

## SECTION 3

# Responsiveness Summary

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This section provides a summary of the public comments regarding the Proposed Plan (Travis AFB, 2012b) for groundwater at Travis AFB and includes the AF response to comments. At the time of the public review period, the AF had proposed Alternatives 1 through 7 as the preferred alternatives for the sites.

Travis AFB did receive verbal comments regarding the Proposed Plan (Travis AFB, 2012b) or the preferred alternatives described therein. No written comments were received on the Proposed Plan during the public review period.

A question and answer period followed the presentation of the Proposed Plan at the October 18, 2012, public meeting. Following the question and answer period, the meeting was opened to public comments. The following is a summary of the comments recorded at the public meeting and AF responses:

- **Comment No. 1: How well is the bioreactor (Alternative 4) at Site SS016 expected to work?**

Response to Comment No. 1: The bioreactor is expected to work well. The data obtained so far indicate that it is performing as designed and is successfully degrading the high concentrations of contaminants in the groundwater being circulated through the bioreactor mulch. The performance of the bioreactor will continue to be monitored, assessed, and documented in annual reports.

- **Comment No. 2: At the end of the project, will the sites be cleaned up, or will LUCs be implemented to be protective? (John Foster)**

Response to Comment No. 2: At the end of the project, the groundwater will be cleaned up. LUCs will be implemented until groundwater cleanup levels are achieved. At that time, the LUCs will be removed and the sites will be available for unrestricted use and unlimited exposure to groundwater.

- **Comment No. 3: When the groundwater is cleaned up, will the soil in the saturated zone still be contaminated? (Dave Marianno)**

Response to Comment No. 3: Some low concentrations of residual contamination are likely to be bound up in the saturated soil after groundwater cleanup levels are achieved. These low levels of contamination will slowly diffuse into the groundwater, at concentrations below the cleanup levels, and naturally degrade over time.

## 3.1 Stakeholder Comments and Lead Agency Responses

No official stakeholder comments were received or recorded at the public meeting.

## **3.2 Technical and Legal Issues**

No technical or legal issues were communicated on the Proposed Plan or recorded at the public meeting.

## SECTION 4

# References

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California Environmental Protection Agency – State Water Resources Control Board (State Water Board). 2011. *A Compilation of Water Quality Goals*. September 9. Accessed online: [http://www.waterboards.ca.gov/water\\_issues/programs/water\\_quality\\_goals/index.shtml](http://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/index.shtml).

California Regional Water Quality Control Board, San Francisco Bay Region (San Francisco Bay Regional Water Board). 2011. *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*. December.

CH2M HILL. 2013a. *Vapor Intrusion Assessment Report Update*. Prepared for Travis Air Force Base, California. Final. February.

CH2M HILL. 2013b. *Third Five-Year Review Report*. Prepared for Travis Air Force Base, California. Final. Pending.

CH2M HILL. 2012a. *Groundwater Sampling and Analysis Program 2010-2011 Annual Report*. Prepared for Travis Air Force Base, California. Final. April.

CH2M HILL. 2012b. *Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes at Travis Air Force Base, California*. Prepared for Travis Air Force Base, California. Final. September.

CH2M HILL. 2012c. *Work Plan for the Assessment of Aerobic Chlorinated Cometabolism Enzymes*. Prepared for Travis Air Force Base, California. Final. February.

CH2M HILL. 2012d. *2011 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant*. Prepared for Travis Air Force Base, California. Final. October.

CH2M HILL. 2012e. *Site LF007C Data Gaps Investigation Results Technical Memorandum*. Prepared for Travis Air Force Base, California. Final. July.

CH2M HILL. 2012f. *Remedial Process Optimization Baseline Implementation Report (Sites SS015, SS016, SS030, SD036, SD037, and DP039)*. Prepared for Travis Air Force Base, California. Final. March.

