5.3.9 Oil Spill Area, Facilities 11, 13/14, 20, 42/1941, 139/144, and Selected Sections of Storm Sewer Right-of-Way (SS016)

Site Description—SS016 is in the center of the EIOU and includes the OSA, Facilities 11, 13/14, 20, 42/1941, 139/144, and the SSRW. The OSA covers approximately 7 acres north of Facility 16. The facilities within the site support flightline service equipment repair, aircraft engine repair, fuel storage, aircraft wash racks, and vehicle maintenance. A variety of solvents, hydraulic fluids, oils, fuels, and other materials are associated with these activities. Removal of USTs has occurred in various locations throughout SS016. The site is in an active area of Travis AFB (maintenance facilities and aircraft parking apron). The historic and current uses for each area within SS016 follow.

- OSA: Cleaning and degreasing operations occurred at Facility 18, which includes a wash rack, an OWS, and a subsurface open-top cement tank. The OSA originally encompassed an area where waste oil had reportedly been spilled or disposed of on a grassy area. The area is now entirely paved and covered with buildings.
- Facilities 139/144: The facilities were used for vehicle maintenance (Facility 139) and vehicle body shops (Facility 144). The facilities included former USTs, a wash rack area, a steam cleaner, and floor drains that directed runoff to two OWSs.
- Facilities 13/14: A wash rack, located between Facilities 13 and 14, was used from the mid-1950s to the mid-1960s. The facilities were used for paint stripping and cleaning parts using TCE and a dilute phosphoric acid solution. The facilities were demolished in 1988 and replaced by Building 31. The TPH contamination may be associated with the USTs located north and east of the site (now removed).
- Facilities 42/1941 and 11: The facilities included a hazardous waste storage area, a wash rack, an OWS, and four 250-gallon ASTs. A fuel pump area is on the western side. Facility 11 is a vehicle maintenance shop immediately south of Facilities 42/1941 that generated waste oil, hydraulic fluid, and waste fuel. An UST was formerly located east of the facility.
- Facility 20: This is an airfield control tower, where a possible fuel leak in a product line from a former UST occurred.

This summary presents information on contaminants in the soil at SS016.

Selected Remedial Alternative(s)—Alternative 17 (Land Use Controls) is the selected remedial action for the OSA because PAH levels in the soil exceed levels that allow for unlimited use and unrestricted exposure; Alternative 16 (No Action) is the selected remedial action for the remaining areas of SS016 (i.e., Facilities 11, 13/14, 20, 42/1941, 139/144, and the SSRW).

- The OSA: Evaluations performed in the Human Health Tech Memo determined that PAH contamination in soil at the site poses a potential human health risk and does not allow for unlimited use and unrestricted exposure.
- Facilities 11, 13/14, 20, 42/1941, 139/144, and the SSRW: Evaluations performed in the Human Health Tech Memo determined soil contamination in these areas of SS016 does not pose a potential human health risk.

The Eco Tech Memo determined that SS016 is not an ecological habitat. The Groundwater Protection Tech Memo determined that a groundwater extraction system is currently operating and capturing contaminated groundwater. No soil action is necessary to protect groundwater.

The following paragraphs provide additional details supporting the decision for land use controls at the OSA and no action at the remaining areas of SS016.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix I of the Human Health Tech Memo.

- OSA: As indicated above, Alternative 17 is the selected remedial action because PAH levels in the soil exceed levels that allow for unlimited use and unrestricted exposure. While PAH concentrations in these same samples exceed industrial PRGs, they do not pose an unacceptable potential risk to site workers because the site is fully paved, and the samples were collected from between 1 and 5 feet bgs. Thus, the exposure pathway for normal day-to-day operations is eliminated.
- TPH contamination in all areas of SS016: No action is necessary for TPH contamination in soil in all areas of SS016 because the locations are paved or covered with buildings; in most cases, less than one percent of the samples exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg); and the Air Force and regulatory agencies have agreed that TPH-contaminated soil at SS016 will naturally attenuate. The maximum reported TPH concentrations at each area of the site are presented hereafter:
 - OSA: 150 mg/kg (TPH-E);
 - Facilities 139/144: 2,000 mg/kg (TPH-E) and 430 mg/kg (total petroleum hydrocarbons, purgeable fraction [TPH-P]);
 - Facilities 13/14: 4,800 mg/kg (TPH-E) and 1,430 mg/kg (TPH-P);
 - Facilities 42/1941 and 11: 1,600 mg/kg (TPH-E); and
 - Facility 20: 1,200 mg/kg (TPH-E) and 3,000 mg/kg (TPH-P).

Protection of Ecological Receptors—The Eco Tech Memo determined that SS016 is not an ecological habitat because it is an industrial area, and any grassy areas are mowed regularly and maintained to discourage wildlife from establishing a habitat (Eco Tech Memo, Section 3.3.2 and Table 3-1). The grass-covered areas of the site are small in comparison to the paved areas (make up less than 10% of the site) and are located between buildings.

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 10.0 of the Groundwater Protection Tech Memo.

PAHs and PCBs were reported in surface soil at the OSA, though PCBs were reported (below residential PRGs) in only one location; PCBs were not detected in the subsurface beneath most of the OSA. Samples were not collected for PAH or PCB analyses in the subsurface directly beneath the surface soil samples that contained these contaminants at the OSA; however, PAHs and PCBs were not detected in groundwater beneath the site, indicating that they have not migrated to groundwater. In addition, the PAH and PCB contamination has been covered with

asphalt, which will serve as a cap to further reduce the potential for migration of the contaminants to groundwater. If any contaminants were to leach from the vadose zone and migrate to groundwater, they would be captured by the existing extraction wells in place at the OSA and downgradient from the OSA. Therefore, no soil action for PAHs or PCBs is necessary to protect groundwater.

Soil at Facilities 13/14 and the wash rack at Facilities 42/1941 may have been a source of VOC contamination in the past, but it is no longer a source of VOC groundwater contamination. The VOC mass from soil has most likely migrated to groundwater and/or has volatilized into the air. The TCE contamination in groundwater is being addressed by interim groundwater remedial actions; therefore, no additional soil action for TCE in soil is necessary to protect groundwater at SS016.

TPH contamination in soil is expected to naturally attenuate. In addition, TPH that migrates to groundwater is being captured by the existing groundwater extraction systems in place at the OSA and downgradient from the OSA, the two horizontal extraction wells near the tower, and the groundwater extraction system at SS029. Therefore, no soil action for TPH in soil is necessary to protect groundwater at SS016.

5.3.10 Oxidation Pond Site (WP017)

Site Description—Site WP017 is in an inactive southeastern area of the Base. Sewage treatment plant oxidation ponds that were used between the 1950s and the late 1970s cover approximately 30% of the site. The treatment plant processed both domestic and industrial wastes until the late 1970s, when wastes were transferred to the Fairfield-Suisun Sewer District for treatment. Ponds along the southern Base boundary were used from the late 1970s to 1990 for the burial of construction materials, old tires, paint and oil containers, and landscape debris. Three northeastern ponds are currently used as overflow for the sewage transfer station. This summary presents information on contaminants in the soil at WP017.

Selected Remedial Alternative(s)—Alternative 16 (No Action) is the selected remedial action for this site. Evaluations described in the Human Health Tech Memo determined that soil contamination at the site does not pose a significant human health risk to future residents, based on the residential PRGs, inorganic reference concentrations, and the San Francisco Bay RWQCB ESL for TPH. The findings of the ERA for WP017 detailed in the Eco Tech Memo demonstrate that potential exposure to COPECs does not pose an unacceptable level of risk to ecological receptors that may be present at the site. The Groundwater Protection Tech Memo determined that no soil remedial action is necessary at WP017 to protect groundwater.

The following paragraphs provide additional details supporting the decision for no action at WP017.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix J of the Human Health Tech Memo.

Aroclor-1260, arsenic, and TPH were the COCs identified at WP017. However, no action is selected for all COCs at WP017 because soil contamination at the site does not pose a significant risk to site workers or future residents. Aroclor-1260 concentrations in only one of 23 surface

samples (and 61 total samples) analyzed exceeded the residential PRG of 0.22 mg/kg. In addition, this result was estimated (J flagged) and is a field duplicate. The result from the normal sample was 0.596 mg/kg, which is less than the industrial PRG of 0.74 mg/kg. Arsenic concentrations in only 4 of 66 samples exceeded the inorganic reference concentration for surface soil of 14 mg/kg (from Table 7-1 in the WIOU RI), and the maximum detected concentration of arsenic (16.8 mg/kg) was estimated (J flagged) and could be a natural variation of background (14 mg/kg). The maximum reported concentration of TPH-E (6,810 mg/kg) exceeds the San Francisco Bay RWQCB ESL (2,300 mg/kg). However, only 1 sample out of 64 is above the screening level, the sample was estimated (J flagged), and the Air Force and regulatory agencies have agreed that the TPH-contaminated soil at WP017 will naturally attenuate.

Protection of Ecological Receptors—The potential for risk to ecological receptors that may reside at WP017 was assessed in the Eco Tech Memo. Ecological receptor groups quantitatively evaluated include terrestrial plants, soil, and benthic invertebrates, birds, and mammals. The findings of the ERA, which are discussed in detail in Section 7.8 of the Eco Tech Memo, demonstrate that potential exposure to COPECs does not pose an unacceptable level of risk to ecological receptors that may be present.

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 11.0 of the Groundwater Protection Tech Memo.

Metals, pesticides, and PCB contamination detected in surface soil were not detected in subsurface soil, indicating that the constituents had not migrated downward at the time of the RI in 1994. There were no detections of pesticides or PCBs in groundwater. Although chromium, mercury, nickel, and zinc were detected in soil at concentrations exceeding background during the RI, only nickel has been detected since in groundwater samples within the site boundaries of WP017 (in MW1005x05 and MW1006x05). The nickel was found to be the result of stainless steel well screens. Because the contaminants detected in soil had not migrated from the 1950s to the 1990s, they are not likely to migrate to groundwater. Therefore, no action is necessary for COCs in soil at WP017 to protect groundwater.

