suggesting dark stains were later reevaluated as surface water that had pooled or collected at the site. Soil samples were collected during the 1992 RI; however, analyses conducted for VOCs, SVOCs and PCBs were reported as below detection levels. Concentrations of several metals were reported above background values at 10 feet bgs, but none exceeded industrial PCGs.

### *2.7.7 SA029*

SA 029 consists of the former location of Building 677 and four USTs which have been demolished and removed. Analyses of soil samples collected during the 1992 RI activities were reported as below detection or below all screening levels. Shallow soil gas samples collected around the border of the site were reported as above unrestricted use but below industrial use screening levels based on indoor air exposure.

### *2.7.8 SA 008*

SA 008 is within the radius of influence of an SVE system installed at an adjacent IRP site to address soil gas contamination. Due to the historical use of fuels at this site, shallow soil gas samples were collected and all VOCs were reported as below screening levels for the protection of human health based on indoor air exposures under industrial land use. 1,2-DCE and chloroform exceeded the screening level in the unrestricted use scenario. Soil samples collected in 1992 and 1996 indicate that all detected compounds are below industrial and residential screening levels.

### *2.7.9 PRL B-009*

PRL B-009 was initially identified as a potential burial pit based on 1956 aerial photographs; however, subsequent investigations found no basis for the existence of a landfill. PRL B-009 is potentially impacted by PCBs based on its location down- and cross-gradient of SA 013 and down-gradient of PRL 029, sites currently or previously impacted by PCBs.

PRL B-009 covers an area of approximately 40,000 to 80,000 square feet. Considering the low mobility of PCBs in soil, contamination at PRL B-009 is not anticipated to exceed a depth of 1 foot bgs.

### *2.7.10 PRL B-001*

PRL B-001 was designated as a potential site solely based on the review of 1956 aerial photos that suggested the presence of a possible burial pit. Subsequent review of aerial photographs and a site visit did not suggest any evidence of soil disturbance in the area. The area of PRL B-001 overlaps SA 012A/B, which contains known PCB contamination. The remedy for SA 012A/B is expected to address any soil contamination above the cleanup goals within the boundaries of PRL B-001.

### *2.7.11 SA 013*

PCB-contaminated soils above 10 ppm were removed from portions of SA 013 and consolidated in the northwest section of SA 012A during the 1994 IRA. During the 1999 Data Gap investigation, reported PCB concentrations were below residential or industrial screening levels. Vanadium was detected at concentrations above residential screening levels; however, the levels were below industrial PCGs. One sample was also analyzed for

dioxins/furans with results reported as non-detect. Deep soil gas contamination may be present at SA 013; however, SA 013 is within the radius of influence of a SVE system that was installed at an adjacent site to address deep soil gas contamination. No shallow soil gas sampling has been performed at SA 013. Shallow soil gas sampling will be necessary to determine if contaminant concentrations exceed the shallow soil gas screening levels selected in this ROD.

## 2.8 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 3) and soil gas, based on EPA Region 9's PRGs, soil background levels, and risk-based screening levels from the IP ROD #2.

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 above cleanup levels from the surface to 15 feet bgs through treatment or off-site disposal;
- prevent migration of contaminated soil to protect surface water quality; and
- prevent uses of Parcel C-6 that are inconsistent with any residual contamination.

**Table 3 - Cleanup Goals for Soil**

| Contaminant of Concern | Cleanup Goals |
|---|---|
| Arsenic | 6.5 ppm |
| Benzo(a)pyrene | 0.14 ppm |
| Benzo(b)fluoranthene | 0.88 ppm |
| Dioxins and Furans | 0.014 ppb* |
| Polychlorinated Biphenyls (PCBs) | 0.53 ppm |
| Total Petroleum Hydrocarbons (diesel-range) | 100 ppm |

* ppb as measured in 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalents ($TCDD_{eq}$)
Source: EPA, 2008

## 2.9 Description of Alternatives

Eight remedial alternatives were developed and evaluated in the 2008 RI/FS for the cleanup of Parcel C-6. The remedial alternatives, with the exception of the No Action Alternative, all have institutional controls as a common component. Each of the eight alternatives is described in the subsections below.

### *2.9.1 Common Component of Remedial Alternatives*

Institutional Controls (ICs) are a common component of all the remedial alternatives presented below except for Alternatives 1, 2B and 3B. ICs include various non-engineering controls which, if properly implemented, monitored and enforced, limit or eliminate exposure of contamination to humans and the environment. ICs would be

implemented through existing or modified restrictions in the federal deed, the State land use covenants and the AOC that restrict uses that might lead to exposure to contamination remaining on the property. Monitoring, including physical inspections of the Property and documentation of any IC deficiency or inconsistent uses shall be included in the ICs.

### *2.9.2 Alternative 1: No Action*

The no action alternative is appropriate when existing site conditions meet EPA's cleanup action objectives and no risks are identified at the site. EPA is required under CERCLA to consider a no action alternative for comparison with other cleanup alternatives.

### *2.9.3 Alternative 2A: Excavation, Off-site Disposal and Institutional Controls (Industrial Use)*

Alternative 2A includes excavation, transport, and disposal of soil containing contaminants greater than the industrial cleanup goals. Excavated areas will be backfilled with imported clean soil. This cleanup alternative would make the site suitable for industrial use, requiring maintenance of institutional controls to restrict residential use.

#### *2.9.3.1 Waste Discharge Requirements (WDRs)*

The Regional Water Board has identified Waste Discharge Requirements (WDRs) as Applicable or Relevant and Appropriate Requirements (ARARs) for the excavation of contaminated soil and the management of excavated soils. The remedy will satisfy the substantive requirements of the WDRs listed in the ARARs table. The excavated soil will be transported to a waste management unit (Unit) where it will be sampled to determine if it is characterized as hazardous waste (see Table A-2 for standards). If the soil is not a hazardous waste it will be managed in accordance with the substantive requirements of Title 27 and transported off-site for disposal at an appropriate facility in accordance with CERCLA's Off-Site Rule If the soil is characterized as hazardous waste it will be accumulated in accordance with the substantive requirements of Title 23 and transported, in accordance with applicable hazardous waste regulations, for off-site disposal at an appropriate disposal facility in accordance with CERCLA's Off-Site Rule.

#### *2.9.3.2 Sediment Trap Monitoring*

Surface water from Parcel C-6 flows into drainage ditches on the southern and western boundaries which are part of the larger OU B1 Drainage Ditch. Continued monitoring of the sediment traps that were installed in these drainage ditches (i.e. the sediment traps known as ST1 and ST3 and depicted in Figure 1) by the Air Force in 1994 to protect and monitor surface water quality shall be conducted for five years after the cleanup goals in this ROD are achieved. Monitoring is necessary to demonstrate that the remedial action was effective at meeting the RAOs. This remedial action is expected to remove source material which is migrating into the portions of the OU B1 Drainage Ditch on the southern and western boundaries of Parcel C-6. Contaminant concentrations in sediments as indicated by sediment trap monitoring greater than background levels; excess cancer health

risks greater than $1x10^{-6}$: noncarcinogenic Hazard Indices greater than 1 or the 3 ppb No Observable Effect Level identified for the green heron in the OU B1 Remedial Action Closeout Report (Weston, 2004) would warrant further action to identify on-going or additional sources and evaluation of any additional remedial actions. The planned IP ROD #3 will address any hazardous substances present in the entire OU B1 Drainage Ditch, including the potential for contaminated water from the ditch to impact surface water, and will select a remedy for the OU B1 Drainage Ditch, including the portions which bound Parcel C-6.

### *2.9.4 Alternative 2B: Excavation and Off-site Disposal (Unrestricted/Residential Use)*

Alternative 2B includes excavation, transport, and disposal of soil containing contaminants greater than the residential cleanup goals. Excavated areas will be backfilled with imported soil that is below the cleanup goals. This cleanup alternative would allow for unrestricted use of the Property, including residential use.

Waste disposal and management of excavated soil and sediment trap monitoring for Alternative 2B will be the same as those described in Sections 2.9.3.1 and 2.9.3.2 for Alternative 2A.

### *2.9.5 Alternative 3A: Excavation, Treatment Using Low Temperature Thermal Desorption (LTTD), Onsite Reuse of Treated Soil, Selective Disposal and Institutional Controls (Industrial Use)*

Alternative 3A includes excavation and LTTD treatment of soil containing contaminants greater than the industrial cleanup goals. LTTD involves heating the contaminated soil in a rotary kiln to "low" temperatures (200 to 1,000 degrees Fahrenheit) to volatilize COCs. COCs are captured in a vapor stream and destroyed in a thermal oxidizer. Treated soil is tested to ensure that cleanup criteria were achieved before it is reused onsite. Gases are monitored to ensure that the system is effectively capturing and destroying the contaminants before discharge to the atmosphere.

Arsenic is not treatable by LTTD, so soil with arsenic exceeding the cleanup goals would be disposed of off-site. In addition, excavated soil exceeding the hazardous waste criteria for PCBs, 50 ppm, would require off-site disposal at an appropriate landfill. This cleanup alternative would make the site suitable for industrial use, requiring maintenance of institutional controls to restrict residential use.

Sediment trap monitoring for Alternative 3A will be the same as that described in Section 2.9.3.2 for Alternative 2A.