CH2M HILL. 2012g. *2012 Groundwater Sampling and Analysis Program Technical Memorandum*. Travis Air Force Base, California. Final. December.

CH2M HILL. 2012h. *Basewide Groundwater Technical and Economic Feasibility Analysis*. Prepared for Travis Air Force Base, California. Final. May.

CH2M HILL. 2011a. *Basewide Groundwater Focused Feasibility Study*. Prepared for Travis Air Force Base, California. Final. October.

CH2M HILL. 2011b. *2010 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary*

- Groundwater Treatment Plant*. Prepared for Travis Air Force Base, California. Final. September.
- CH2M HILL. 2011c. *Site ST027-Area B Human Health Risk Assessment*. Prepared for Travis Air Force Base, California. Final. December.
- CH2M HILL. 2010a. *Vapor Intrusion Assessment Report*. Prepared for Travis Air Force Base, California. Final. March.
- CH2M HILL. 2010b. *Natural Attenuation Assessment Report*. Prepared for Travis Air Force Base, California. Final. July.
- CH2M HILL. 2010c. *Groundwater Sampling and Analysis Program 2008-2009 Annual Report*. Final. April.
- CH2M HILL. 2010d. *2009 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant*. Prepared for Travis Air Force Base, California. Final. July.
- CH2M HILL. 2010e. *Technical Memorandum, Site ST027 – Area B Characterization Results*. Prepared for Travis Air Force Base, California. Final. July.
- CH2M HILL. 2009a. *Analytical Quality Assurance Project Plan for Remedial Design/Remedial Action, Long-term Maintenance, and Long-term Operation Programs, Revision 2*. Prepared for Travis Air Force Base, California. Final. July.
- CH2M HILL. 2009b. *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant*. Prepared for Travis Air Force Base, California. Final. June.
- CH2M HILL. 2008a. *Second Five-Year Review Report*. Prepared for Travis Air Force Base, California. Final. September.
- CH2M HILL. 2008b. *Remedial Action Report POCO Sites ST027 and ST028*. Prepared for Travis Air Force Base, California. Final. August.
- CH2M HILL. 2008c. *Vapor Intrusion Assessment Work Plan*. Prepared for Travis Air Force Base, California. Final. June.
- CH2M HILL. 2008c. *Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant 2007 Annual Report*. Environmental Restoration Program. Travis Air Force Base, California. Final. February.
- CH2M HILL. 2007. *Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant 2006 Annual Report*. Environmental Restoration Program. Travis Air Force Base, California. Final. January.
- CH2M HILL. 2006. *Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant 2005 Annual Report*. Environmental Restoration Program. Travis Air Force Base, California. Final. February.
- CH2M HILL. 2003. *Groundwater Five-Year Review*. Prepared for Travis Air Force Base, California. Final. July.