TPH that remains in soil is likely to naturally attenuate before reaching groundwater. In addition, if TPH were to migrate to groundwater, it would be captured by the existing extraction system at FT005. These factors indicate that the groundwater at WP017 is protected; thus, no soil remedial action is necessary to protect groundwater.

5.3.11 MW329x29 Area (SS029)

Site Description—SS029 consists of approximately 5.5 acres around monitoring well MW329x29 in the southern part of the EIOU, just south of the runway. The monitoring well was installed to evaluate the source of the TCE plume identified at MW269x30 at SS030. Analytical results from groundwater samples collected from MW329x29 suggest that there was a contaminant source in this area (Weston, 1995a). Historical aerial photographs of the area show aircraft parked in the area; however, activity appears limited, and no source of the plume has been identified. This summary presents information on contaminants in the soil at SS029.

Selected Remedial Alternative(s)—Alternative 16 (No Action) is the selected remedial action for this site. Evaluations described in the Human Health Tech Memo determined that soil

contamination at the site does not pose a significant risk to future residents, based on the San Francisco Bay RWQCB ESL for TPH. The Eco Tech Memo determined that no COPECs at SS029 were found to pose an unacceptable risk to ecological receptors. The Groundwater Protection Tech Memo determined that no soil remedial action is necessary currently at SS029 to protect groundwater.

The following paragraphs provide additional details supporting the decision for no action at SS029.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix K of the Human Health Tech Memo.

No action is selected for all COCs identified at SS029. No action is selected for TPH in soils because the maximum reported concentration of TPH-E (180 mg/kg) does not exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg). All other COCs identified in the RI were below residential PRGs except for manganese. One manganese result from a sample collected at 13 feet bgs was 2,400 mg/kg, which is below the industrial PRG but above the residential PRG of 1,800 mg/kg. The inorganic reference concentration (background) for manganese is 1,240 mg/kg in the subsurface. All other manganese results were below the residential PRG.

Protection of Ecological Receptors—The potential for risk to ecological receptors that may reside at the site was assessed in the Eco Tech Memo. Ecological receptor groups quantitatively evaluated include birds and mammals. Terrestrial plants and soil invertebrates were not directly assessed because the source of contamination at SS029 is related to subsurface soil (greater than 4.5 feet bgs) and groundwater. The findings of the ERA demonstrate that potential exposure to COPECs in soil does not pose an unacceptable level of risk to ecological receptors that may be present. Although the inhalation pathway originating from groundwater vapors was not directly assessed in the Eco Tech Memo, this pathway will be addressed in the forthcoming Travis AFB Basewide Groundwater ROD. In the Basewide Groundwater ROD, cleanup levels for groundwater at the appropriate sites will be determined to address the vapor intrusion pathway for human receptors, and an investigation of the potential for ecological risk at SS029 will be included. Additional details regarding these findings are presented in Section 4.8 of the Eco Tech Memo.

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 12.0 of the Groundwater Protection Tech Memo.

No source of VOCs in soil was identified; however, TCE was identified as a COC in both soil and groundwater. The maximum concentration of TCE in soil (0.123 mg/kg) is less than the soil leaching ESL of 0.40 mg/kg for drinking water. It is possible that VOCs present in the past have migrated to groundwater. An existing interim groundwater extraction system at SS029 will capture contaminants from SS029 that have migrated to groundwater; therefore, no action is necessary for VOCs in soil to protect groundwater.

No PAHs were reported in groundwater during the RI. The SVOC bis(2-ethylhexyl)phthalate was reported in a groundwater sample from MW329x29; however, bis(2-ethylhexyl)phthalate was not identified as a COC in soil. Because of the low concentrations of the SVOCs detected in soil and their tendency for strong sorption to soil grains, they are unlikely to migrate to and

contaminate groundwater. Groundwater is captured by the existing groundwater extraction system. Therefore, no action is necessary for SVOCs in soil to protect groundwater.

The RI concluded that metals detected in soil occur naturally and are included as COCs only because the cumulative risk of all detected metals concentrations exceeded the acceptable risk level. Naturally occurring metals concentrations in soil are not causing groundwater contamination. Therefore, no soil action is necessary for metals in soil to protect groundwater.

TPH in soil is not a source of groundwater contamination. It was detected in only one sample collected above the water table at a concentration that exceeded screening levels. In addition, TPH is expected to naturally attenuate. However, if any TPH were to migrate to groundwater, it would be captured by the existing groundwater extraction system at SS029. Therefore, no soil action is necessary for TPH in soil to protect groundwater.

5.3.12 MW269x30 Area (SS030)

Site Description—SS030 covers approximately 1.6 acres in the area around MW269x30 in the southern portion of the EIOU, near the southern Base boundary. The monitoring well was originally installed to evaluate water quality along the Base boundary (Weston, 1995a). The site is adjacent to a radar facility (Facility 1125); however, historical aerial photographs do not indicate any staining in the area or activities that may have been the source of contamination identified during the RI. This summary presents information on contaminants in the soil at SS030.

Selected Remedial Alternative(s)—Alternative 16 (No Action) is the selected remedial action for this site. Evaluations described in the Human Health Tech Memo determined that soil contamination at the site does not pose a potential risk to current industrial workers or future residents, based on residential PRGs. The Eco Tech Memo determined that SS030 is not an ecological habitat. The Groundwater Protection Tech Memo determined that a groundwater extraction system is currently operating and capturing contaminated groundwater. No additional soil remedial action is necessary to protect groundwater.

The following paragraphs provide additional details supporting the decision for no action at SS030.

Protection of Human Health— The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix L of the Human Health Tech Memo.

All COCs identified in the RI were below residential PRGs except for antimony. One antimony result from a sample collected at 13 feet bgs was 37.6 mg/kg (J- flagged), which is below the industrial PRG (the cleanup level) but above the residential PRG of 31 mg/kg. All other results were below the residential PRG.

Protection of Ecological Receptors—The Eco Tech Memo determined that SS030 is not an ecological habitat. Approximately 25% of the site is covered by pavement or buildings, and the area is adjacent to the Base perimeter road and maintained to discourage habitat formation (Eco Tech Memo, Section 3.3.2 and Table 3-1).

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 13.0 of the Groundwater Protection Tech Memo.

Soil contaminated with VOCs may be a minor source of groundwater contamination; however, most of the mass of VOCs has entered the groundwater and/or volatilized to the air and does not represent a future source in soil (Weston, 1995a). TCE was identified as a COC both in soil and in groundwater. However, the maximum concentration of TCE in soil (0.197 mg/kg) is less than the soil leaching ESL of 0.40 mg/kg for drinking water. In addition, an interim groundwater; therefore, no action is necessary for VOCs in soil to protect groundwater.

SVOCs were detected in soil; however, concentrations are very low, and they were not detected in groundwater at the time of the RI in 1995, most likely because of their low solubilities. Therefore, no action is necessary for SVOCs in soil to protect groundwater.

The RI concluded that metals in soil might be a source of metals contamination in groundwater. However, nickel concentrations in groundwater, investigated in 1998, were determined to be the result of the corrosion of stainless steel well screens. Because other metals were not identified as COCs in groundwater during the RI or during subsequent investigations, the metals in soil have not migrated to groundwater in concentrations that threaten groundwater. Therefore, no soil action is needed to protect groundwater from metals.

5.3.13 MW107x32 and MW246x32 Areas (ST032)

Site Description—The MW107x32 and MW246x32 areas are in the southern portion of ST032, also known as the Plume B area, in the central part of the EIOU. The area consists of grassy, open areas between a runway and an abandoned taxiway. Land use and personnel access is severely restricted because of the proximity of the runway. This site is in a restricted area and a designated clear zone (an area in which there shall be no vertical obstructions to aircraft). MW107x32 and MW246x32 are in the area of the SSRW. Underground fuel line leaks may have contributed to soil and groundwater contamination in the area. This summary presents information on contaminants in the soil at ST032.

Selected Remedial Alternative(s)—Alternative 17 (Land Use Controls) is the selected remedial action for ST032 because, as discussed below, benzene levels in the soil exceed levels that allow for unlimited use and unrestricted exposure.

The Eco Tech Memo determined that ST032 is not an ecological habitat, and the Groundwater Protection Tech Memo determined that no soil action is necessary to protect groundwater at ST032.

The following paragraphs provide additional details supporting the decision for land use controls at ST032.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix M of the Human Health Tech Memo.

Benzene, arsenic, and TPH were identified as COCs at this site. However, only benzene contamination poses a potential risk to future residents. Eight of the 40 RI soil VOC samples exceed residential PRGs and require land use controls. Five of the 40 RI soil VOC samples exceed industrial PRGs. However, the VOCs do not pose an unacceptable potential risk to site workers because the five samples where benzene exceeded the industrial PRG were in the subsurface, at depths of 5 to 15 feet, which is the saturated zone associated with the TPH-contaminated plume at ST032 (see Protection of Groundwater, hereafter). Thus, the exposure pathway for normal day-to-day operations is eliminated. In addition, this site is adjacent to the Base runway and is already in a restricted area and a designated clear zone (the area in which there shall be no vertical obstructions to aircraft, which is required for the mission of Travis AFB).

No action is necessary for arsenic and TPH contamination. The maximum concentration of arsenic (17.2 mg/kg at 12 to 13.5 feet bgs) only slightly exceeds the background reference concentration (14 mg/kg). The maximum reported concentration of TPH-E is 1,700 mg/kg, and the maximum reported concentration of TPH-P is 3,900 mg/kg. Only two samples out of 40 (5%) exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg). One of the samples is at a depth of 12 to 13.5 feet, which is the saturated zone associated with the TPH-contaminated plume at ST032 (see Protection of Groundwater, hereafter). In addition, the Air Force and regulatory agencies have agreed that the TPH-contaminated soil at ST032 will naturally attenuate.