#### *2.9.5.1 Waste Discharge Requirements (WDRs)*

The Regional Water Board has identified Waste Discharge Requirements (WDRs) as Applicable or Relevant and Appropriate Requirements (ARARs) for the excavation of contaminated soil and the management of excavated soils. The remedy will satisfy the

substantive requirements of the WDRs listed in the ARARs table. The excavated soil will be transported to a waste management unit (Unit) where it will be sampled to determine if it is characterized as hazardous waste (see Table A-2 for standards). If the soil is not a hazardous waste it will be managed in accordance with the substantive requirements of Title 27 and treated in the LTTD system. If the soil is characterized as hazardous waste it will be accumulated in accordance with the substantive requirements of Title 23 and transported, in accordance with applicable hazardous waste regulations, for off-site disposal at an appropriate disposal facility in accordance with CERCLA's Off-Site Rule.

*2.9.5.2 Requirements for the LTTD*

Soil which is to be treated by LTTD will be managed in accordance with regulations for designated waste. The LTTD process will comply with the substantive requirements of the Air District rules and the treated soil will be classified and, if the criteria are met, will be managed pursuant to regulations for inert waste.

The operation of the thermal desorption unit and associated thermal oxidizer will comply with the substantive requirements of the Sacramento Metropolitan Air Quality Management District rules identified as ARARs in Table A-4. Thorough emissions monitoring will be performed and samples will be analyzed for dioxins and furans along with other analytes to assure discharge requirements are met. These requirements and how they will be satisfied will be described in the RD/RA.

### *2.9.6 Alternative 3B: Excavation, Treatment of Impacted Soil Using LTTD, Reuse of Treated Soil On-site and Selective Disposal (Unrestricted/Residential Use)*

Alternative 3B includes excavation and treatment of soil containing contaminants greater than the residential cleanup goals by LTTD and disposal of excavated soil exceeding State hazardous waste criteria for PCBs at an appropriate landfill. The treatment process for soil below the hazardous waste criteria for PCBs will be the same as the treatment process in Alternative 3A, except that the lower residential cleanup number will be met.

Because arsenic is not treatable by LTTD, soil with arsenic concentrations above the cleanup goals or the hazardous waste criteria for PCBs would require off-site disposal at an appropriate landfill. This cleanup alternative would make the site suitable for unrestricted use of the Property including residential use.

Sediment trap monitoring for Alternative 3B will be the same as that described in Section 2.9.3.2 for Alternative 2A.

Waste disposal and management of excavated soil and requirements for the operation of the LTTD unit for Alternative 3B will be the same as those described in Sections 2.9.5.1 and 2.9.5.2 for Alternative 3A.

### *2.9.7 Alternative 4: Institutional Controls Only*

As described above, ICs are a common component of all the remedial alternatives, except Alternatives 1, 2B and 3B. Under Alternative 4, ICs would be implemented to eliminate or limit exposure pathways to human receptors through non-engineering methods. Alternative 4 results in restricted land use by prohibiting residential use and other similar uses. The specific land use restrictions that will be implemented under Alternative 4 are described in Section 2.12. 2.4. Alternative 4 is potentially applicable at all sites where the risks are acceptable under the industrial use scenario but unacceptable under a residential or unrestricted land use scenario.

Under Alternative 4, ICs will be limited to the areas affected by contaminant concentrations exceeding the unrestricted use screening level. A buffer may be necessary at sites with VOC contamination in shallow soil gas because VOCs may be somewhat mobile in the subsurface. Determination of a suitable buffer for sites with ICs will be made by extending the IC boundaries to encompass an area that includes all sampling locations with detected concentrations that exceed unrestricted use screening levels. In addition, the operational history of the site will be considered to ensure that the boundary of the ICs is sufficiently large.

For all sites where Alternative 4 is selected additional sampling will be conducted during the RD/RA to determine if land use restrictions are necessary. During the 2008 RI/FS, the uncertainties and data gaps remaining at certain sites were considered minor enough to be suitable for resolution during the RD/RA. For remaining uncertainties or data gaps, additional sampling will be conducted during the RD/RA to assess the extent of contamination to determine whether active cleanup is required. Where the cleanup goals in Table 3 are exceeded, appropriate remedies will be implemented in accordance with the remedies selected in this ROD for similar sites requiring remediation. If appropriate, based on confirmation sampling data that indicates that site risks are below the industrial risk level associated with the cleanup goals in Table 3, the Air Force, the State and the Property owner will ensure the appropriate use restrictions, if any, are embodied in an amended federal deed and revised state land use covenant applicable to the Property.

### *2.9.8 Alternative 5: Institutional Controls and Existing Cap Operation and Maintenance*

Alternative 5 would be implemented at sites by maintaining the existing land use restrictions embodied in the federal deed and SLUC and through the operation and maintenance of an asphalt cap. This alternative is only applicable to the existing cap at SA 012A. Sediment trap monitoring for Alternative 5 will be the same as that described in Section 2.9.3.2 for Alternative 2A.

### *2.9.9 Alternative 6: Institutional Controls and Vapor Intrusion Remedy*

Under Alternative 6, ICs would be implemented to limit exposure to vapor intrusion to indoor air due to shallow soil gas contamination. The IC would consist of a land use

covenant entered into by DTSC, the Regional Water Board and the property owner and would run with the land and bind all future users of the Property. The IC would require mitigation for potential vapor intrusion or sampling and analysis to demonstrate acceptable risk for future construction. Alternative 6 is potentially applicable for sites at which current risks associated with VOCs exceed those acceptable for industrial use or there is uncertainty regarding the current magnitude of VOC contamination. Alternative 6 results in restricted land use; however, residential use would be possible if the landowner either shows that there is not an unacceptable risk for the vapor intrusion pathway or installs vapor controls. If necessary, mitigation of shallow soil gas could be achieved through the use of engineering controls, including but not limited to vapor barriers, gas collection systems, ventilation or a combination of these technologies.

## 2.10 Summary of Comparative Analysis of Remedy Alternatives

The NCP specifies nine criteria for evaluating the above remedial alternatives and comparing them to one another. The nine criteria listed are as follows:

1. Overall protection of human health and the environment;
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs);
3. Long-term effectiveness and permanence;
4. Reduction of toxicity, mobility, or volume through treatment;
5. Short-term effectiveness;
6. Implementability;
7. Cost;
8. State acceptance; and
9. Community acceptance

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

Alternative 1 is only protective of human health and the environment at SA 012C. At all other areas of Parcel C-6, there would be no reduction in the risk associated with remaining levels of contamination.

Alternatives 2A/B are considered to be protective of human health and the environment because COCs exceeding PCGs will be physically removed from SA 012A/B, CS 031, and PRL 029, and, if additional contamination above PCGs is encountered in data gap or confirmation samples, the contamination will be removed from CS 031, PRL P-002, SA 013, PRL B-009, SA 012C, SA 012D, SA 029, SA 008, and PRL B-001 and treated or disposed of at an off-site landfill. Appropriate measures will be taken to protect human health and the environment in the vicinity of the landfill either by treatment before disposal or by disposing of the soil within an engineered containment system to prevent off-site migration. Upon completion of the remediation using Alternatives 2A/2B, minimal risk to human health and the environment would remain. In addition, sediment trap monitoring is included as a component of these alternatives to monitor and ensure the protection of surface water quality.

Alternatives 3A/B provide protection to both human health and the environment because known contamination above PCGs at SA 012A/B, CS 031, PRL 029, and potential contamination above PCGs (if discovered in data gap or confirmation samples at PRL P-002, SA 013, PRL B-009, SA 012C, SA 012D, SA 029, SA 008, or PRL B-001) are physically removed and treated or disposed of, depending on the nature of contamination. Once the remedial action is complete, there would be minimal risk to human health and the environment. In addition, sediment trap monitoring is included as a component of these alternatives to monitor and ensure the protection of surface water quality.

Alternatives 4, 5, and 6 provide protection of human health and the environment at SA 012C, SA 012D, SA 029, SA 008, and PRL B-001 because previous sampling data from these IRP sites does not indicate remaining contamination above industrial PCGs. The land use restrictions are designed to restrict the use of the site by prohibiting residential and other sensitive uses, which is in accordance with the intended reuse of the Property. In addition, sediment trap monitoring will ensure protection of surface water quality. However, Alternatives 4 and 6 are not protective of human health and the environment at SA 012A/B where the existing cap would not be repaired or maintained; nor are Alternatives 4, 5, and 6 protective of human health and the environment at CS 031 or PRL-029 where known contamination above industrial PCGs is present. Additionally, if contamination above industrial PCGs is encountered in data gap sampling at CS 031, PRL P-002, PRL B-009 or SA 013, these alternatives would not be protective of human health and the environment at these IRP sites until contingent remedial actions are implemented. Alternative 6 would only be fully protective of human health and the environment at SA 013 where the only remaining data gap is for shallow soil gas.

### *2.10.2 Compliance with ARARs*

Alternative 1 is not required to achieve ARARs because no action is taken. Alternative 1 is not expected to achieve ARARs at sites where cleanup would be required to address contamination that poses a risk to human health and the environment.

Alternatives 2A/B are expected to achieve chemical- and action-specific ARARs that govern the treatment, storage, and/or transportation of non-hazardous wastes, as well as hazardous wastes. Where soil contains concentrations of COCs characteristic of California Title 22 hazardous waste, stabilization or treatment at the landfill may be required under Title 22 CCR, Section 66268.1 (i.e., “land ban”). Requirements for remediating and managing wastes discharged to land will also be met for Alternatives 2A/B. Location-specific ARARs will be met by implementing any required mitigation in the improbable event that sensitive habitats are encountered and impacted during excavation activities.