- CH2M HILL. 2000. *Reevaluation of Soil and Groundwater Contamination at Building 916 (SD043) Technical Memorandum*. Installation Restoration Program. Travis Air Force Base, California. Final. February.
- CH2M HILL. 1999. *SD034 Interim Groundwater Remedial Design/Remedial Action Work Plan*. Prepared for Travis Air Force Base, California. Final. March.
- CH2M HILL. 1998a. *West/Annexes/Basewide Operable Unit (WABOU) Feasibility Study, 60th Air Mobility Wing*. Prepared for Travis Air Force Base, California. Final. April.
- CH2M HILL. 1998b. *Natural Attenuation Assessment Plan (NAAP)*. Prepared for Travis Air Force Base, California. Final. August.
- CH2M HILL. 1997. *West/Annexes/Basewide Operable Unit (WABOU) Remedial Investigation Report*. Prepared for Travis Air Force Base, California. Final. May.
- CH2M HILL. 1996. *Comprehensive Basewide Ecological Risk Assessment – Tier 2: Screening Assessment*. Prepared for Travis Air Force Base, California. Final. May.
- CH2M HILL. 1995. *Comprehensive Basewide Ecological Risk Assessment – Tier 1 Scoping/Qualitative Assessment*. Prepared for Travis Air Force Base, California. Final. May.
- Cherry, J.A. 1996. *Conceptual Models for Chlorinated Solvent Plumes and their Relevance to Intrinsic Remediation*. Symposium on Natural Attenuation of Chlorinated Organics in Groundwater. EPA/540/R-96/509, pages 29-30. September.
- Cohen, R.M., A.H. Vincent, J.W. Mercer, C.R. Faust, and C.P. Spalding. 1994. *Methods for Monitoring Pump-and-Treat Performance*. Dynamic Corporation. Prepared under contract to EPA. June.
- Endpoint. 2013. *Third Five-Year Review*. Prepared for Travis Air Force Base, California. Final. September.
- Environmental Chemical Corporation. 2003a. *Remedial Action Report for Soil Remedial Actions at Site LF044*. Environmental Restoration Program. Travis Air Force Base, California. Final. October.
- Environmental Chemical Corporation. 2003b. *Remedial Action Report for Soil Remedial Actions at Site RW013*. Environmental Restoration Program. Travis Air Force Base, California. Final. August.
- Environmental Chemical Corporation. 2003c. *Remedial Action Report for Soil Remedial Actions at Site SS041*. Environmental Restoration Program. Travis Air Force Base, California. Final. August.
- Environmental Chemical Corporation. 2003d. *Remedial Action Report for Soil Remedial Actions at Site LF044*. Environmental Restoration Program. Travis Air Force Base, California. Final. October.
- Feenstra, S. and Cherry, J.A. 1988. *Subsurface Contamination by Dense Non-Aqueous Phase Liquid (DNAPL) Chemicals*. Proceedings of International Groundwater Symposium, International Association of Hydrogeologists, May 1-4, Halifax, Nova Scotia, 62-69.

- Freeze, A.R., and D.B. McWhorter. 1997. "A Framework for Assessing Risk Reduction Due to DNAPL Mass Removal from Low-Permeability Soils." *Ground Water*. Vol. 35, No. 1.
- Freeze, R.A. and J.A. Cherry. 1979. *Groundwater*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Gelhar, L.W., C. Welty, and K.R. Rehfeldt. 1992. "A Critical Review of Data on Field-Scale Dispersion in Aquifers." *Water Resources Research*. Vol. 28, No. 7. July. pp. 1955-1974.
- Jacobs Engineering Group, Inc. 1994. *Preliminary Assessment/Site Inspection Report*. Prepared for Travis Air Force Base, California.
- ITSI. 2010. *Sites SD001 and SD033 Remedial Action Report*. Environmental Restoration Program. Travis Air Force Base, California. Final. July.
- ITSI Gilbane. 2012. *FT005 Remedial Action Report*. Environmental Restoration Program. Travis Air Force Base, California. Final. September.
- Kueper, B.H., W. Abbot, and G. Farguhar. 1989. "Experimental Observations of Multiphase Flow in Heterogeneous Porous Media." *Journal of Contaminant Hydrology*. Vol. 5, pp. 83-95.
- Mayer, K. and W. Laudenslayer, Jr. 1988. *A Guide to Wildlife Habitats of California*. California Department of Fish and Game. Sacramento, California.
- Parsons. 2010. *Technical Report, Phytostabilization at Travis Air Force Base, California*. Air Force Center for Engineering and the Environment, Restoration Branch, Technology Transfer Office, Brooks City-Base, Texas. Final. September.
- Parsons. 2005. *Interim Technical Report for the Demonstration of Phytoremediation of Contaminated Groundwater Using Tree Plantings at Travis Air Force Base, California; Addendum Report No. 3*. Air Force Center for Engineering Excellence, Environmental Service Division, Brooks-City Base, Texas. Final. September.
- Radian. 1996a. *West Industrial Operable Unit Remedial Investigation*. Installation Restoration Program. Travis Air Force Base. Final. February.
- Radian. 1996b. *North/East/West Industrial Operable Unit Feasibility Study*. Installation Restoration Program. Travis Air Force Base, California. Final. September.
- Radian. 1995. *Remedial Investigation Report for the North Operable Unit*. Installation Restoration Program. Travis Air Force Base. Final. July.
- Sale, T.C., and D.B. McWhorter. 2001. "Steady State Mass Transfer from Single-Component Dense Nonaqueous Phase Liquids in Uniform Flow Fields." *Water Resources Research*. Vol. 37, No. 2. pp. 393-404.
- Sale, T.C. 1998. *Interphase Mass Transfer from Single Component DNAPLs*. Ph.D. Dissertation. Colorado State University, Fort Collins.
- Shaw Environmental, Inc. 2008. *North, East, and West Industrial Operable Unit and West/Annexes/Basewide Operable Unit Soil Remedial Action for Sites SD045, FT003, FT004, FT005, Union Creek SD001 and SD033, and LF007 Area E Report*. Environmental Restoration Program. Travis Air Force Base, California. Final. September.