Protection of Ecological Receptors—The Eco Tech Memo determined that ST032 is not an ecological habitat because it is surrounded by taxiway and runway. Also any grassy areas are regularly mowed and maintained to discourage wildlife from establishing a habitat (Eco Tech Memo, Section 3.3.2 and Table 3-1).

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 14.0 of the Groundwater Protection Tech Memo.

PAHs were detected in surface and subsurface soil (at concentrations below residential PRGs); however, though SVOCs were detected in groundwater, the PAHs identified in soil were not detected in groundwater. Also, because of their chemical structure, the PAHs are unlikely to break down into the SVOCs detected in groundwater. Because PAHs have low mobility, adsorb to soils, and have not migrated to groundwater since they were released, they are unlikely to do so and do not pose a risk to groundwater. Therefore, no soil action is necessary for PAHs to protect groundwater.

Aroclor-1260 and alpha-chlordane also were reported in surface soil only (at concentrations below residential PRGs). Because they have not leached into the subsurface, they are unlikely to do so. Therefore, no action is necessary for PCBs or alpha-chlordane in soil to protect groundwater.

TPH and benzene contamination in soil at ST032 has impacted groundwater. However, floating product was removed from groundwater using a passive skimmer from 1998 to 2004; product was so minimal, it has not been measurable since 2001 (URS, 2004c). Excavation of contaminated soil at ST032 would interfere with the mission of Travis AFB because of the presence of the clear zone. Therefore, the Air Force and regulatory agencies have agreed that no soil action is necessary to protect groundwater at ST032. The TPH-contaminated soil at ST032 will naturally attenuate. Remediation of groundwater contamination was re-evaluated in the

Consolidation of the ST032 into the South Interim Remedial Action (CH2M HILL, 2001). Natural attenuation will most likely occur, and monitoring was deemed unnecessary because the plume is fully captured by the SS029 extraction well system. No soil action is necessary to protect groundwater at ST032.

5.3.14 Storm Sewer System B (West Branch of Union Creek), Facilities 810 and 1917, and South Gate Area (SD033)

Site Description—SD033 includes the West Branch of Union Creek, parts of SS II (previously called Storm Sewer System B), Facilities 810 (with an abandoned OWS, sump, and wash rack) and 1917 (with an OWS and sumps that are no longer in use), the area around the South Gate (where a fuel distribution line is located), and Outfall II. The SSS and Facility 810 are still in use.

SS II, comprising underground piping and the West Branch of Union Creek, collects runoff from within the WIOU and small portions of the EIOU and WABOU. Runoff from SS II enters Union Creek south of the WIOU at Outfall II.

Facility 810 is used for aircraft-refurbishing activities. An OWS, sump, and wash rack that were at the facility discharged to SS II, but they have been abandoned. The facility no longer discharges to the storm sewer.

This summary presents information on contaminants in soil, sediment, and surface water at SD033.

Selected Remedial Alternative(s)—Alternative 18 (Excavation) is the selected remedial action for sediment in the West Branch of Union Creek in the area of sample location U17 (shown on Figures II-5-2 and II-5-8) with concentrations of PAHs that pose a potential ecological risk. Alternative 17 (Land Use Controls) is the selected contingency remedial action if concentrations of PAHs remaining in sediment after excavation exceed levels that allow for unlimited use and unrestricted exposure. Based on RI data, all excavated sediment should meet CAMU acceptance criteria and, if so, will be placed in the CAMU. Any of the excavated sediment that does not meet the CAMU acceptance criteria will be sent to an appropriate off-base landfill.

Alternative 17 (Land Use Controls) is the selected remedial action for cadmium- and benzo(a) pyrene-contaminated soil at Facility 810 because the levels of cadmium and benzo(a)pyrene in the soil exceed levels that allow for unlimited use and unrestricted exposure.

Alternative 16 (No Action) is the selected remedial action for the soil at this site, and Alternative 10 (No Action) is the selected remedial action for surface water. Evaluations performed in the WIOU RI and described in the Human Health Tech Memo determined that soil, sediment, and surface water at the remaining areas of SD033 do not pose a potential risk to current industrial workers or future residents. Groundwater extraction and treatment has been implemented as part of the WABOU and NEWIOU Groundwater IRODs to control possible migration of TCE-contaminated groundwater to Union Creek. No action is necessary, nor will any be implemented, under this ROD for surface water. The WIOU RI and Groundwater Protection Tech Memo determined no soil, sediment, or surface water remedial action is necessary to protect groundwater.

Table II-5-13 presents the sediment cleanup levels for the COCs and COECs at the site.

Table II-5-13

Residential							
Contaminant of	Sediment	(mg/kg)		Industrial (mg/kg)			
Concern/	Cleanup	10 ⁻⁶		10 ⁻⁶		TO 4	Potential for
Ecological Concern	Levei (mg/kg)	Cancer Risk	Chronic HI=1	Cancer Risk	Chronic HI=1	TQ=1 (mg/kg)	Impact?
Benzo(a)anthracene	Total	0.62	NE	2.1	NE	Total	No
Benzo(a)pyrene	PAHs=1	0.062	NE	0.21	NE	PAHs=1 ^a	No
Benzo(b)fluoranthene		0.62	NE	2.1	NE		No
Benzo(g,h,i)perylene		NE	NE	NE	NE		No
Chrysene		62	NE	210	NE		No
Fluoranthene		NE	2,300	NE	22,000		No
Indeno(1,2,3-cd)pyrene		0.62	NE	2.1	NE		No
Phenanthrene		NE	NE	NE	NE		No
Pyrene		NE	2,300	NE	29,000		No

Cleanup Levels for Sediment COCs and COECs at SD033 (West Branch of Union Creek) North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision, Travis AFB, California

^a A level of 1 mg/kg was agreed to be proactive of demersal fish based on the NOAA Screening Quick Reference Tables (NOAA SQT) (Buchman, 1999).

COC COEC HI mg/kg	= = =	contaminant of concern contaminant of ecological concern hazard index milligrams per kilogram	NEWIOU PAH ROD TQ	= = =	North/East/West Industrial Operable Unit polycyclic aromatic hydrocarbons record of decision toxicity quotient
NE	=	a value has not been established			

The Air Force will excavate the PAH-contaminated sediment in the West Branch of Union Creek in the area of sample location U17 based on sediment cleanup levels in Table II-5-13. Confirmation samples will be collected from the excavation to determine what contaminants, if any, remain. The Air Force will review the results with the regulatory agencies to determine whether the cleanup levels have been achieved or additional excavation is required. Once cleanup levels have been achieved, the procedure described in Section 5.4.2 will be used to determine whether the remedial action is complete for ecological receptors or if land use controls will be implemented to address human health issues. The estimated excavation area for SD033 is shown on Figure II-5-8. The excavation will be in the area of sample location U17 (from Outfall II to the confluence of the West and Main Branches of Union Creek). The estimated volume of soil to be excavated is approximately 200 cubic yards. As agreed with the regulatory agencies, the excavation will not be backfilled (with gravel or soil). Habitat will be allowed to restore naturally, to provide suitable conditions for a variety of benthic and aquatic species. The estimated costs for the alternatives evaluated for SD033 are summarized in Table II-5-14. Alternative 18 (Excavation) is the most cost-effective remedy that meets the RAO of protecting ecological receptors.

The following paragraphs provide additional details supporting the decision for excavation of sediment in the West Branch of Union Creek at sample location U17, land use controls at Facility 810, no action for soil, no action for sediment in other areas of SD033, and no action for surface water at SD033.



Figure II-5-8. SD033 (West Branch of Union Creek) Estimated Excavation Area

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Table II-5-14

North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision, Travis AFB, California			
Alternative	Estimated Cost (\$)		
17 (Land Use Controls)	100,183 (from the Feasibility Study and Proposed Plan)		
18 (Excavation)	30,000 ^a		
19 (Capping)	Not Evaluated ^b		
20 (Excavation /Thermal Treatment)	120,000 ^c		
^a Cost estimated based on the excavation of 200 cubic vards of soil at \$150/cubic vard, with all soils meeting CAMU			

Estimated Cost of Remedial Alternatives Evaluated for SD033 (West Branch of Union Creek) North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision, Travis AFB, Californ

^a Cost estimated based on the excavation of 200 cubic yards of soil at \$150/cubic yard, with all soils meeting CAMU acceptance criteria. The volume of soil to be excavated is estimated based on the following excavation dimension assumptions: 100-linear-foot length, 30-foot width, and 1.5-foot depth.

^b Capping or paving the creek bed was not considered appropriate, and therefore was not evaluated.

^c Thermal treatment cost estimated based on treating 200 cubic yards of soil at \$600/cubic yard. This includes the cost of soil excavation.

CAMU = Corrective Action Management Unit NEWIOU = North/East/West Industrial Operable Unit ROD = record of decision

Protection of Human Health—The following findings and conclusions with respect to soil, sediment, and surface water contamination and the potential risks to human health were reached in the WIOU RI (Radian, 1996b) and in Appendix N of the Human Health Tech Memo.

PAHs, cadmium, pesticides, and TPH were identified as COCs at this site. However, only PAHs and cadmium concentrations in soil at Facility 810 pose a potential risk to future residents. Concentrations in two of four cadmium samples and one PAH sample collected at Building 810 exceed residential PRGs and require LUCs for future residents. Benzo(a)pyrene concentrations in 3 of 14 samples exceed industrial PRGs but do not pose an unacceptable potential risk to current workers because contaminants were in the subsurface from 0.25 to 9 feet bgs. Thus, the exposure pathway for normal day-to-day operations is eliminated.