Alternatives 3A/B are expected to achieve chemical- and action-specific ARARs that govern the treatment, storage, consolidation, and disposal/discharge of hazardous wastes. Only California Title 22 non-hazardous waste is suitable for treatment using LTTD, while soil exceeding California Title 22 hazardous waste criteria, which is only indicated in a few locations (SA 012A/B and PRL 029), and where arsenic exceeds PCGs will be disposed of at the appropriate off-site Class I landfill. Stabilization or treatment may be

required under Title 22 CCR, Section 66268.1 (i.e., "land ban") at the off-site landfill prior to disposal. Air emissions that may occur during treatment will comply with the Sacramento Metropolitan Air Quality Management District (SMAQMD) requirements.

Alternative 4, 5, and 6 do not fully comply with chemical- and action-specific ARARs at SA 12A/B, CS 031, or PRL-029 because existing or potential contamination above levels that are protective of human health and the environment would not be actively remediated or effectively contained. Alternative 6 may comply with ARARs at SA 013 where shallow soil gas is the only potential contaminant since vapor barriers would be implemented with newly constructed buildings, but not at SA 12A/B because soil gas is not the only COC. Alternative 4 complies with ARARs at SA 012C, PRL P-002, SA 012D, SA 029, SA 008, PRL B-009 and PRL B-001 because land use restrictions and sediment trap monitoring are sufficiently protective of human health and the environment where COCs are already below industrial PCGs.

### *2.10.3 Long-Term Effectiveness and Permanence*

For Alternative 1, untreated contamination in soils at SA 012A/B and PRL 029 will continue to pose a carcinogenic risk for PCBs greater than $1 \times 10^{-6}$. Alternative 1 will not provide long-term effectiveness and permanence because potential exposure to COCs could occur during and following future land use and development at the IRP sites with known contamination exceeding industrial PCGs (SA 012A/B, PRL 029, and CS 031) and where there is potential for contamination at IRP sites with data gaps (CS 031, PRL P-002, PRL B-009 and SA 013).

Alternatives 2A/B will provide permanence and long-term effectiveness in protecting human health and the environment to the extent the COCs exceeding PCGs are excavated from SA 012A/B, PRL 029, CS 031, and potential excavations are conducted at IRP sites with data gaps. Additional monitoring of sediment traps in the drainage ditches adjacent to Parcel C-6 will be conducted to ensure protection of surface water quality for five years after the cleanup goals in this ROD are achieved.

Alternatives 3A/B will provide long-term effectiveness and permanence to the extent that COCs exceeding the PCGs at SA 012A/B, PRL 029, and CS 031 will be physically excavated and treated and potential excavations and treatment actions are conducted at IRP sites with data gaps. The likelihood of the treatment technology meeting required process efficiencies and performance specifications is high. The treated soil will be analyzed prior to being used as backfill to verify the PCGs have been achieved. Only treated soil that meets PCGs will be used as backfill. Where elevated levels of arsenic at CS 031 are present, excavation and off-site disposal will provide long-term effectiveness and permanence under these alternatives. Additional monitoring of sediment traps in the drainage ditches adjacent to Parcel C-6 will be conducted to ensure protection of surface water quality for five years after the cleanup goals in this ROD are achieved.

Alternative 4 will provide long-term effectiveness at SA 012C, PRL P-002, SA 012D, SA 029, SA 008, PRL B-009 and PRL B-001 if land use restrictions are properly implemented,

complied with, and effectively monitored and enforced in perpetuity and if sediment trap monitoring indicates surface water quality is protected. However, Alternative 4 does not provide long-term effectiveness or permanence at SA 012A/B, CS 031, PRL 029, or SA 013 because known contamination and/or data gaps remain at these sites.

Alternative 5 does not provide long-term effectiveness and permanence at SA 012A/B because the existing cap may or may not be fully containing PCB-contaminated soil, as is suggested by the persistent low levels of PCBs found in sediment traps on and near the Property. This alternative is not suitable and does not provide any long-term permanence or effectiveness at PRL 029, CS 031, PRL P-002, SA 013, or PRL B-009 if contamination is present.

Alternative 6 does not provide any long-term effectiveness and permanence where existing contamination above PCGs is present or where potential contamination is present other than shallow soil gas.

### *2.10.4 Reduction of Toxicity, Mobility, or Volume through Treatment*

For Alternative 1, no reduction in toxicity, mobility, or volume through treatment will occur because no treatment technologies are included as components of this alternative.

Alternatives 2A/B will not result in direct reduction in toxicity, mobility, or volume of contaminants in the soil through treatment; however, the toxicity, mobility and volume of contaminants may be reduced at the landfill if treatment of the contaminants in soil is employed before disposal. This is unlikely because there are relatively low concentrations of contamination remaining in the soil at Parcel C-6 and because treatment would likely increase the volume of soil requiring disposal. Alternatives 2A/B do not meet the CERCLA statutory preference for treatment as a principal element because soil will be excavated and disposed of at an off-site landfill and most likely will not require pre-disposal treatment.

Alternatives 3A/B will permanently and directly reduce toxicity, mobility, and volume of PCBs, dioxin/furans, TPH-d, benzo[a]pyrene, and benzo[b]fluoranthene, which are the COCs at SA 012A/B, PRL 029 and CS 031, and potential COCs at CS 031, PRL P-002, and PRL B-009, through the use of ex situ LTTD. This alternative meets the CERLCA statutory preference for treatment as a principal element.

Alternative 4, 5, and 6 do not result in the reduction of toxicity, mobility, or volume of contamination through treatment because no treatment technologies are included as components of these alternatives.

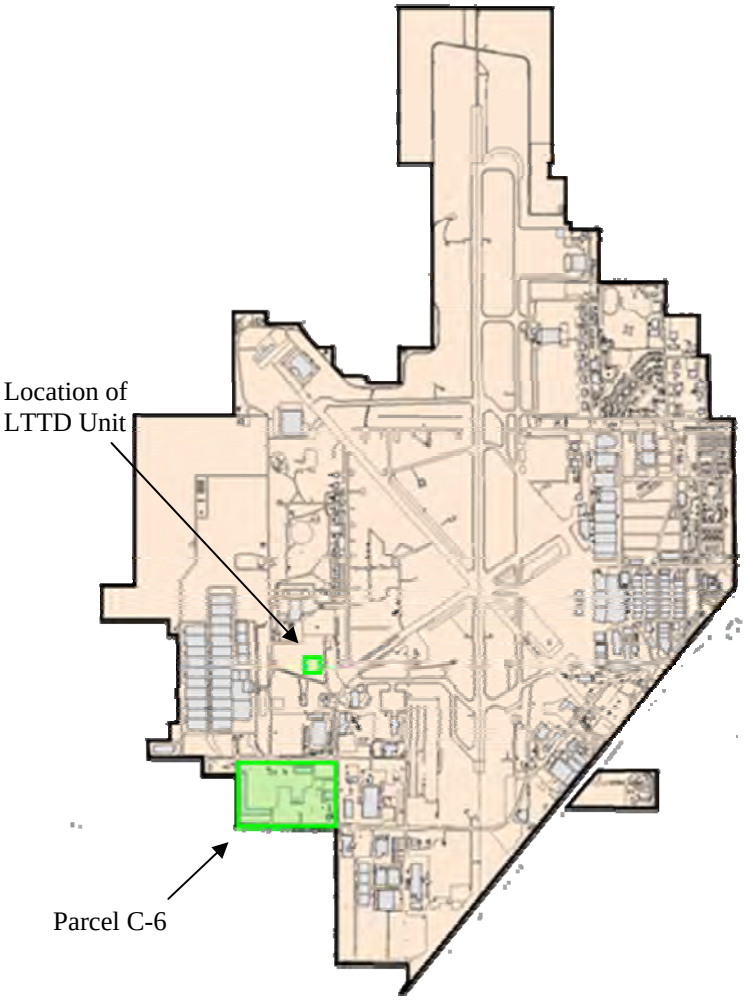
### *2.10.5 Short-Term Effectiveness*

Alternative 1 will not result in any short-term effects to the community or workers as a result because no activities are involved in this alternative.

Alternatives 2A/B require excavating and minimally handling contaminated soil by workers which may result in potential exposure to contaminants through dermal and inhalation pathways at SA 012A/B, PRL 029, and CS 031, and potentially at PRL P-002, SA 013, and PRL B-009. During excavation, workers will be required to wear personal protective equipment (e.g., respiratory protection, nitrile gloves, etc.) to limit exposure and abide by an approved health and safety plan and Occupational Safety and Health Administration (OSHA) requirements. Surface controls, (e.g., grading, re-vegetation), sediment control barriers (e.g., straw wattles, hay bales), and dust suppression (e.g., water spray) will be required during excavation. Public access will be restricted during the remedial action. Additional risks posed to the community are those associated with transportation of contaminated soil to an off-site landfill. The traffic noise, dust, general nuisance, and the potential for accidents and spills associated with significant truck traffic could impact local residents. Measures such as tarps, liners, and covers will be implemented during the transportation of contaminated soil.

Alternatives 3A/B require excavating and processing of contaminated soil by workers which may result in potential exposure to contaminants through dermal and inhalation pathways at SA 012A/B, PRL 029, and CS 031, and potentially at PRL P-002, SA 013, and PRL B-009. Potential exposure to workers and the associated health hazards will be managed through the use of personal protective equipment as required in an approved health and safety plan and pertinent OSHA regulations. Public access to the Property and soil treatment area will be restricted during the remedial action. The distance from the possible treatment locations and residential areas and businesses is great enough (approximately 0.75-mile from the nearest residence and approximately 0.25-mile from the nearest business) that the minimal amount of dust emitted during treatment of contaminated soil will not have any short-term effects on community members living or working within proximity. The transportation of contaminated soil from Parcel C-6 to the possible treatment locations is small enough that impacts due to traffic noise, dust, general nuisance or the potential for accidents and spills associated with transportation are minimal.