- Shaw Environmental, Inc. 2004a. *Remedial Action Report for West/Annexes/Basewide Operable Unit, Soil Remedial Action at Site LF008, Travis AFB, CA*. Final. May.
- Shaw Environmental, Inc. 2004b. *Project Summary Report for the Site LF007 Phase 2 Soil Remedial Action*. Environmental Restoration Program. Travis Air Force Base, California. Final. April.
- Shaw Environmental, Inc. 2003. *Project Summary Report for the LF007 Soil Remedial Action Phase 1, Landfill Cap, Corrective Action Management Unit Subgrade, Wetlands Mitigation*. Environmental Restoration Program. Travis Air Force Base, California. Final. September.
- Thomasson, H., F. Olmsted, and E. LeRoux. 1960. *Geology, Water Resources and Usable Ground-Water Storage Capacity of Part of Solano County, California*. Geological Survey Water-Supply Paper 1464.
- Travis Air Force Base. 2013. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2012*. Environmental Restoration Program. 60th Air Mobility Wing. Final. January.
- Travis Air Force Base. 2012a. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2011*. Environmental Restoration Program. 60th Air Mobility Wing. Final. February.
- Travis Air Force Base. 2012b. *Proposed Plan for Groundwater Cleanup*. Environmental Restoration Program. Travis Air Force Base, California. Final. October.
- Travis Air Force Base. 2011. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2010*. Environmental Restoration Program. 60th Air Mobility Wing. Final. February.
- Travis Air Force Base. 2010. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2009*. Environmental Restoration Program. 60th Air Mobility Wing. Final. April.
- Travis Air Force Base. 2009. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2008*. Environmental Restoration Program. 60th Air Mobility Wing. Final. February.
- Travis Air Force Base. 2008. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2007*. Environmental Restoration Program. 60th Air Mobility Wing. Final. January.
- Travis Air Force Base. 2007. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2006*. Environmental Restoration Program. 60th Air Mobility Wing. Final. January.
- Travis Air Force Base. 2006a. *North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision*. Final. May.
- Travis Air Force Base. 2006b. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2005*. Environmental Restoration Program. 60th Air Mobility Wing. Final. February.
- Travis Air Force Base. 2005a. *Category IV No Further Remedial Action Planned Consensus Statement*, Environmental Restoration Program Site SS041 (Building 905), Travis Air Force Base, California. December.
- Travis Air Force Base. 2005b. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2004*. Environmental Restoration Program. 60th Air Mobility Wing. Final. January.
- Travis Air Force Base. 2004. *Annual Report on the Status of Land Use Controls on Restoration Sites in 2003*. Environmental Restoration Program. 60th Air Mobility Wing. Final. January.