No action is necessary for dieldrin (a pesticide) and TPH contamination. Only one in 27 samples analyzed for dieldrin was above the industrial PRG. Only one in 61 samples of TPH-E (2,466 mg/kg) exceeds the San Francisco Bay RWQCB ESL (2,300 mg/kg). The area of contamination is considered small, and the Air Force and regulatory agencies have agreed that the TPH-contaminated soil at SD033 will naturally attenuate.

Union Creek sediment and surface water was sampled in 2004 to provide current data for an ERA. The results are included in the Eco Tech Memo and show that concentrations have reduced substantially since the RI. This change in concentrations probably is the result of a combination of improved pollution prevention practices at the Base, periodic dredging of the creek, groundwater source control (discussed hereafter), and natural forces that affect sediment contamination and location. Based on this information, no action is selected for Union Creek surface water for human health risk. Although the sediment is not a risk to recreational users, the contamination remaining after excavation may present a potential risk in a residential scenario. Thus, land use controls will be implemented to address human health issues if concentrations of PAHs remaining in sediment after excavation exceed levels that allow for unlimited use and unrestricted exposure.

Source control (groundwater pump and treat) has been implemented under the WABOU and NEWIOU Groundwater IRODs to address the migration of groundwater contaminated with VOCs (primarily TCE) to Union Creek. The groundwater extraction systems reduce the levels of contamination in the groundwater and, by lowering the water table, control the flow of groundwater into Union Creek and associated storm sewer systems. The levels of contamination in groundwater are monitored by the Base GSAP.

Protection of Ecological Receptors—The potential for risk to ecological receptors that may reside at SD033 was assessed in the Eco Tech Memo. Ecological receptor groups quantitatively evaluated include aquatic plants, fish, benthic and aquatic invertebrates, birds, and mammals. The findings of the ERA, which are discussed in detail in Section 7.10 of the Eco Tech Memo, demonstrate that potential exposure to PAHs that may be present in sediment at sample location U17 (shown on Figure II-5-2) poses an unacceptable level of risk to juvenile fish. Excavation of sediment in this area of the creek is selected to address potential ecological issues at the site.

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 15.0 of the Groundwater Protection Tech Memo.

The WIOU RI concluded that PAHs and metals contamination identified in soil, sediment, or surface water does not contaminate groundwater at SD033. In addition, Union Creek is generally a gaining stream, and surface water VOC concentrations are below those in any adjacent groundwater plumes. Therefore, no soil, sediment, or surface water action is necessary for the protection of groundwater.

5.3.15 Facility 811 (SD034)

Site Description—SD034 encompasses Facility 811 in the northern portion of the WIOU on Ragsdale Street, south of Hangar Avenue. Approximately 75% of the area is covered with crushed aggregate and asphalt. Facility 811 was constructed in 1979 as a large aircraft maintenance hangar and includes an indoor wash rack, an OWS, and a concrete-lined overflow pond. Aircraft surfaces are washed at the wash rack. Wastewater from the wash rack flows into an OWS. Flow from the OWS can be directed into either the sanitary sewer or a concrete-lined overflow pond just west of the facility. A hole was discovered in the OWS during 1994; the OWS has since been removed and replaced. No over-excavation was performed around the OWS during the removal. This summary presents information on contaminants in the soil at SD034.

Selected Remedial Alternative(s)—Alternative 16 (No Action) is the selected remedial action for this site. Evaluations described in the Human Health Tech Memo determined that soil contamination at the site does not pose a potential risk to current industrial workers or future residents based on residential PRGs and the San Francisco Bay RWQCB ESL for TPH (2,300 mg/kg). The Eco Tech Memo determined that SD034 is not an ecological habitat. The Groundwater Protection Tech Memo determined that a groundwater extraction system is currently operating and capturing contaminated groundwater. No additional soil remedial action is necessary to protect groundwater.

The following paragraphs provide additional details supporting the decision for no soil action at SD034.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix O of the Human Health Tech Memo.

The maximum reported concentrations of TPH-E (11,600 mg/kg) and TPH-P (15,900 mg/kg) exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg). However, the area of contamination is considered to be small; only 2 samples out of 16 exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg). Both of the samples are at a depth of 14 feet bgs, which is the saturated zone associated with the TPH-contaminated plume at SD034, and the Air Force and regulatory agencies have agreed that the TPH-contaminated soil at SD034 will naturally attenuate.

Protection of Ecological Receptors—The Eco Tech Memo determined that SD034 is not an ecological habitat. Approximately 75% of the site is covered with crushed aggregate, asphalt, and the building. Some grassy area is kept mowed and maintained, which discourages habitat formation (Eco Tech Memo, Section 3.3.2 and Table 3-1).

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 16.0 of the Groundwater Protection Tech Memo.

The groundwater is being cleaned up in accordance with the NEWIOU Groundwater IROD, which included floating product removal from 1998 to 2004 (URS, 2004c) and groundwater extraction and treatment (Travis AFB, 1997). A groundwater extraction system is currently operating and capturing contaminated groundwater. No additional soil remedial action is necessary to protect groundwater.

5.3.16 Facility 818/819 (SS035)

Site Description—SS035, in the north central portion of the WIOU, contains Facility 818/819. Facility 818/819 was constructed in 1970/1974 as a large aircraft maintenance hangar, and it includes a wash area, OWS and sump, hydraulic lift storage area, and hazardous material accumulation area. Asphalt and crushed aggregate cover most of this site, though there is some exposed soil and grass along the eastern end of Facility 818. The site has been used historically and currently (since construction in 1970/1974) to repair, wash, and paint aircraft. This summary presents information on contaminants in the soil at SS035.

Selected Remedial Alternative(s)—Alternative 16 (No Action) is the selected remedial action for this site. Evaluations described in the Human Health Tech Memo determined that soil contamination at the site does not pose a potential risk to current industrial workers or future residents based on residential PRGs. The Eco Tech Memo determined that SS035 is not an ecological habitat. The Groundwater Protection Tech Memo determined that contamination that may have migrated from SS035 will be captured by the WIOU groundwater extraction system, downgradient. No additional soil remedial action is necessary to protect groundwater.

The following paragraphs provide additional details supporting the decision for no soil action at SS035.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix P of the Human Health Tech Memo.

PCBs were identified as COCs at this site; however, no action is selected for potential human risk from PCBs because all samples were below industrial PRGs, and the concentration in only 1 sample of 17 samples analyzed slightly exceeded the residential PRG of 0.22 mg/kg. Six samples were collected and analyzed using U.S. EPA method SW8080, with maximum reported concentrations of 0.319 mg/kg Aroclor-1254 and 0.204 mg/kg Aroclor-1260. Twenty-six additional surface samples were collected, and 11 of those closest to the soil borings where PCBs were detected were analyzed using Ensys PCB field screening kits. Aroclor-1260 was detected in only 1 sample at a concentration of 0.0516 mg/kg. In addition, the surface area of contamination is less than 0.04 acre, which, relative to the total area of the grassy eastern side of Facility 818 (1.1 acre), indicates a low area use.

Protection of Ecological Receptors—The Eco Tech Memo determined that SS035 is not an ecological habitat because of the proximity of the site to Facility 818 and the parking ramp (Eco Tech Memo, Section 3.3.2 and Table 3-1).

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 17.0 of the Groundwater Protection Tech Memo.

VOCs previously released to the soil have entered the groundwater and do not represent a future source in soil. VOCs and TPH were identified as COCs in groundwater. However, VOC contamination that may have migrated from SS035 will be captured by the WIOU groundwater extraction system downgradient. Therefore, no action for soil is necessary to protect groundwater. water.

PCBs and metals identified as COCs and COPECs in soil at SS035 were detected in surface soil but not in subsurface soil, indicating that they are not leaching to the vadose zone and will not migrate to groundwater. PCBs were not detected in groundwater and, though the metals molybdenum, silver, and vanadium were detected in groundwater, they did not exceed PRGs and were not identified as COCs in groundwater. Therefore, no action for PCBs and metals in soil is necessary to protect groundwater.

5.3.17 Facility 872/873/876 (SD036)

Site Description—SD036 in the southeastern end of the WIOU, includes Facilities 872, 873, and 876. The site, while mostly paved, is surrounded by buildings and is situated in an active area of the Base. The West Branch of Union Creek borders the eastern side of the site. Constructed in 1953, the facilities included a wash rack south of Facility 872, a locksmith shop, and a paint shop that were historically used for vehicle and electric motor maintenance, paint mixing, and storage. The buildings are now used for civil engineering mobile equipment storage and maintenance. This summary presents information on contaminants in the soil at SD036.

Selected Remedial Alternative(s)—Alternative 16 (No Action) is the selected remedial action for this site. Evaluations described in the Human Health Tech Memo determined that soil contamination at the site does not pose a potential risk to current industrial workers or future residents based on residential PRGs and the San Francisco Bay RWQCB ESLs for TPH. The Eco Tech Memo determined that SD036 is not an ecological habitat. The Groundwater Protection Tech Memo determined that a groundwater extraction system is currently operating and capturing contaminated groundwater. No additional soil remedial action is necessary to protect groundwater. The following paragraphs provide additional details supporting the decision for no soil action at SD036.

Protection of Human Health— The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in Appendix Q of the Human Health Tech Memo.

The maximum reported concentrations of TPH-E (621 mg/kg) and TPH-P (292 mg/kg) do not exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg).

Protection of Ecological Receptors—The Eco Tech Memo determined that SD036 is not an ecological habitat because the site is paved with 2 to 4 feet of asphalt and roadbase material and is surrounded by buildings (Eco Tech Memo, Section 3.3.2 and Table 3-1).

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 18.0 of the Groundwater Protection Tech Memo.