**Figure 4 – Map Showing Location of LTTD Unit Relative to Parcel C-6**




The RAOs for protection of human health and surface water are achieved in the short-term because contaminants are not disturbed under Alternatives 4 and 5 and sediment traps are monitored. The implementation of vapor intrusion barriers poses only minor exposure risk to construction workers at newly constructed buildings under Alternative 6.

### *2.10.6 Implementability*

Alternative 1 does not include the implementation of any technology factors (i.e., ability to construct or operate technology, availability and reliability of technology or specialists, etc.); therefore, there are no obstacles in implementing this alternative.

For Alternatives 2A/B, the excavation and disposal components are readily implementable and reliable. Excavation is commonly understood and a well-proven method for removing contaminated soil. Following the removal of contaminated soil, the excavation voids are backfilled to return the site to surface contours compatible with planned land use. Landfills may restrict the amount of waste received at one time, which could cause the

removal action to take place in phases. Seasonal scheduling may be required to avoid performing excavation and disposal activities during periods of inclement weather.

Alternatives 3A/B are readily implementable and proven to be reliable. The excavation component is a well understood and proven method for removing contaminated soil from a site. The thermal desorption component of these alternatives will be provided by outside vendors and will be available when required. The thermal desorption unit will be installed at the former McClellan AFB at a location about a half a mile away from Parcel C-6. Soils with high moisture (greater than 18 percent) and clay (greater than 20 percent) content can present difficulties in processing soil through the thermal desorption unit, but these conditions are not expected to be encountered. If they are, measures will be taken to improve the condition of the soil (i.e., stage soil to allow drying before processing or mix unfavorable soil with imported soil with favorable conditions).

Alternative 4, 5, and 6 are readily implementable on a technical basis. Materials, legal mechanisms, and services to implement these alternatives are available. Land use covenants implementing some of the relevant restrictions are already in place for Parcel C-6. Coordination among EPA, MBP, Air Force and the State will be necessary to modify the existing deed restrictions and land use covenant to implement the use restrictions selected in this ROD. Each of these entities has a role in implementation, monitoring, and enforcement of specific parts of these alternatives.

### *2.10.7 Cost*

The cost of excavation and treatment by LTTD under Alternative 3A is $5,339,500 while the cost of excavation and off-site disposal under Alternative 2A is $6,747,905. The primary reason for the difference in these figures is the cost associated with importation and acceptance sampling of the backfill material necessary under Alternative 2. There are similar cost differences when comparing Alternative 3B to Alternative 2B. The costs associated with Alternatives 4, 5 and 6, the IC-based remedies, were significantly lower, ranging from $339,642 to $1,331,261, because there is limited soil disturbance associated with these remedies.

The estimated total present worth costs for the alternatives, not including Alternative 1, No Action, range from $252,618 for Alternative 4 to $22,402,538 for Alternative 3B. Alternative 1 has no associated costs. Costs associated with implementing excavation, off-site hauling, and disposal activities involved with Alternative 2A (Industrial Use Scenario) are estimated at $10,452,937 and $16,193,831 with Alternative 2B (Residential Use Scenario). Cost associated with excavation, treatment of impacted soil using LTTD and selective disposal with Alternative 3A (Industrial Use Scenario) are estimated at $9,913,347 and $21,943,011 for Alternative 3B (Residential Use Scenario). Alternative 4 (ICs Only) is estimated at $339,642 over a 30-year period. Alternative 5 (ICs and Operation and Maintenance of the Existing Cap) is estimated at $1,331,261 over a 30-year period. Alternative 6 is estimated at $679,113 over a 30-year period.

The estimates for each alternative are the costs associated with implementation of that alternative only at the specific sites where that alternative would be applicable. For example, Alternative 5, ICs and Operation and Maintenance of the Existing Cap, was only considered at SA 012A/B, the only sites with an existing cap. Therefore, the cost estimate for Alternative 5 only reflects implementation of that alternative at those sites. A detailed cost estimate including assumptions and unit costs associated with the implementation of remedial alternatives is provided in Appendix F of the RI/FS.

### *2.10.8 State Acceptance*

DTSC and Regional Water Board have reviewed and commented on the selected remedies for Parcel C-6 and agree with the remedies selected in this ROD.

### *2.10.9 Community Acceptance*

A public comment period on the Proposed Plan was held from October 24 through November 24, 2008, and a public meeting was held on November 5, 2008. There were no verbal public comments at the public meeting. Responses to comments received outside of the public meeting but during the public comment period are presented in the Responsiveness Summary in Section 3.

## 2.11 Principal Threat Wastes and Contaminants of Concern

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 Parcel C-6 are not highly mobile and could be reliably contained and therefore, do not constitute principal threat wastes.

The COCs that were detected in soil at SA 012A/B, CS 031, and PRL 029 above PCGs are PCBs, TPH-d, benzo[a]pyrene, benzo[b]fluoranthene, dioxin/furans, and arsenic.

### *2.11.1 PCBs*

The PCG for PCBs in soil is 0.53 ppm, which is the cleanup level established by the risk assessment of the IP ROD #2. Subsurface soils affected by PCBs above industrial PCGs are limited to SA 012A/B and PRL 029. PCBs above the PCG are primarily found in the upper 15 feet of soil in the northwestern portion of SA 012A/B and in a localized area within the northern and western portions of PRL 029. In 1994, the upper 18 inches of PCB-contaminated soils with concentrations exceeding 10 ppm were excavated from the southern portion of SA 012A/B and PRL 029, and consolidated in the northwest corner of SA 012A/B as part of the OU B1 IROD. Soil containing PCB contamination outside of these excavation areas remains in place.

### *2.11.2 TPH-D*

The PCG for TPH-d in soil is 100 ppm, which was established in the 2004 Regional Water Board document entitled *Total Petroleum Hydrocarbons and Petroleum Constituents Indoor Air Health Risk Evaluations for Petroleum Sites, Former McClellan Air Force Base*. Soil with TPH-d concentrations above PCGs is limited to SA 012A/B. The 1992 RI identified TPH contamination occurring primarily in surface soil in the central portion of SA 012A/B. In the western central portion of SA 012A/B, the soil containing TPH-d contamination below 18 inches bgs remains in place because the 1994 excavation of PCB-contaminated soils was limited to the southern portion of SA 012A/B. The maximum concentration of TPH-d detected at this depth during the 1992 RI was reported at 300 ppm.

### *2.11.3 Benzo[a]pyrene*

The PCG for benzo[a]pyrene in soil is 0.14 ppm, which is the cleanup level that has been set by the IP ROD #2 risk assessment. Subsurface soils affected by benzo[a]pyrene above industrial PCGs are limited to SA 012A/B. Benzo[a]pyrene-affected soils occur in the upper 15 feet of soil in the northwestern portion of SA 012A/B.

### *2.11.4 Benzo[b]fluoranthene*

The PCG for benzo[b]fluoranthene in soil is 0.88 ppm, which is the cleanup level established by the IP ROD #2 risk assessment. Subsurface soils affected by benzo[b]fluoranthene above industrial PCGs are limited to SA 012A/B. Benzo[b]fluoranthene-affected soils occur in the upper 15 feet of soil in the northwestern portion of SA 012A/B.

### *2.11.5 Dioxin/Furans*

The PCG for dioxin/furans ($TCDD_{eq}$) in soil is 0.014 ppb, which is the cleanup level used in the *Draft Final Initial Parcel #3 Feasibility Study* (IP #3 FS) risk assessment (CH2M Hill, 2008b). Subsurface soils affected by dioxin/furans above industrial PCGs are limited to PRL 029. An uncertainty exists at PRL 029 because the vertical and horizontal extent of potential dioxins/furans contamination has not been defined.

### *2.11.6 Arsenic*

The PCG for arsenic in soil is 6.5 ppm, which is the established McClellan soil background concentration. Subsurface soils affected by arsenic concentrations above industrial PCGs are limited to CS 031. Arsenic contamination primarily occurs in the upper 15 feet of soil and primarily in the northern portion of CS 031.

## 2.12 Selected Remedies

EPA is selecting the combination of remedial alternatives below for cleaning up the sites at Parcel C-6. Except for SA 012C, all sites at Parcel C-6 require some measure to address

shallow soil contamination. Some sites will need more than one option to address the different types of contamination present. The cleanup options are described in more detail below.

**Table 4 – Selected Remedies for Parcel C-6**

| Site | Selected Remedy | Contaminants Addressed |
|---|---|---|
| SA 012C | Alternative 1 (No Action) | (Not applicable) |
| CS 031* | Alternative 2A (Excavation, Off -Site Disposal, ICs) | Arsenic |
| | Alternative 4 (ICs only) | metals, possible dioxins and furans |
| PRL 029 | Alternative 3A (Excavation, LTTD, Reuse of Soil, Selective Disposal, ICs) | PCBs, dioxins and furans |
| SA 012A/B | Alternative 3A (Excavation, LTTD, Reuse of Soil, Selective Disposal, ICs) | PCBs, PAHs, dioxins, furans, and TPH |
| | Alternative 4 (ICs only) | VOCs |
| PRL P-002* | Alternative 4 (ICs only) | metals, VOCs, possible dioxins and furans |
| SA 012D | Alternative 4 (ICs only) | Metals |
| SA 029 | Alternative 4 (ICs only) | VOCs |
| SA 008 | Alternative 4 (ICs only) | VOCs |
| PRL B-009* | Alternative 4 (ICs only) | possible PCBs |
| PRL B-001 | Alternative 4 (ICs only) | PCBs, PAHs, dioxins, furans, and TPH |
| SA 013* | Alternative 4 (ICs only) | PCBs and metals |
| | Alternative 6 (ICs and Vapor Intrusion Remedy) | VOCs |

* The selected remedies for these sites is contingent on the results of data gap sampling that will be performed as part of the remedial design and remedial action. See Section 2.12.2.4.