Travis Air Force Base. 2002a. *Soil Record of Decision for the West/Annexes/Basewide Operable Unit*. Installation Restoration Program. Travis Air Force Base, California. Final. December.

Travis Air Force Base. 2002b. *Travis AFB General Plan*. Travis Air Force Base, California. Final.

Travis Air Force Base. 1999. *Groundwater Interim Record of Decision for the West/Annexes/Basewide Operable Unit (WABOU)*. Installation Restoration Program. Travis Air Force Base, California. Final. June.

Travis Air Force Base. 1998. *Groundwater Interim Record of Decision for the North, East, and West Industrial Operable Unit (NEWIOU)*. Installation Restoration Program. Travis Air Force Base, California. Final. January.

Travis Air Force Base. 1990. *Federal Facilities Agreement*. September.

Trihydro Corporation. 2013. *Pre-Design Site Characterization of Site SS029 Remedial Process Optimization, South Base Boundary Treatment Plant Report*. Travis Air Force Base, Environmental Restoration Program. Final. October.

Trihydro Corporation. 2012. *Investigation Work Plan, Remedial Process Optimization, SS016 and SS029, South Base Boundary Treatment Plant*. Travis Air Force Base, Environmental Restoration Program. Draft. February.

URS Group, Inc. 2004. *Central Groundwater Treatment Plant Quarterly Reports, Third Quarter 2004*. October.

U.S. Environmental Protection Agency (EPA). 2012. Regional Screening Levels (Formerly PRGs). May. Accessed online: <http://www.epa.gov/region9/superfund/prg/index.html>.

U.S. Environmental Protection Agency (EPA). 2004a. *Performance Monitoring of MNA Remedies for VOCs in Groundwater*. EPA/600/R-04/027.

U.S. Environmental Protection Agency (EPA). 2004b. *DNAPL Remediation: Selected Projects Approaching Regulatory Closure – Status Update*. EPA 542-R-04-016. December.

U.S. Environmental Protection Agency (EPA). 2002. *Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action*. EPA 530 F-01-021.

U.S. Environmental Protection Agency (EPA). 1999. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*. Office of Solid Waste and Emergency Response (OSWER) Directive 9200.4-17P.

U.S. Environmental Protection Agency (EPA). 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater*. Office of Research and Development, Washington DC. EPA/600/R-98-128. September.

U.S. Environmental Protection Agency (EPA). 1993. *Guidance for Evaluating the Technical Impracticability of Ground Water Restoration*. Office of Solid Waste and Emergency Response (OSWER) Directive 9234.2-25.



U.S. Environmental Protection Agency (EPA). 1992. *Estimating Potential for Occurrence of DNAPL at Superfund Sites*. OSWER Publication 9355.4-07FS. NTIS Order Number PB92963338CDH.

U.S. Environmental Protection Agency (EPA). 1986. *Guidelines for Ground-Water Classification under the EPA Ground-Water Protection Strategy*. EPA/440/6-86-007. Final Draft. December.

U.S. Fish and Wildlife Service (USFWS). 2011. *Reinitiation of the Biological Opinion for the Proposed Travis Air Force Base Groundwater Remedial Action at LF007 Area C Project, Solano County, California*. U.S. Fish and Wildlife Service File Number 81420-2002-F-0001-R001. August.

U.S. Fish and Wildlife Service (USFWS). 2002. *Formal Consultation on the Proposed Groundwater Remedial Action at LF007 Area C, Travis Air Force Base, Solano County, California*. U.S. Fish and Wildlife Service File Number 1-1-02-F-0227. July.

Weston, Roy F., Inc. (Weston). 2011. *Travis Air Force Base Water Study and Analysis Report*. Department of the Air Force, Travis AFB, California. Contract #FA8903-08-D-8784, Task Order #SK04. Final. June.

Weston, Roy F., Inc. (Weston). 1995. *East Industrial Operable Unit Remedial Investigation Report*. Travis Air Force Base, California. Final. October.