COCs identified in the soil during the RI include TPH-P and TPH-E, and groundwater COCs include VOCs (such as TCE, vinyl chloride, and TPH). TPH in soil at SD036 has been, and still may be, contaminating groundwater. However, the contaminated soil at SD036 will naturally attenuate, based on the *Remediation Guidance for Petroleum and VOC Impacted Sites* (RWQCB, Los Angeles Region, 1996), which presents guidelines governing cleanup at sites with petroleum hydrocarbon contamination. The groundwater is being cleaned up in accordance with the NEWIOU Groundwater IROD (Travis AFB, 1997), including an interim remedial groundwater extraction system that has been in operation since April 2000 and fully captures the SD036 TPH plume. No additional soil action is necessary to protect groundwater.

5.3.18 Sanitary Sewer System, Facilities 837/838, 919, 977, and 981, Area G Ramp, and Ragsdale/V Area (SD037)

Site Description—SD037 encompasses a large portion of the WIOU, including Facilities 837, 838, 919, 977, and 981, the Area G Ramp, and the Ragsdale/V area. Operations at the facilities have included approximately 22,000 feet of sanitary sewer piping, an OWS, sumps, wash racks, and a fuel-hydrant system. Historically and currently, the sanitary sewer system is used to convey domestic and industrial wastewater from facilities within the WIOU to the Fairfield-Suisun publicly owned treatment works. USTs have been removed from various locations within SD037. The current and historic uses for each area within SD037 follow.

- Area 1 is where a surface sample was collected for sanitary sewer system investigation.
- Areas 2 and 3 are between the sanitary sewer system and the jet fuel distribution pipeline.
- Area 4 is at Facility 919, constructed in 1984 and currently used to maintain heavy equipment. An OWS and a hazardous waste satellite accumulation point are east of the facility. The OWS at the facility is connected to the sanitary sewer system.
- Area 5, which includes Facility 981, is next to a wash rack with an OWS connected to the sanitary sewer; it has a hazardous waste satellite accumulation point.

• Area 6 is at Facility 977, which was constructed in 1972 as an air freight terminal at which hydraulic equipment was used to load and unload cargo. Leaking hydraulic rams were replaced and are periodically checked for leaks.

This summary presents information on contaminants in the soil at SD037.

Selected Remedial Alternative(s)—Alternative 17 (Land Use Controls) is the selected remedial action at Area 6 for soil with PAH, lead, and TPH concentrations that exceed levels allowing unlimited use and unrestricted exposure. Alternative 16 (No Action) is the selected remedial action for Areas 1 through 5.

- Area 6: Evaluations described in the Human Health Tech Memo determined that PAH, TPH, and metals contamination in soil at the site pose a potential risk to future residents based on residential PRGs.
- Areas 1 through 5: Evaluations described in the Human Health Tech Memo determined that soil contamination in these five areas of the site does not pose a potential risk to current industrial workers or future residents based on industrial and residential PRGs.

The Eco Tech Memo determined that SD037 is not an ecological habitat, and the Groundwater Protection Tech Memo determined that a groundwater extraction system is currently operating and capturing contaminated groundwater. No additional soil action is necessary to protect groundwater.

The following paragraphs provide additional details supporting the decision for land use controls at Area 6 and no action at Areas 1 through 5.

Protection of Human Health—The following findings and conclusions with respect to soil contamination and the potential risks to human health were reached in the Human Health Tech Memo, Appendix R.

- Area 6, Facility 977: Land use controls will be implemented for the soil contaminated with PAHs, lead, and TPH because concentrations in soil exceed the residential PRGs and San Francisco Bay RWQCB ESL for TPH and pose a potential risk to future residents. Benzo(a) pyrene and benzo(b)fluoranthene concentrations in two of four samples collected and lead concentrations in one of five samples exceed residential PRGs and require land use controls for future residents. PAH and lead concentrations in these same samples also exceed industrial PRGs but do not pose an unacceptable potential risk to site workers because the samples were collected between 1 and 5 feet bgs and because the site is fully paved with asphalt and includes a building. Thus, the exposure pathway for normal day-to-day operations is eliminated. The maximum reported concentration of TPH-E (3,580 mg/kg) exceeds the San Francisco Bay RWQCB ESL (2,300 mg/kg).
- Area 1: No action is necessary for soil with SVOC concentrations that exceed industrial PRGs (human health risk) because only one isolated detected concentration exceeds the industrial PRG for benzo(a)pyrene, and the risk is less than 10⁻⁵. In addition to benzo(a)pyrene, two other PAHs were identified as COCs for the sanitary sewer system at SD037. Maximum concentrations of both benzo(a)anthracene and benzo(b)fluoranthene are less than industrial PRGs but exceed residential PRGs at the same location where

benzo(a)pyrene exceeds the industrial PRG. However, out of eight locations analyzed for PAHs, only this one had concentrations of PAHs that exceed residential PRGs. Because of the low overall percentage of exposure to concentrations of PAHs that pose a risk to human receptors at the sanitary sewer system, no action is necessary for the area at sampling location WSNS0B01.

- Area of Surface Flux Samples: No action is necessary for the area where surface flux samples were collected because only one isolated detected concentration from 26 samples poses potential risk, and it is located in an area with dual-phase wells that extract soil vapor.
- TPH-contamination in Areas 1 through 5: No action is necessary for TPH-contamination in soil in Areas 1 through 5 of SD037 because the samples do not exceed the San Francisco Bay RWQCB ESL (2,300 mg/kg). The maximum reported TPH concentrations at these areas of the site are presented hereafter.
 - Area 1: 105 mg/kg (TPH-E);
 - Area 2: 103 mg/kg (TPH-E);
 - Area 3: 256 mg/kg (TPH-E);
 - Area 4: 271 mg/kg (TPH-E) and 909 mg/kg (TPH-P); and
 - Area 5: 1,477 mg/kg (TPH-E).

Protection of Ecological Receptors—The Eco Tech Memo determined that SD037 is not an ecological habitat because it is an industrial area, and any grassy areas are regularly mowed and maintained to discourage wildlife from establishing a habitat (Eco Tech Memo, Section 3.3.2 and Table 3-1).

Protection of Groundwater—The following conclusions with respect to groundwater protection were reached in Section 19.0 of the Groundwater Protection Tech Memo.

No soil action is necessary to protect groundwater. PAHs, bis(2-ethylhexyl)phthalate, and metals contaminants were reported primarily in surface soil. Metals reported in the subsurface reflect natural variations of background, indicating that the surface metals contamination has not leached into the subsurface and migrated to groundwater. PAHs were not detected in groundwater, and neither PAHs nor metals were identified as a COC in groundwater. Bis(2-ethylhexyl)phthalate is identified as a COC in soil and groundwater; however, detections in soil are sporadic, and the maximum reported concentration of 0.309 mg/kg is significantly less than the residential PRG of 35 mg/kg. Generally, locations where bis(2-ethylhexyl)phthalate was detected in groundwater. Although bis(2-ethylhexyl)phthalate was detected in groundwater at the location of the maximum detected concentration of bis(2-ethylhexyl)phthalate in soil, bis(2-ethylhexyl) phthalate was not detected in the subsurface between the surface soil detection and groundwater. Therefore, PAHs, bis(2-ethylhexyl)phthalate, and metals do not pose a threat to groundwater.

The groundwater is being cleaned up in accordance with the NEWIOU Groundwater IROD, which includes groundwater extraction and treatment. A groundwater extraction system is

currently operating and capturing contaminated groundwater. No soil action is necessary to protect groundwater.

5.3.19 Summary of Selected Remedial Alternatives

Table II-5-15 summarizes the selected remedial alternatives for each NEWIOU (soil, sediment, and surface water site).

Selected Remedial Alternatives

North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision, Travis AFB, California

	Site		
Site Description	Designation	Medium	Selected Alternative
Storm Sewer Right-of-Way (includes	SD001	Soil	16 – No Action
Main Branch of Union Creek)		Sediment	$18 - \text{Excavation}^{a}$
			17 – Land Use Controls ^b
		Surface Water	10 – No Action ^c
Fire Training Area 1	FT002	Soil	16 – No Action
Fire Training Area 2	FT003	Soil	18 – Excavation
	11005		17 – Land Use Controls ^b
Fire Training Area 3	FT004	Soil	18 – Excavation
			17 – Land Use Controls ^b
Fire Training Area 4	FT005	Soil	18 – Excavation
			17 – Land Use Controls ^b
Base Landfill No. 2	LF007	Soil	18 – Excavation
			17 – Land Use Controls ^b
Sludge Disposal Site	OT010	Soil	16 – No Action
Solvent Spill Area, Facilities 550/552, and	SS015	Soil	17 – Land Use Controls. Cleanup has
1832			been completed as a removal
			action.
Oil Spill Area, Facilities 11, 13/14,20,	SS016	Soil	17 – Land Use Controls
42/1941, 139/144, and sections of Storm			
Oridation Dand Site	WD017	C - :1	16 No Astism
	wP017	Soll	10 – No Action
MW-329 Area	SS029	Soil	16 – No Action
MW-269 Area	SS030	Soil	16 – No Action
MW-107, MW-246	ST032	Soil	17 – Land Use Controls
Storm Sewer System B (includes West	SD033	Soil	17 – Land Use Controls
Branch of Union Creek), Facility 810,		Sediment	18 – Excavation ^a
Facility 1917, and South Gate Area			17 – Land Use Controls ^b
		Surface Water	10 – No Action ^c
Facility 811	SD034	Soil	16 – No Action
Facilities 818 and 819	SS035	Soil	16 – No Action
Facilities 872, 873, and 876	SD036	Soil	16 – No Action
Sanitary Sewer System, Facilities 837,	SD037	Soil	17 – Land Use Controls
838, 919, 977, and 981, Area G Ramp,			
and Ragsdale/V Area			

Table II-5-15

Table II-5-15 (Cont'd) Selected Remedial Alternatives North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision, Travis AFB, California