EPA believes the selected remedies for Parcel C-6 meet the threshold criteria and provide the best balance of tradeoffs among the alternatives considered. The 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 and alternative treatment technologies to the maximum extent practicable; and 5) use of treatment as a principal component.

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

Numerous factors were considered in choosing the selected remedies for Parcel C-6. In some cases, different evaluation factors were more applicable to some of the 12 sites than to others. The principal factors weighed in choosing the selected remedies for each site are summarized in the following sections.

*2.12.1.1 Alternative 1 (No Action)*

Alternative 1 is being selected for SA 012C because investigations have determined that no contamination above residential or industrial PCGs is present at the site.

*2.12.1.2 Alternative 2A (Excavation and Off-Site Disposal, ICs)*

Alternative 2A is being selected for arsenic contamination present at CS 031. Alternative 2A is consistent with the anticipated future land use at Parcel C-6 when compared with Alternative 2B. Arsenic is present at CS 031 above industrial PCGs which requires a cleanup action. Alternatives 3A/B are not appropriate because LTTD cannot treat arsenic and Alternatives 4, 5 and 6 would leave contamination in place and site risks unaddressed.

*2.12.1.3 Alternative 3A (Excavation, LTTD, Reuse of Soil, Selective Disposal, ICs)*

Alternative 3A is being selected for SA 012A/B and PRL 029 to mainly address PCB contamination at these sites. Other contaminants including PAHs, dioxins, furans and TPH are also present and commingled with PCB contamination. Alternative 3A is consistent with the anticipated future land use at Parcel C-6 when compared with Alternative 3B. Alternative 3A will permanently and directly reduce toxicity, mobility, and volume of the contaminants present while Alternatives 4, 5 and 6 would leave contamination in place and site risks unaddressed.

*2.12.1.4 Alternative 4 (ICs only)*

Alternative 4 is the alternative most commonly selected for the sites at Parcel C-6. Alternative 4 is being selected either alone or in combination with another remedial alternative at CS 031, SA 012A/B, PRL P-002, SA 012D, SA 029, SA 008, PRL B-009, PRL B-001 and SA 013. Selection of Alternative 4 at CS 031, PRL P-002, PRL B-009 and SA 013 is contingent upon results of data gap sampling to address uncertainties for various COCs. Data gap sampling will be performed during the RD/RA and appropriate remedies will be implemented in accordance with the remedies selected in this ROD for sites requiring remediation of similar contamination. The contingent remedial actions for CS 031, PRL P-002, PRL B-009 and SA 013 are further described in Section 2.12.2.4. Alternative 4 is being selected for sites where contamination may be present above unrestricted use screening levels. ICs only are more cost effective solutions for sites with low level or limited contamination. Multiple rounds of treatment by LTTD or additional disposal costs associated with cleanup of these sites to allow unrestricted use of the Property are potentially large. Because the future land use is expected to be industrial or commercial, maintenance of the existing ICs are protective of human health and the environment and comply with ARARs. Alternative 4 is being selected to address non-VOCs in combination with Alternative 6 for the one site where Alternative 6 is being selected to address VOCs, SA 013.

*2.12.1.5 Alternative 6 (ICs and Vapor Intrusion Remedy)*

Alternative 6 is being selected at SA 013 to address VOC in shallow soil gas. Additional sampling will be conducted during the RD/RA to determine if shallow soil gas contamination is present at SA 013. If shallow soil gas contamination is discovered at SA 013, Alternative 6 requires the implementation of ICs that require that vapor controls must be installed for all future building construction or additional sampling must be conducted. Alternatives 2A/B, 3A/B, and 5 are not suitable technologies for addressing VOCs in shallow soil gas. As indicated above, Alternative 6 is being selected in combination with Alternative 4 at SA 013 for different contaminants.

### *2.12.2 Description of the Selected Remedy Components*

*2.12.2.1 Soil Excavation*

Soil excavation is a component of Alternatives 2A/B and 3A/B. It includes physically removing soil contaminated with COCs above PCGs. 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 earth-moving 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 PCGs.

Based on estimates of the vertical and lateral extent of contamination at the sites requiring excavation, approximately 20,600 cubic yards will be excavated from Parcel C-6. This estimate includes the possible volumes of soil that might be excavated under the contingent remedial actions described in Section 2.12.2.4.

*2.12.2.2 Disposal*

Disposal is a component of Alternatives 2A/B and 3A/B. It 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 from Parcel C-6 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 type of contamination at the sites requiring disposal at various RCRA, Class I or II landfill, approximately 780 cubic yards will require off-site disposal.

*2.12.2.3 Treatment by LTTD*

LTTD is a component of Alternatives 3A/B. Direct fired LTTD entails heating the contaminated soil in a rotary kiln to "low" temperatures (approximately 200 to 1,000 degrees Fahrenheit [°F]). When heated, the COCs are volatilized, captured and isolated from soil into a vapor stream, where the vapor stream is oxidized for final treatment. Contaminated soil is heated in a rotary dryer to remove contaminants. Opposite from the feed conveyor is the dryer burner. Heated air is blown directly into the rotating soil chamber, in the opposite direction as soil movement, maximizing heat exposure to individual particles. At or before the design temperature of up to 1022 degrees F, the contaminants are volatilized from the soil and transferred to the dryer gas stream.

The particulate-laden air stream is sent to a cyclone and oxidizer system where particulate matter is removed, and the contaminant-laden vapor is combusted. Contaminant removal of 99.9999 percent is achieved, utilizing a second burner and the soil's residual heat. The super heated gas stream flows into the direct cooler for rapid cooling, followed by removal of remaining particulate matter via movement through a baghouse mechanism. Prior to venting from the baghouse, gases are quenched and scrubbed to remove acid gases. Treated material is placed into a pugmill and is re-hydrated prior to discharge into soil piles for confirmatory sampling, and verification that cleanup criteria were achieved.

Based on estimates of the type of contamination at the sites suitable for treatment by LTTD, approximately 19,820 of the 20,600 cubic yards will be treated.

*2.12.2.4 ICs*

ICs are a component of the remedial alternatives, except Alternatives 1, 2B and 3B. 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 and ecological receptors. ICs include actions using non-engineering methods whereby access to contaminated soil is restricted or regulated (*i.e.,* SLUC and deed covenants), or contamination is monitored.

*Existing ICs*

The existing ICs described in the federal deed and the current SLUC for Parcel C-6 include the specific use restrictions described in the FOSET and the AOC. 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 Regional 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 deed and SLUC, no activities at Parcel C-6, 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. 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.

*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, depending on the particular site and results of data gap sampling. 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. All of the described use restrictions in the section *Existing ICs* are necessary under the VOC Groundwater ROD; however, this ROD selects the use restrictions numbered 1 through 4 in that section. These ICs, a component of Alternatives 2A, 3A and 4, are selected for all the IRP sites on Parcel C-6 except for SA 012C. Although no use restrictions are selected in this ROD for SA 012C, it may be more practicable to maintain a single deed and SLUC for the entirety of Parcel C-6. A separate use restriction is required for Alternative 6 to address vapor intrusion and is described below in Section 2.12.2.5.

*Additional Sampling*

For all sites where Alternative 4 is selected additional sampling will be conducted during the RD/RA to determine if the existing ICs can be released or modified. Upon completion of engineered remedies, additional sampling will also be conducted during the RD/RA to ensure the extent of contamination has been addressed.

*Contingent Remedial Actions*

Alternative 4 is being selected for a number of sites where data gaps remained following the 2008 RI/FS. These sites are CS 031, PRL P-002, PRL B-009 and SA 013.The

uncertainties and data gaps remaining at these sites were considered minor enough to be suitable for resolution during the RD/RA but this ROD provides for contingent remedies, if determined appropriate. If the cleanup goals in Table 3 are exceeded at CS 031, PRL P-002 and PRL B-009, appropriate remedies will be implemented in accordance with the remedies selected in this ROD for sites requiring remediation of similar contamination.

Any dioxins/furans contamination at CS 031 and PRL P-002 and any PCB contamination at PRL B-009 will be addressed by Alternative 3A. The extent of any additional arsenic contamination at CS 031 defined by sampling during the RD/RA will be addressed by Alternative 2A. For SA 013, the remaining data gap is for shallow soil gas contamination. This ROD selects Alternative 6 but if sampling during the RD/RA determines that no shallow soil gas contamination is present above the residential IP #2 ROD shallow soil gas screening levels, Alternative 1 will be the contingent remedy for SA 013. Otherwise, Alternative 6 remains the selected remedy.

#### *2.12.2.5 Vapor Intrusion ICs*

A land use restriction to address vapor intrusion is a component of Alternative 6. This component includes implementing a land use restriction requiring mitigation for potential vapor intrusion from shallow soil gas for new construction. The landowner or developer would be required to demonstrate whether there is not an unacceptable risk under the residential or 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.

Vapor intrusion barriers are impermeable membranes placed over contaminated soils that are specifically designed to limit VOC exposure pathways to humans and ecological receptors. Vapor intrusion barriers are made from various materials, including HDPE, polyvinyl chloride, chlorosulphonated polyethylene, neoprene, butyl rubber, and elasticized polyolefin. They can be applied as solid liners or sprayed in liquid form. Spray-on vapor intrusion barriers consist of rubberized asphalt emulsion that solidifies when exposed to ambient air. New building construction may require the installation of vapor intrusion barriers where the threat of soil gas exists. For new construction, vapor intrusion barriers are applied beneath the building foundation.