 ^a Excavation for sediment at SD001 will be a total of 500 linea	r feet at sample point 0014 (250 upstream, 250 downstream).
Excavation for sediment at SD033 will be in the area of samp	de point U17 (from Outfall II to the confluence of the West and
Main Branches of Union Creek). ^b Land Use Controls will be required if the levels of hazardous	substances remaining in the soil or sediment after excavation do
not allow for unlimited use and unrestricted exposure. For pro-	betection of the integrity of the CAMU cover at LF007, land use
controls will be required to restrict any activities on the cover ^c The 1998 NEWIOU SSSW Proposed Plan proposed "Source	other than operations and maintenance activities.
cleanup alternative for surface water at these sites, indicating	Control" (extraction and treatment of groundwater) as the
may be receiving TCE-contaminated water from groundwater	Union Creek is not a source of contamination, but that the creek
NEWIOU SSSW Proposed Plan, extraction and treatment (pu	of through storm sewer infiltration. Subsequent to the 1998
part of the WABOU and NEWIOU Groundwater IRODs. GS	imp and treat) of contaminated groundwater was implemented as
reduced the levels of TCE in the creek to levels that do not po	AP sampling has shown that extraction of groundwater has
Control" or extraction and treatment of groundwater has alrea	ose a risk to human health or the environment. As "Source
will be implemented under this ROD for surface water.	ady been implemented under the groundwater IRODs, no action
CAMU=Corrective Action Management UnitGSAP=groundwater sampling and analysis programIROD=interim record of decisionNEWIOU=North/East/West Industrial Operable UnitPRG=preliminary remediation goal	ROD=record of decisionSSSW=soil, sediment, and surface waterTCE=trichloroetheneWABOU=West/Annexes/Basewide Operable Unit

5.4 Land Use Controls (LUCs)

Alternative 17 (Land Use Controls) is included as all or part of the selected remedy at 10 NEWIOU soil and/or sediment sites, as described in Table II-5-15 and Section 5.1.3 (Alternative 17—Land Use Controls). Alternative 17 is or may be required at SD001, FT003, FT004, FT005, LF007 and SD033 because the selected remedial actions will clean up soil contamination to industrial cleanup levels but may allow for residual contamination to be left in place. If residual contamination is at levels that do not allow for unlimited use and unrestricted exposure, land use controls would be required. If it is economically feasible, the Air Force may decide to clean up soil to levels that allow for unlimited use and unrestricted exposure (residential cleanup levels). If the Air Force does achieve residential cleanup levels at a site, then land use and access restrictions would not be necessary, as discussed in Section 5.4.2 (Residential Cleanup Levels).

At sites SS015, SS016, ST032, and SD037, no active remedial action is needed because the contamination levels either do not exceed industrial cleanup levels or there is limited exposure, if any, under an industrial scenario, given the small areas of contamination (located under parking lots, in restricted access areas, etc.). Alternative 17 is required because residual contamination levels do not allow for unlimited use and unrestricted exposure.

The map on Figure II-5-9 depicts the boundaries of NEWIOU sites with soil and sediment contamination (including courses of Union Creek) with LUCs or LUC potential. As the footnote on the map indicates, the Air Force's commitment to include more specific LUC maps in the Base General Plan is discussed in Section 5.4.1.

The RAO of Alternative 17 is to restrict residential development (including day care centers, K-12 schools, play areas, and hospitals) and to prevent unauthorized disturbance and relocation of the contaminated soil (such as use of excavated contaminated soil as fill) at areas where soil contamination is at levels that do not allow for unlimited use and unrestricted exposure. Alternative 17 also prevents unauthorized disturbance and relocation of contaminated sediment. Alternative 17 is accomplished by a prohibition on residential development and restrictions on soil and sediment disturbance in designated areas set forth in the Base General Plan, administrative measures, and signage. For the CAMU cover at LF007, Alternative 17 prohibits all activities on the cover other than CAMU operations and maintenance activities, as described in the *LF007 Soil Remedial Action Design Report and Post-Closure Maintenance Plan* (CH2M HILL, 2002). The administrative measures are the base Civil Engineer work request procedures, the Base dig permit procedures, and the EIAP, as described in Section 5.4.1. Signs warn site visitors that soil excavation and removal is controlled. The EIAP, work request, and Base dig permit procedures restrict development, soil disturbance, and relocation during the interim period before remedial actions are implemented.

These measures are in accordance with specific provisions of 22 CCR §67391.1 that have been determined by the Air Force to currently be relevant and appropriate requirements. Subsections (a), (b) and (e)(2) of 22 CCR Section 67391.1 provide that if a remedy at property owned by the federal government will result in levels of hazardous substances remaining on the property at levels not suitable for unlimited use and unrestricted exposure, and it is not feasible, as is the case with the NEWIOU sites subject to LUCs, to record a land use covenant, then the ROD is to clearly define and include limitations on land use and other institutional control mechanisms to ensure that future land use will be compatible with the levels of hazardous substances remaining on the property. These limitations and mechanisms are more specifically set forth in this section of the ROD; they include annotating the residential development and soil and sediment disturbance restrictions in the Travis AFB General Plan and continuing to follow the review and approval procedures for any construction and ground-disturbing activities at NEWIOU sites with LUCs.

The Air Force will implement the following measures at all sites with land use controls.

The Air Force will include in the Base General Plan any specific restrictions required at each site, a statement that restrictions are required because of the presence of hazardous substances, pollutants, or contaminants, the current land users and uses of the site, the geographic control boundaries, and the objectives of the land use controls. Unless a site is cleaned up to levels appropriate for unlimited use and unrestricted exposure, the Base General Plan will reflect the prohibitions on residential development (including day care centers, K-12 schools, play areas, and hospitals) and restrictions on soil and sediment disturbances. For the CAMU cover at LF007, the General Plan will include a prohibition on all activities on the cover other than operations and maintenance activities. Upon completion of a remedial action at a site, the Base will update the Base General Plan to modify the site-specific use restrictions as appropriate. The section describing the specific restrictions also will refer the reader to the Base Environmental Office if more information is needed. After remedial action is complete, the Base General Plan will be updated to include a basewide map, similar to Figure II-5-9, depicting where land use controls are in effect and site-specific maps showing in more detail the location of the LUCs within each site. The Air Force will notify the regulatory agencies when these changes are made and will send copies of the maps to the agencies. The Air Force also agrees to provide the regulatory agencies with electronic access to view the Base General Plan during regulatory visits to Travis AFB.



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- While LUCs are in place, the Air Force will maintain existing administrative controls as more fully described in Section 5.4.1. LUCs will remain in place as long as soil contamination concentrations remain above levels allowing for unlimited use and unrestricted exposure. The Air Force will not modify or terminate LUCs, implementation actions, or modify land use without U.S. EPA and Cal-EPA/DTSC approval. The Air Force shall seek prior concurrence before any anticipated action that may disrupt the effectiveness of the LUCs or any action that may alter or negate the need for LUCs.
- Whenever the Air Force transfers real property that is subject to institutional controls and resource use restrictions to another federal agency, the transfer documents shall require that the federal transferee include the institutional controls and applicable resource use restrictions in its resource use plan or equivalent resource use mechanism. The Air Force shall advise the recipient federal agency of all obligations contained in the ROD, including the obligation that a State Land Use Covenant will be executed and recorded, pursuant to 22 CCR Section 67391.1, in the event the federal agency transfers the property to a non-federal entity.
- Whenever the Air Force proposes to transfer real property subject to resource use restrictions and institutional controls to a non-federal entity, it will provide information to that entity in the draft deed and transfer documents regarding necessary resource use restrictions and institutional controls, including the obligation that a State Land Use Covenant will be executed and recorded, pursuant to 22 CCR Section 67391.1. The signed deed will include institutional controls and resource restrictions equivalent to those contained in the State Land Use Covenant and this ROD.
- The Air Force will provide notice to the U.S. EPA and the State at least 6 months prior to any transfer or sale of [base or OU at issue] so that the U.S. EPA and the State can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective institutional controls (ICs). If it is not possible for the facility to notify the U.S. EPA and the State at least 6 months prior to any transfer or sale, then the facility will notify the U.S. EPA and the State as soon as possible, but no later than 60 days prior to the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions above, the Air Force further agrees to provide the U.S. EPA and the State with similar notice, within the same time frames, as to federal-to-federal transfer of property. The Air Force shall provide a copy of the executed deed or transfer assembly to the U.S. EPA and the State.
- The Air Force will notify the regulatory agencies at least 30 days in advance of any proposed land use changes that are inconsistent with land use control objectives or the selected remedy and any changes to the Base General Plan that would affect the land use controls.
- The Air Force will notify the regulatory agencies as soon as practicable, but no longer than 10 days after discovery, of any activity that is inconsistent with LUC objectives or use restrictions, or any action that may interfere with the effectiveness of LUCs, and provide the regulatory agencies within 10 days of notification of the breach, with a tentative plan (including a timeline of proposed actions and delivery dates) regarding how the Air Force will address the breach or with a description of how the Air Force has addressed the breach.

- The Air Force will address as soon as practicable any activity that is inconsistent with LUC objectives or use restrictions or any other action that may interfere with the effectiveness of LUCs, but in no case will initiate the process later than 30 days after the Air Force becomes aware of the breach.
- The Air Force will conduct periodic monitoring (at least annually) and take prompt action to restore, repair, or correct any land use control deficiencies or failures identified. A different monitoring schedule may be agreed upon according to the schedule provisions of the FFA, if all parties agree and if the change reasonably reflects the risk presented by the site.

The Air Force is responsible for implementing (to the degree controls are not already in place), monitoring, maintaining, reporting on, and enforcing the identified controls. If the Air Force determines that it cannot meet specific land use control requirements, it is understood that the remedy may be reconsidered and that additional measures may be required to ensure the protection of human health and the environment.

In addition to the land use controls already described for all sites, the following measures will be taken at each site where there is a LUC prohibiting disturbance of the soil and sediment without a permit unless operational requirements preclude placement of signs (such as the runway area).

- As previously agreed to in the *Basewide Soil Remedial Design/Remedial Action (RD/RA) Plan, Travis Air Force Base, California* (URS, 2002) (Soil RD/RA Plan), the Air Force will display appropriate signs to warn site visitors of potential hazards associated with surface soil contamination. As that document indicates, the signs will be posted in a conspicuous location along the perimeter of the restricted sites. The signs will be made and posted according to ANSI Z53.1 and conform to AFP 88-40, Standard Signs. If signs are to include a site map, the map will be oriented so that it is easy for users to determine their relationship to the site. The site-specific remedial design package will contain the sign design details. If there is no site-specific remedial design package for a site, the signs will display a warning that the area is controlled or that no soil disturbance activities are allowed and inform the reader to contact the Environmental Flight.
- Signs will be posted within 30 days of signing this ROD for sites where there will be no soil removal activities under this ROD. For sites where soil removal is the selected remedy, signs will be posted within 30 days of the completion of the remedial action and the determination that LUCs are required because soil contamination concentrations remain above levels allowing for unlimited use and unrestricted exposure.

In addition, to assure the regulatory agencies and the public that the Air Force will fully comply with and be accountable for the performance measures identified herein, the Air Force will timely submit to U.S. EPA and Cal-EPA/DTSC an annual monitoring report on the status of LUCs and/or other remedial actions, including the operation and maintenance and monitoring thereof, and how any LUC deficiencies or inconsistent uses have been addressed. The report also will be filed in the Information Repository (IR). The report would not be subject to approval and/or revision by U.S. EPA and the State. The annual monitoring reports will be used in preparation of the Five Year Reviews to evaluate the effectiveness of the remedy.

5.4.1 Components of the Travis AFB General Plan and Existing Administrative Procedures

The first step in restricting specific types of development at a site is to revise the Travis AFB General Plan to place constraints ensuring that these sites are never used for residential development ((including day care centers, K-12 schools, play areas, and hospitals). The Base General Plan implements "zone-like" requirements at Travis AFB. Air Force Instruction (AFI 32-7062) requires this comprehensive planning document for the establishment and maintenance of the institutional and engineering controls. The Base General Plan resides in the office of the Base community planner.

Current Base General Plan Sections 5.2.2.4 (Installation Restoration Program Sites) and 5.4.1 (On-Base Land Use) describe specific development prohibited at WABOU ERP sites. The Base General Plan will be revised to include residential development prohibitions and soil and sediment disturbance restrictions at NEWIOU ERP sites, describing any specific restrictions required at each site, a statement that restrictions are required because of the presence of pollutants or contaminants, the current land users and uses of the site, the geographic control boundaries, and the objectives of the land use controls. Unless a site is cleaned up to levels appropriate for unlimited use and unrestricted exposure, the Base General Plan will reflect the restrictions on residential development (including day care centers, K-12 schools, play areas, and hospitals) and restrictions on soil and sediment disturbance. In addition, concerning the CAMU cover at LF007, the Base General Plan will reflect that other than operations and maintenance activities, all activities on the cover are prohibited. Upon completion of a remedial action at a site, the Base will update the Base General Plan to modify the site-specific use restrictions as appropriate. The section describing the specific restrictions also will refer the reader to the Base Environmental Office if more information is needed. The Base General Plan will contain a map depicting the geographic boundaries of all NEWIOU sites where land use controls are in effect. Travis AFB will enforce these restrictions on residential development, soil and sediment disturbance, and CAMU cover activities through administrative review procedures that are already in place.

One procedure is the Air Force Form 332 (AF332) (Base Civil Engineer Work Request). This form must be submitted and approved before the start of any building project at Travis AFB. (Appendix A includes a copy of this form.) Approval of the AF332 involves the comparison of the building site with the constraints in the Base General Plan. The AF332 serves as the document for communicating any construction constraints to the appropriate offices. Any constraints at the site result in the disapproval of the form unless the requester makes appropriate modifications to the building plans. The Civil Engineer Squadron Chief of Operations is responsible for the final approval of proposed building projects through the AF332 review process.

Travis AFB will also use 60 Air Mobility Wing Form 55 (Excavation Permit) to enforce the residential development and soil and sediment disturbance restrictions. (Appendix A includes a copy of this form.) This form is also called the Base digging permit. The requester submits the permit to the Civil Engineer Squadron for any project that involves any mechanical soil or sediment excavation, such as digging trenches for underground lines or excavating soil for building foundations. The permit lists the environmental management and other support offices that review the excavation plans for approval. If constraints involving soil disturbance or worker safety exist at the excavation area, the permit describes the appropriate procedures that

will prevent unknowing exposure to soil contamination and measures the workers must implement before the start of excavation. The Civil Engineer Squadron Chief of Operations is responsible for the final approval of excavation projects through the permit review process.

Both Air Force Form 332s and digging permits are subject to an EIAP conducted pursuant to the National Environmental Policy Act (NEPA), as promulgated for the Air Force in 32 CFR 989, et. seq. The EIAP analysis is initiated when a proponent of a proposed action fills out an Air Force Form 813. A proponent of an action is required to submit the Air Force Form 332 and/or digging permit with the Air Force Form 813 so that the appropriate environmental analysis of the proposed action and alternatives to the proposed action is accomplished prior to any construction activities. The Travis AFB environmental staff (air, water, cultural and natural resources, restoration and others) and the Base community planner review Air Force Form 813s. New construction usually results in a determination that a formal publicized Environmental Assessment is necessary. The EIAP process works to ensure proposed construction sites are reviewed in accordance with the Base General Plan. The process also ensures that all environmental factors, as well as the Base's ROD LUCs, are considered in siting construction projects.

5.4.2 Residential Cleanup Levels

As stated in Section 5.3, the selected soil cleanup levels take into account the site-specific conditions, comply with CERCLA, and are protective of human health and the environment. These levels also are protective of the sensitive ecological receptors that live near the NEWIOU soil sites. However, these levels do not clear the sites for unlimited use and unrestricted exposure (residential use). Alternative 17 is a selected or contingent remedial alternative for all excavation sites because the selected cleanup levels may not be protective of human health and the environment if these sites were to be reclassified in the future as recreational or residential areas or if residual contaminated soil were later excavated and used as fill in residential or recreational areas.

Section 5.1 describes the industrial nature of the land surrounding the NEWIOU soil sites. For sites where excavation is the selected remedy, Tables II-5-3, II-5-5, II-5-7, II-5-9, II-5-11, and II-5-13 present the industrial and residential soil cleanup levels that will be used as described hereafter.

If a soil excavation achieves the residential cleanup levels at a site, then the site is available for unlimited use and unrestricted exposure, and there is no need to establish, maintain, monitor, or enforce LUCs. The regulatory agencies agree to delete requirements pursuant to Alternative 17 as a selected remedial alternative for a site in the event that the soil excavation achieves the residential cleanup levels for all COCs at the site.

It is impossible to calculate the concentrations of residual contamination at a soil site before the excavation of the estimated volume of soil is complete. There are three possibilities.

- 1. The excavation does not achieve results that meet the minimum specified cleanup standards, in which case the excavation will continue until the standards are met.
- 2. The excavation achieves results that meet the minimum specified cleanup standards, but the site will be protective for industrial uses only. Land use controls will be necessary.

3. The excavation achieves soil cleanup levels so that the site is protective for both industrial and residential use. Land use controls will not be necessary.

As further discussed in Section 5.6, if the initial soil excavation at a site achieves the selected cleanup levels but not the residential cleanup levels (possibility 2), the Air Force will consider several factors in making the decision to continue the excavation in an attempt to reach the residential cleanup goals, including the following:

- The amount of soil excavation completed;
- The concentrations of residual contaminants (and the residual risk remaining);
- The best estimate available for the additional amount of soil to be excavated to achieve protection for residential activities;
- The amount of time that an excavation crew can remain mobilized at the site;
- The remaining budget for the continuation of excavation activities;
- The remaining budget for the disposal of the additional volume of contaminated soil;
- The impact of adverse weather conditions on the project; and
- The continued impact of the project on Base activities.

The decision-making process is qualitative in nature and takes into account the progress made at all excavation sites. For example, the selected cleanup levels are achieved at both Site A and Site B. There is a small amount of funding remaining for these two projects, and the best estimate indicates that a smaller amount of additional excavation would be needed to reach residential cleanup levels at Site A. Assuming that there are no other considerations, the decision might be made to continue the excavation activities to attempt to reach residential cleanup levels at Site A and finalize the remedial action at Site B with land use controls. If the review results in the decision to finalize the cleanup action before achieving the residential cleanup levels at a soil site, Travis AFB will notify the regulatory agencies and start the application of Alternative 17 to the site.

5.5 Statutory Determinations

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost effective, and utilize 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 reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against off-site disposal of untreated wastes. The following sections discuss how the selected remedies meet these statutory requirements.

5.5.1 Protectiveness of Human Health and the Environment

The selected remedies of a combination of Alternative 18 and Alternative 17 at six sites and Alternative 17 at four additional sites will protect human health and the environment by removing or isolating source areas of contamination that pose a potential risk to human health or the environment. At those sites where Alternative 18 is a selected remedy, Alternative 18 will reduce the cancer risks from exposure to 1 x10⁶ and the HI to less than 1.0 (based on U.S. EPA Region 9 PRGs). This level falls at the lower end of U.S. EPA's target risk range of 10⁴ to 10⁶. Alternative 17 will prevent recreational and residential use of the sites and use of soil and sediment at the sites for residential fill. There are no short-term threats associated with the selected remedies that cannot be readily controlled. In addition, no adverse cross-media impacts are expected from the selected remedies.