### ***2.12.3 Summary of Estimated Remedy Costs***

The information in the following 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 phase of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record, an ESD 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 5 – Estimated Remedy Costs**

| Alternative | Capital Cost ($) | Annual ICs Cost ($) | Period of Analysis (yr) | Present Value at 2.8% ($) | Total Present Value Cost ($) | Total FY08 Cost ($) |
|---|---|---|---|---|---|---|
| Alternative 2A | $10,452,937 | $22,843 | 30 | $459,527 | $10,912,464 | $11,138,218 |
| Alternative 2B | $16,193,831 | $22,843 | 30 | $459,527 | $16,193,851 | $16,879,112 |
| Alternative 3A | $9,913,347 | $22,843 | 30 | $459,527 | $10,372,873 | $10,598,627 |
| Alternative 3B | $21,943,011 | $22,843 | 30 | $459,527 | $22,402,538 | $22,628,292 |
| Alternative 4 | $75,480 | $8,805 | 30 | $177,138 | $252,618 | $339,642 |
| Alternative 5 | $1,067,099 | $8,805 | 30 | $177,138 | $1,244,237 | $1,331,261 |
| Alternative 6 | $414,951 | $8,805 | 30 | $177,138 | $592,089 | $679,113 |
| | | | | | | |
| Discount Factor (based on 30 years) | 20.12 | See Exhibit 4-6 "Multi-Year Discount Factors at 2.8%" of EPA Guidance 540-R-00-002, dated 2000 | | | | |

A 2.8 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. Costing was estimated using a 30-year analysis period for institutional controls in order to ensure consistency among the remedial alternatives.

Alternative 1 has no associated costs. Costs associated with implementing excavation, off-site hauling, and disposal activities involved with Alternative 2A (Industrial Use Scenario) are estimated at $10,452,937. Cost associated with excavation, treatment of impacted soil using LTTD and selective disposal with Alternative 3A (Industrial Use Scenario) are estimated at $9,913,347. This figure is based on an expected volume of 20,600 cubic yards needing to be excavated and potentially treated by LTTD and 420 cubic yards of that volume expected to require disposal in a Class I landfill. Alternative 4 (Institutional Controls Only) is estimated at $339,642 over a 30-year period. Alternative 6 is estimated at $679,113 over a 30-year period. The total present value of implementing the combination of remedies selected in Table 1 and any necessary contingent remedial actions under this ROD is $11,217,580 ($10,372,873 for Alternative 3A + $252,618 for Alternative 4 + 592,089 for Alternative 6).

A detailed cost estimate including assumptions and unit costs associated with the implementation of remedial alternatives is provided in Appendix F of the RI/FS.

### *2.12.4 Expected Outcomes of the Selected Remedies*

The selected remedies for Parcel C-6 will meet the RAOs of:

- eliminating or reducing direct contact, inhalation or ingestion exposures to humans that are the result of contaminated soil and soil gas above cleanup levels from the surface to 15 feet bgs at IRP sites through treatment or off-site disposal;
- preventing migration of contaminated soil to protect surface water quality; and
- preventing uses of Parcel C-6 that would pose a threat to human health and the environment due to any residual contamination.

## 2.13 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 applicable or relevant and appropriate requirements (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 off-site disposal of untreated wastes.

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

The selected remedies will protect human health and the environment primarily by excavating and treating contaminated surface soils. Soil will be treated using LTTD to destroy contaminants present. Any contaminants not effectively treated by LTTD will be transported off-site for disposal in an appropriate landfill, further containing and limiting additional 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.

### *2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements*

Remedial actions selected under CERCLA must comply with ARARs under federal environmental laws, or where more stringent than the federal requirements, state environmental or facility siting laws. Where a state has been delegated authority to enforce a federal statute, such as RCRA, the delegated portions of the statute are considered to be a federal ARAR unless the state law is broader or more stringent than the federal law.

The ARARs are identified on a site-specific basis from information about site-specific chemicals, specific actions that are being considered, and specific site location features. There are three categories of ARARs: 1) chemical-specific requirements, 2) location-specific requirements, and 3) action specific requirements. Where there are no chemical-,

location- or action-specific ARARs, EPA may consider non-promulgated federal or state advisories and guidance as to-be-considered (TBC) criteria. Although consideration of TBC criteria is not required, standards based on TBCs that have been selected and adopted in a ROD are legally enforceable as performance standards.

Chemical-specific ARARs are risk-based standards or methodologies that may be applied to site-specific conditions and result in the development of cleanup levels for the COCs at Parcel C-6.

Location-specific ARARs are restrictions placed on the chemical contaminant or remedial activities based on geographic or ecological features. Examples of features include wetlands, floodplains, sensitive ecosystems and seismic areas.

Action-specific ARARs are usually technology- or activity- based requirements. They are triggered by the particular remedial activities selected to accomplish a remedy.

A summary of ARARs and adopted TBCs for the selected remedies are presented in Attachment A.

### *2.13.3 Cost Effectiveness*

In EPA's judgment, the selected remedies for Parcel C-6 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 volume through treatment; and short-term effectiveness).

The overall effectiveness of the alternatives was then evaluated with respect to cost. Alternative 1 includes limited additional costs to modify the land use restrictions in the federal deed and SLUC and is therefore a cost-effective remedy for SA 012C. Alternatives 2A and 3A are being selected for SA 012A/B, CS 031 and PRL 029. While the costs associated with the possible need for off-site disposal of contaminated soil can be high, the vast majority of soil at Parcel C-6 is expected to be effectively treated by LTTD; thereby greatly reducing the costs of these alternatives and representing reasonable value in remediation dollars spent. Alternatives 4 and 6 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. Therefore, these remedies are also considered cost –effective for these sites relative to the necessary remedial action.

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

EPA has determined that the selected remedies represent the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the site. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA has determined that the selected remedies provide the best balance of trade-offs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal and considering State and community acceptance.

The selected remedies treat much of the source materials which contribute substantially to the risks at the site, achieving significant reductions in COC concentrations in shallow soil. The selected remedies satisfy the criteria for long-term effectiveness by removing PCBs, TPH-d, benzo[a]pyrene, benzo[b]fluoranthene, dioxin/furans, and arsenic from the site. Off-site disposal of contaminated soil effectively reduces the mobility of and potential for direct contact. The selected remedies do not present short-term risks different from the other treatment alternatives. There are no special implementability issues that set the selected remedies apart from any of the other alternatives evaluated.

### *2.13.5 Preference for Treatment as a Principal Element*

By treating the vast majority of contaminated soils by LTTD, the selected remedies address principal threats posed by the site through the use of treatment technologies. By utilizing treatment as a significant portion of the remedies, the statutory preference for remedies that employ treatment as a principal element is satisfied.

## 2.14 Five-Year Review Requirements

Because these remedies result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted for Parcel C-6. The Air Force is in the process of completing the third Five-Year Review for the former McClellan AFB and will determine whether 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 Parcel C-6 in all subsequent Five-Year Reviews. The next Five-Year Review will occur in 2014.

## 2.15 Documentation of Significant Changes

The Proposed Plan for Parcel C-6 was released for public comment on October 24, 2008. The public comment period was open through November 24, 2008.

The Proposed Plan identified alternatives for Parcel C-6 as summarized in Table 4 above. The EPA reviewed all comments submitted during the public comment period. It was

determined that no significant changes to the remedy, as originally identified in the Proposed Plan, are necessary or appropriate.

## PART 3: RESPONSIVENESS SUMMARY

### 3.1 Stakeholder Issues and EPA Responses

This document provides EPA's responses to questions and comments received on the Proposed Plan for Parcel C-6. On October 24, 2008, the Proposed Plan for Parcel C-6 was delivered to persons on the site mailing list. The public comment period opened on that date. The EPA announced the Proposed Plan in two newspapers serving the former McClellan AFB area. Announcements were also placed in the Sacramento Bee and Rio Linda News on October 24, 2008.

The October 24, 2008 public notices summarized EPA's proposed remedies for Parcel C-6 and invited the public to attend an availability session and a public meeting at the Lionsgate Hotel at the former McClellan AFB.

During the public comment period, EPA responded to questions about the Proposed Plan by e-mail and telephone. No comments were received during the November 5, 2008 public meeting; however, comments were submitted to EPA by e-mail and mail during the public comment period. All original comments received regarding the Proposed Plan are presented in the Administrative Record. A copy of the November 5, 2008 public meeting is also in the Administrative Record. EPA considered all of the comments summarized in this document before selecting final remedial alternatives to address contamination at Parcel C-6. Comments received from individuals regarding the Proposed Plan are presented in Attachment B.

A summary of the comments received during the public comment period, as well as EPA's responses, are provided below.

**Comment #1:** Commenter is a resident of the adjacent North Highlands area. Commenter saw the announcement in the Sacramento Bee regarding the Proposed Plan and generally supported selection of Alternative 2A or 3A but was hoping for more information about the alternatives. Commenter believes that the cleanup of the former McClellan AFB should have already been completed and would like to see the Base restored. Commenter is concerned about the costs of the cleanup and the safety of companies occupying parts of the Base.

**Response #1:** The commenter was provided with a copy of the complete Proposed Plan with more information about the cleanup of Parcel C-6 and invited to attend the availability session and public meeting to obtain more information and provide additional comments on the various remedial alternatives being considered. While the commenter did not specify for which sites Alternatives 2A or 3A were preferred for, EPA is including those remedial alternatives among those being selected at Parcel C-6. The cleanup process at the former McClellan AFB began some time ago. The Air Force has expended a great

deal of effort into studying and cleaning up the site but the work is not yet complete. In the meantime, protective measures, including fencing of restricted access areas, prohibitions on unauthorized digging, etc., are in place to limit any uses of the property that could be a risk. The remedies selected do involve additional costs; however, the selected remedies protect human health and the environment and comply with ARARs while also balancing the cost against the other balancing and threshold criteria. The cleanup planned for Parcel C-6 will ensure the long-term safety of current and future users and neighbors of the Property.

**Comment #2:** Commenter is a former member of the RAB and requests that land south of Parcel C-6 be tested for arsenic, benzo(b)fluoranthene (a PAH), benzo(a)pyrene (a PAH), dioxins and furans, polychlorinated biphenyls (PCB), petroleum hydrocarbons, metals, semi-volatile organic compounds, volatile organic compounds, and other pollution of concern because contamination may have been carried off-site by surface water.

**Response #2:** EPA acknowledges that surface water drainage can often carry contamination away from its original source area. As part of the Air Force's overall site cleanup strategy, significant sampling to define the location and extent of contamination has been conducted at Parcel C-6. Sampling was extended as needed to include portions of the drainage ditches and some adjacent off-site areas to the west primarily for PCBs and dioxins and furans. The cleanup of the drainage ditches and any areas outside of Parcel C-6, including the southern off-base areas, are the responsibility of the Air Force and are being addressed as part of the Initial Parcel #3 RI/FS. EPA will share the commenter's concerns with the Air Force. In addition, the commenter is advised that additional sampling is planned as part of the Parcel C-6 remedial action to ensure that contamination on the Property has been addressed and to determine when the cleanup has been completed.

## 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)

2007a. *Finding of Suitability for Early Transfer (FOSET), Parcel C-6*. June.

2007b. *Final Basewide VOC Groundwater Record of Decision*. August.

2008a. *Final Local Reuse Authority Initial Parcel Record of Decision #2*. October.

2008b. *Final Proposed Plan for the Cleanup of Non-VOCs in Groundwater*. November.

CH2M Hill

2008a. *Draft Community Relations Plan*. May.

2008b. *Draft Final Initial Parcel #3 Feasibility Study (Volumes 1 and 2)*. June.

2008c. *Final Remedial Investigation/Feasibility Study for Non-VOCs in Groundwater*. June.

IT Corporation

1994. *Summary Report Operable Unit B1 Cap*. December.

McLaren Environmental Engineering, Inc. (McLaren)

1986. *Technical Memorandum for the Shallow Investigation Program in Areas A, B and C and Other Sites, Part II, Technical Memorandum, Area B.* February.

Mitretek Systems, Inc. (Mitretek)

2005. *Final McClellan Air Force Base Interim Basewide Remedial Investigation Report – Part 1, General Framework.* September.

Montgomery Watson Harza Americas, Inc. (MWH)

2004. *Final Five Year Review Report*. April.

Radian

1991a. *Draft Installation Restoration Program, Stage 7, Operable Unit B Soil Gas Investigation, Data Summary*. February.

1991b. *Stage 7 Remedial Investigation/Feasibility Study Decision Document, Operable Unit B Locations Recommended for No Further Action*. March.

1991c. *Installation Restoration Program, McClellan AFB: Operable Unit B Preliminary Assessment Summary Report*. October.

1993a. *Action Memorandum for the Time Critical Removal Action at Operable Unit B1*. March.

1993b. *Operable Unit B1 Remedial Investigation/Feasibility Study*. June.

1993c. *Operable Unit B1 Interim Record of Decision*. July.

1995. *Operable Unit B Remedial Investigation Characterization Summaries (Volumes 1 through 9)*. December.

1996. *Basewide Environmental Baseline Survey (Volumes 1 and 2)*. November.

1999. *Final Five Year Review Report*. October.

Tetra Tech, Inc. (Tetra Tech)

2008. *McClellan Business Park Parcel C-6 Restoration Project, Final Remedial Investigation/Feasibility Study Addendum*. August.

URS

2001. *Operable Unit B1 Remedial Investigation/Feasibility Study Addendum (Volumes 1 and 2)*. June.

2008a. *Draft Soil Vapor Extraction Removal Action IC 5 Final STOP Evaluation*. August.

2008b. *Groundwater Monitoring Program Quarterly Report, Second Quarter 2008*. September.

U.S. Environmental Protection Agency (EPA)

1993. *Preliminary Ecological Survey*. January.

2007. *National Priorities List Narrative for McClellan Air Force Base*. http://www.epa.gov/superfund/sites/npl/nar920.htm. Last updated 28 November 2007.

2008a. *Final Supplemental Community Involvement Plan, Parcel C-6 Restoration Project, Former McClellan Air Force Base*. September.

2008b. *McClellan Air Force Base Parcel C-6, Proposed Plan for Soil Cleanup*. October.

Weston Solutions, Inc.

2004. *Final Remedial Action Closeout Report, OU B1 Drainage Ditch, McClellan Air Force Base, California*. April.

## ATTACHMENT A: ARARs

### Table A-1: 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.

| Source | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| 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. |
| Porter-Cologne Water Quality Control Act (California Water Code Sections 13000, 13140, 13263, 13304) | State Water Resources Control Board Resolution No. 68-16 ("Antidegrada-tion Policy") | Applicable | Requires that high quality waters be maintained to the maximum extent possible. Degradation of waters will be allowed (or allowed to remain) only if it is consistent with the maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial uses, and will not result in water quality less than that prescribed in Regional Water Board and SWRCB policies. If degradation is allowed, the discharge must meet best practicable treatment or control, which must prevent pollution or nuisance and result in the highest water quality consistent with maximum benefit to the people of the state. | Applies to discharges of waste to waters, including discharges to soil that may affect surface waters. In no case may water quality objectives be exceeded. |

| Source | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13267, 13304). | Title 27, CCR, Section 20090(d) Title 23 CCR, Section 2511(d) | Relevant and Appropriate* | Actions 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. | Applies to remediation and monitoring of sites. |
| Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260, 13263, 13267, 13304) | Title 27, California Code of Regulations (CCR), Division 2, Subdiv. 1 (Section 20080 et seq.), Title 23, CCR, Division 3, Chapter 15, (Section 2510 et seq.) | Relevant and Appropriate* | Establishes waste and siting classification systems and minimum waste management standards for discharges of waste to land for treatment, storage, and disposal. Engineered alternatives that are consistent with Title 27/ Title 23 performance goals may be considered. Establishes corrective action requirements for responding to leaks and other unauthorized discharges. | Applies to all discharges of waste to land for treatment, storage, or disposal that may affect water quality. The application of some of the specific sections of Title 27/ Title 23 to different situations is discussed below. Provisions of Title 23 apply to hazardous waste and provisions of Title 27 apply to designated and non-hazardous waste. |

| Source | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| 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 discharged to Class I or Class II waste management units. | Applies to waste piles within the soil treatment unit to avoid discharges of designated waste (nonhazardous waste that could cause degradation of surface or ground waters). |
| Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147 13172, 13260, 13263, 13269). | Title 27, CCR, Section 20230 | Relevant and Appropriate* | Provides that inert waste does not need to be discharged at classified units. | Treated soil is expected to meet the criteria for inert waste allowing it to be returned to the parcel. |
| 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 discharged to a classified waste management unit. | Applies to waste piles within the soil treatment unit. |

| Source | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| Discharge Prohibitions and Stormwater Pollution Prevention | SWRCB Order 99-08-DWQ, §§ C.2, C.3 and C.4 | Relevant and Appropriate* | Requires control of stormwater runoff at cleanup and remedial action sites that are greater than 1 acre in size. | Substantive requirements relating to potential discharge of pollutants from cleanup and remedial action activities to Waters of the United States. |
| 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 Appropriate* | 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). |
| Porter-Cologne Water Quality Control Act (California Water Code Sections 13140-13147, 13172, 13260 13263, 13267, 13269). | Title 27, CCR, Section 20405, Title 23, CCR, Section 2550.5 | Relevant and Appropriate* | Requires identification of the point of compliance, hydraulically down gradient from the area where waste was discharged to land. | The monitoring of Sediment Traps 1 and 3 is intended to demonstrate that migration of soil contamination from C-6 is being captured before reaching surface waters. |
| Porter-Cologne Water Quality Control Act (California Water Code Sections | 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 |

| Source | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| 13140-13147, 13172, 13260, 13263, 13267, 13269). | | | | eliminated and to assure protection of surface water quality. |
| 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 waste management unit are as follows:<br>(B) Unit Clean-Closed - for waste management units that are clean-closed, the goal of closure is to physically remove all waste and contaminated materials from the waste management unit and from its underlying and surrounding environs, such that the waste in the waste management 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 waste management unit from being subject to the SWRCB-promulgated requirements of this subdivision. | Evaluate areas from which soil has been excavated to determine final closure of waste management units. |
| 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. |

**Table A-2: Chemical-Specific ARARs—Waste Management Levels for COCs used to characterize excavated material and determine appropriate management requirements prior to off-site disposal**

| Chemical | TCLP (mg/L) | STLC (mg/L) | TTLC Wet Weight (mg/kg) |
|---|---|---|---|
| Arsenic | 5 | 5 | 500 |
| Benzo[a]pyrene | | | |
| Benzo[b]fluoranthene | | | |
| Dioxin (2,3,7,8-TCDD) | | 0.001 | 0.01 |
| Furan | | | |
| PCBs (total) | | 5 | 50 |
| TPH-D | | | |