5.5.2 Applicable or Relevant and Appropriate Requirements

The selected remedies of excavation and land use controls comply with all ARARs presented in more detail in Tables II-6-1 through II-6-6. Concerning chemical-specific ARARs, following lengthy negotiations with the regulatory agencies encompassing both the previously executed WABOU Soil ROD and this NEWIOU SSSW ROD, the Air Force accepted the U.S. EPA's recommendation to use the current PRGs (Smucker, 2004) as a basis for soil cleanup levels for carcinogenic chemicals that equate to a fixed level of risk (1x10-6) and for non-carcinogenic chemicals that equate to a fixed level of risk (HI=1). PRGs are TBCs and not ARARs. The Air Force accepted human health cleanup levels based on PRGs for NEWIOU soil and sediment sites because most sites have multiple contaminants and a cumulative risk that needs to be addressed. While using PRG-based cleanup levels potentially results in cleanup levels more conservative than required, Travis AFB determined that its site-specific situations with multiple contaminants justified accepting PRG-based cleanup levels.

5.5.3 Cost-Effectiveness

In the Air Force's judgment, the selected remedies are cost-effective and represent a reasonable value for the money to be spent. In making this determination, the following definition was used "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness. (NCP Section 300.430(f)(1)(ii)(D))." This was accomplished by evaluating the "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of the selected remedial alternatives was determined to be proportional to their costs and, hence, to represent a reasonable value for the money to be spent. The selected remedies for implementing the soil and sediment remedial actions at each site include the most cost-effective alternatives that can meet the NEWIOU RAOs. Section 5.3 presents the details of the alternative selection.

5.5.4 Use of Permanent Solutions, Alternative Treatments, or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedies represent the maximum extent to which permanent solutions and treatment technologies can be used in a practicable manner at each site. The selected remedies provide the best balance of trade-offs in terms of the five balancing criteria, while considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal, and also considering state and community acceptance. For the NEWIOU soil sites, innovative technologies, such as thermal treatment, were considered. However, difficulties associated with implementability or excessive cost rendered less innovative technology, such as excavation and disposal, and land use controls more favorable. The selected remedies satisfy the criteria for long-term effectiveness by removing contamination from soil to at least industrial levels at 6 sites and by implementing land use controls in the event that the soil excavation does not clear the sites for unlimited use and unrestricted exposure (residential use) for all COCs at the site. At 4 sites, land use controls alone satisfy the criteria for long-term effectiveness.

5.5.5 Preference for Treatment as a Principal Element

Remedies that treat contamination were considered. However, for the NEWIOU soil sites, excessive cost made treatment impractical when compared to excavation and disposal.

5.5.6 Five-Year Review Requirements

Because these remedies will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted after initiation of the final remedial action to ensure that the remedies are or will be protective of human health and the environment.

5.6 RD/RA Implementation and Schedule

The Air Force will implement the RD/RA for the 18 NEWIOU soil, sediment, and surface water sites in accordance with this NEWIOU SSSW ROD. In accordance with the Travis AFB FFA, the Air Force will present the NEWIOU RD/RA schedule for completing and submitting the site-specific RD planning and design documents to the regulatory agencies within 21 days of signing the NEWIOU SSSW ROD.

The NEWIOU RD/RA schedule is a product of the Travis AFB ERP Priority Model and the Travis AFB Strategic Plan. The Priority Model and the Strategic Plan are planning tools used by Travis AFB to prioritize funding and schedule remedial actions for ERP sites. They take into account factors such as human health risk, off-base migration, CAMU coordination issues, ecological risk, public interest, capital cost, project execution, and projected funding levels.

The Air Force has prepared the final *Basewide Soil Remedial Design/Remedial Action (RD/RA) Plan, Travis Air Force Base, California* (Soil RD/RA Plan) (URS, 2002), which addresses the implementation of soil remedial actions for all Travis AFB soil sites. It provides the procedures for conducting a soil excavation, for transportation, and for either placement in the CAMU or disposal in an appropriate off-base landfill. It addresses the following issues.

- The identification and filling of potential site characterization data gaps.
- The analytical methods and quality assurance/quality control procedures that will be used to characterize soil contaminants and confirm the attainment of cleanup levels during excavation.
- The procedures for conducting soil excavations. This includes procedures for sample collection and selection of sampling methods. This also includes the consideration of factors needed to make the site-specific decisions for continuing an excavation to attempt to reach residential cleanup goals.
- The sampling rationale for waste characterization prior to disposal. This includes the number of samples collected at each site and the methodology used for their collection. This also includes the procedures to be used to segregate heavily contaminated soil that needs to be transported off base for disposal and the less contaminated soil that can be placed in the CAMU.
- A detailed description of the CAMU, to include the procedures for segregating soil by contaminant type, decontamination procedures, sampling protocols, and inspection and maintenance requirements.

The Air Force will prepare an RD and RA work plan for each NEWIOU excavation site. Each RD and RA work plan will present excavation requirements, precautions needed to protect nearby sensitive habitats, truck routes to enter and exit the site, and all other site-specific information needed to complete the remedial action. RD and RA work plans are primary documents under the Travis FFA and will be reviewed by the regulatory agencies.

The RD/RA phases will use the soil and/or sediment cleanup levels listed in Tables II-5-3, II-5-5, II-5-7, II-5-9, II-5-11, or II-5-13 to accomplish the following.

- Estimate the target volumes that require remediation, which is an important input for the RD.
- Verify that the analysis of the confirmation samples collected during the RA can achieve the quantitation limits required by the appropriate Travis AFB Quality Assurance Project Plan.
- Measure the progress of the RA through comparison with the field analytical data and determine when the RA is complete.

The Air Force will monitor the progress of each soil remedial action until the soil cleanup levels are achieved. Then, the Air Force will review the results of the confirmation sample analysis and other site-specific conditions, as described in Section 5.4.2, and decide whether the RA should continue to attempt to reach residential cleanup goals and avoid the need to implement land use controls. The Air Force will keep the regulatory agencies informed of these decisions.

5.7 Site Closure

Within 60 days of the final inspection of the constructed remedy, the Air Force will submit an RA report to the regulatory agencies. This report will describe the RA and document the amount of excavated soil removed from the site, the disposition of the excavated soil (placement in the on-base CAMU or disposal in an off-base landfill), and the analytical results of the confirmation sampling. Table II-5-2 lists the soil and leachate acceptance levels for the CAMU at LF007. For soils that have been placed in the CAMU, the report will document the results of acceptance level sampling and analysis. Figures will show the aerial and, if necessary, the vertical extent of the excavation area.

5.8 Documentation of Significant Changes

There have been significant changes to the selected remedies since the Air Force submitted the North/East/West Industrial Operable Unit, Travis Air Force Base, Proposed Plan for Soil, Sediment, and Surface Water (Travis AFB, 1998a) for public comment on 8 July 1998. The NEWIOU SSSW Proposed Plan took a conservative approach and assumed that all but two of the sites may require excavation. After completion of the NEWIOU SSSW Proposed Plan, the planning effort at Travis AFB focused on the implementation of basewide interim groundwater remedial actions and the development of the WABOU Soil ROD (Travis AFB, 2002a). When the WABOU Soil ROD was completed in December of 2002, Travis AFB work resumed on the NEWIOU SSSW ROD. This effort included detailed site-by-site presentations and discussions with regulatory agencies on human health considerations, a more current sampling of the creek, and a new ERA. Based on this effort and experience from the WABOU Soil ROD, RDs, and RAs, it appeared that at many of the NEWIOU sites, excavation was not necessary. Specifically, Sites FT002, OT010, SS015, SS016, WP017, SS029, SS030, ST032, SS035, and SD037 had excavation as the proposed remedy in the NEWIOU SSSW Proposed Plan and now will have a selected action of "No Action" or "Land Use Controls." For two sites, SD034 and SD036, which had land use controls or natural attenuation as the preferred alternative in the NEWIOU SSSW Proposed Plan, it was subsequently determined that the preferred alternative should be "No Action." These selected actions are shown in Table II-5-15 and were all identified as remedial alternatives in the Proposed Plan. The rationale for the final remedy selected in this ROD is provided in Section 5.3. Additional data are available in the Human Health, Eco, and Groundwater Protection Tech Memos.

The Air Force provided the public notice and opportunity to comment on these changes in a 2006 fact sheet, a 2006 supplemental handout, and during a public meeting held on 26 January 2006.

One seeming variance not discussed in the January 2006 public meeting, fact sheet, or supplemental handout between the NEWIOU SSSW Proposed Plan and the remedy selection in this ROD is the selection of "No Action" for surface water at SD001 and SD033, rather than "Source Control." As explained in Section 5.1.1 and in footnote c to Tables I-3 and II-5-15, the NEWIOU SSSW Proposed Plan proposed "Source Control" (groundwater pump and treat) for surface water at SD001 and SD033, indicating Union Creek is not a source of contamination, but that the creek may be receiving TCE-contaminated water from groundwater through storm sewer infiltration. Subsequent to the NEWIOU SSSW Proposed Plan, extraction and treatment

of contaminated groundwater was implemented as part of the WABOU and NEWIOU Groundwater IRODs. As "Source Control" has already been implemented for surface water at SD001 and SD033, "No Action" will be implemented under this ROD for surface water at these sites. While the name of the selected remedy has changed, the "No Action" remedy is not different from what is described as "Source Control" in the NEWIOU SSSW Proposed Plan, in terms of actual actions to be taken under this ROD. The NEWIOU SSSW Proposed Plan indicated that source control would be accomplished under the groundwater IRODs, and source control is, in fact, now being accomplished under the groundwater IRODs. "Source Control," as described in the NEWIOU SSSW Proposed Plan, did not envision an affirmative action regarding surface water in the NEWIOU SSSW ROD. Thus, "No Action" more accurately labels the selected remedy for surface water under this ROD and is not a significant change in remedy.