**Table A-3: Location-Specific ARARs**

| Location | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| Birds | Fish and Game Code Section 3503 | Relevant and Appropriate* | This section prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. This section is relevant and appropriate because there are some bird species that are expected to nest within Parcel C-6, including ground-nesting species like the Killdeer, Burrowing Owl, and the Western Meadowlark. | Action must be taken to avoid the take or destruction of the nest or eggs of any bird. |

| Location | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| Aquatic Habitat/Species | Fish and Game Code Section 5650 (a), (b), and (f) | Relevant and Appropriate* | This code section prohibits depositing or placing where it can pass into waters of the state any petroleum products (Section 5650(a)(1)), factory refuse (section 5650(a)(4)), sawdust, shavings, slabs or edgings (section 5650(a)(3)), and any substance deleterious to fish, plant life or bird life (section 5650(a)(6)). | Contaminated soil must be managed to assure that it does not enter a watercourse where it could have a deleterious effect on species or habitat. |
| Birds of prey | Fish and Game Code Section 3503.5 (Added by Stats. 1985, c. 1334, Section 6) | Relevant and Appropriate | This section prohibits the take, possession, or destruction of any birds in the orders of Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. This section is relevant and appropriate because raptors such as the Red-tailed Hawk, Burrowing Owl, and American Kestrel likely forage at unpaved areas and utilize the ditches of Parcel C-6. | Action must be taken to prevent the take, possession, or destruction of any birds-of-prey or their eggs. |
| Nongame birds | Fish and Game Code Section 3800 (Added by Stats. 1971, c. 1470, p. 2906, Section 13) | Relevant and Appropriate | This section prohibits the take of nongame birds, except in accordance with regulations of the commission, or when related to mining operations with a mitigation plan approved by the department. This section further provides requirements concerning mitigation plans related to mining. This section is a relevant and appropriate because various species of nongame birds may occur at Parcel C-6, such as Brewer's Blackbird and Killdeer. | Actions must be taken to prevent the take of nongame birds. |

**Table A-4: Action-Specific ARARs**

| Action | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| California Requirements for Land Use Covenants | Civil Code Section 1471, and California Code of Regulations (CCR), Title 22, Section 67391.1 | 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 of the State regulation is ARAR. |
| Hazardous Air Pollutant Control Requirements | Clean Air Act Amendments, § III | Applicable | Establishes thresholds and content of air emissions. | Air emissions associated with the treatment systems have been evaluated by the AQMD which is the body with authority to regulate these emissions. The AQMD has identified BACT measures to address PM10 and SOx. |
| Water Quality Monitoring | CCR Title 23 § 2550.7 - 2550.10 | Applicable | Requires remedial action monitoring. | |
| Criteria for Identifying Hazardous Waste and Persistent and Bioaccumulative | CCR, Title 22, 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 |

| Action | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| Toxic Substances | | | | actions. |
| Standards Applicable to Generators of Hazardous Waste | CCR, Title 22, §§ 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. |
| Land Disposal Restrictions | CCR, Title 22, § 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. |
| Air Pollution Control District | Rules 402, 403 | Relevant and Appropriate | Fugitive dust and nuisance dust. Limits on-site activities so fugitive dust at the property line shall not be visible and nuisance dust is abated. | Relevant and appropriate for soil excavation and handling |
| Air Pollution Control District | Rule 201, Rule 202, Sections 301 and 302, Rules 303.1, 404, 405 and 406. | Relevant and Appropriate | Requires that emissions from treatment unit be within acceptable levels. | AQMD has established emissions limits for the treatment unit covering all COCs suspected of being present. Based on BACT from other AQMDs. |
| Discharges of Waste to Land | CCR, Title 23, Chapter 15, | Relevant and Appropriate* | Regulates the siting, design, construction, operation, closure, and monitoring of waste | Defines standards for the on-site disposal of soils |

| Action | Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|---|
| | § 2520 | | discharges to land for treatment. Storage and disposal wastes regulated include "hazardous wastes," "non-hazardous wastes," and "inert waste." Includes criteria for diversion and drainage of storm water. Also establishes water quality protection standard for landfills, surface impoundments, waste piles, and land treatment sites. | following treatment. |
| Standards for Operators of Hazardous Waste TSDFs - Waste Piles | CCR, Title 22, Div. 4.5, Chapter 14, §§ 66264.250-259. | Applicable | Regulates the storage and treatment of hazardous waste in piles. | Applicable if a RCRA hazardous waste is stored at the treatment unit for more than 90 days in piles prior to off-site disposal. |
| Wildlife Species/Habitats | CDFG Code §§ 3005, 3511, and 3513. | Relevant and Appropriate | Prohibit the taking of birds and mammals. This code section imposes a substantive, promulgated environmental protection requirement. | State protected species will be protected when practicable and the appropriate state authority will be consulted if conflicts arise. |

**Waste Discharge Requirements (WDRs) for Soils Management/Treatment**

Management of material which meets the definition of "designated waste" as those terms are defined in Title 22 and Title 27 shall comply with the following Waste Discharge Requirements (WDRs).

| Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|
| Title 23 CCR § 2520 | Relevant and Appropriate* | Avoid treatment of hazardous waste. | Waste will be classified and segregated to assure that the treatment of "hazardous waste" as defined in Title 27 is prohibited in the unit. |
| Title 27, §§ 20250, 21563 | Relevant and Appropriate* | Design and construction of soil treatment unit (Unit). | The excavated soil will be managed in an existing unit which has been designed and constructed to meet substantive waste discharge requirements. |
| Title 27, §§20180, 20240, 20250, 20365 | Relevant and Appropriate* | Operation and maintenance of Unit. | Containment and control structures (e.g., berms, the pad, and run-on/run-off control structures) will be maintained in good working order whenever there is waste is stored or being treated at the unit. |
| Title 27, §20310 | Relevant and Appropriate* | Prevent discharge of waste to surface water drainage course. | The unit is designed to contain waste and prevent the discharge of waste to surface waters or surface water drainage courses. |
| Title 27, §§20250, 20320 | Relevant and Appropriate* | Minimize ponding and capture stormwater. | The surface of the unit is paved, sloped to prevent ponding and equipped with drains and sumps to capture storm water runoff, including a 100 year storm event. |
| SWRCB General Industrial Stormwater NPDES Permit | Relevant and Appropriate* | Avoid adverse impact on downstream water bodies. | Substantive requirements to manage stormwater will be complied with, demonstrating that the beneficial uses of downstream water bodies will not be |

| Requirement/ Citation | ARAR Determination | Description of Requirement | Comments |
|---|---|---|---|
| | | | adversely affected. |
| Title 27 CCR §20200 | Relevant and Appropriate* | Prevent treatment of incompatible wastes. | Management of wastes will assure that wastes treated at the unit do not have the potential to interfere with the proper operation of the LTTR system or create a violent reaction, fire or explosion. |

*** 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 remedy, 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 Received on Parcel C-6 Proposed Plan

## Comment 1: Peggy Holmes

**Peggy Holmes** [redacted]
>
10/30/2008 10:53 AM

To YvonneW Fong/R9/USEPA/US@EPA
cc
bcc
Subject public comment for cleanup plan for parts of McClellan AFB

History: This message has been forwarded.

I saw this article in the Sacramento Bee about this cleanup plan. If I was forced to pick a plan, it would be Alternative 2A or 3A. However, how is someone like me/us (hard working family living in the North Highlands area very near the base) able to know what this is really all about, what the plan actually entails...you know..."the small print"?

I thought a lot (if not all) of this cleanup was completed a long time ago. Why did we allow companies to occupy parts of the base in unsafe conditions? I don't think that was very smart.

In a very simplistic way I say we clean this stuff up NOW, bring the dump sites back to the way God made them.... and 'DON'T TAX ME ANY FURTHER" FOR THE GOVERNMENT MESS UP of not having proper procedures in place before all the dumping and improper storage was occurring. We don't have that kind of money.

Peggy Holmes

## Comment 2: Charles and Sandra Yarbrough

The private properties and land both industrial and residential located to the South of McClellan Air Force Base Parcel C-6 with its 12 IRP Sites should be tested for Arsenic, Benzo(b)fluoranthene(a PAH), Benzo(a)pyrene (a PAH), Dioxins and Furans, Polychlorinated Biphenyls (PCBs), Petroleum Hydrocarbons, metals, semi-volatile organic compounds, volatile organic compounds, and other pollution of concern. Bell Avenue Elementary School grounds located to the south of Parcel C-6 should also be tested for these contaminants. The reasoning behind the proposed testing is because the drainage ditches that go through these contaminated IRP Sites and around the perimeter of Parcel C-6 were not always in existence and the water that drained off these areas flowed to the south and over the bare land to the South that was not built up with industrial and residential properties. Therefore these properties could have been contaminated from these areas from off of the old McClellan Air Force Base. The off base properties should be tested before they are allowed to be sold off as private properties.

ADD YOUR COMMENTS HERE

**Mailing List Additions, Deletions or Changes**

Please check the appropriate box and fill in the correct address information below, if you would like to:

☐ Be added to the mailing list

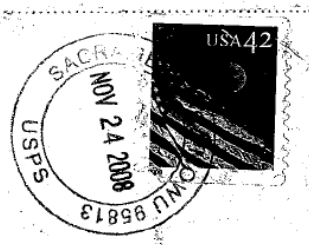
☐ Change the address where you receive information

☐ Be deleted from the mailing list Past McClellan AFB Community RAB Co/Chair

**Name:** Charles and Sandra Yarbrough

**Address:** [redacted]

Fold, Stamp and Mail

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# FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE