Final Proposed Plan for

Environmental Restoration Program
Sites FT004 and SD034
Travis Air Force Base, California

Department of the Air Force

Travis Air Force Base, California
June 2026

Air Force Announces Proposed Plan

The U.S. Air Force (Air Force) proposes changes to the selected remedy for two contaminated groundwater locations at Travis Air Force Base (AFB), California. This Proposed Plan identifies bioreactors[1] and enhanced attenuation (EA) as the preferred alternatives for modifying the existing groundwater remedies at the two separate locations and explains why the Air Force recommends them. The preferred alternatives will enable the groundwater to be cleaned up to a level appropriate for unlimited use and unrestricted exposure and, in conjunction with the land use controls (LUCs) that are part of the existing remedy, will be protective for human health and the environment under all exposure scenarios.

The two contaminated groundwater locations addressed in this Proposed Plan are called environmental restoration sites and are referred to by the following site designations:

- Site FT004: This site was used for fire training exercises and is currently an unused, open field.
- Site SD034: This site consists of an airplane hangar facility with an active indoor wash rack (Facility 811) and an outdoor area with an oil/water separator (OWS), an aboveground storage tank (AST) formerly containing Stoddard solvent, and an overflow pond.

Sites FT004 and SD034 are part of the Travis AFB Environmental Restoration Program (ERP) established in 1983 to investigate and clean up contamination from past Base activities. Historical releases of hazardous materials occurred from leaking pipelines, spills, or waste disposal to landfills. Although the materials handling and disposal practices of the past complied with environmental regulations at the time, they resulted in soil and groundwater contamination and have since been stopped. Travis AFB follows current environmental requirements for the management and disposal of hazardous materials and waste.

Figure 1 shows the locations of Sites FT004 and SD034, and Table 1 summarizes the types and concentrations of groundwater contaminants at the two sites.

What Is Inside?

The Air Force, as the lead agency for environmental restoration activities on Travis AFB, is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 *U.S. Code* Section 9617(a), and 40 *Code of Federal Regulations* Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and invites the public to participate in the selection process (see page 12 for information). The California Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (Water Board), as support agencies, concur with the preferred remedy identified in this Proposed Plan. Since Travis AFB is included on the National Priorities List (NPL), which requires the Air Force to follow the applicable procedures outlined in CERCLA and supporting regulations in the NCP, the U.S. Environmental Protection Agency (EPA) co-selects remedies along with the Air Force, and in the event of disagreement, the EPA Administrator solely selects the remedy.

How You Can Get Involved

Public Comment Period:
July 6 through August 7, 2026

The Air Force will accept written comments on the Proposed Plan during the public comment period. Comment letters must be postmarked by August 7, 2026, and should be submitted to:

Public Affairs Office
Chief of Community Engagement
60th Air Mobility Wing Public Affairs Office
400 Brennan Circle
Building 51, Room 231
Travis AFB, CA 94535
Phone: (707) 424-2011
E-mail: 60AMWPA@us.af.mil

Public Meeting:
A public meeting may be requested during the public comment period using the contact information provided above.

To review relevant documents, the Administrative Record (AR) can be accessed online at https://ar.cce.af.mil/.

[1] Terms in bold are included in the glossary on page 12.

The selection of remedial alternatives to modify the existing groundwater remedy at Sites FT004 and SD034 will be documented in an amendment to the June 2014 *Groundwater Record of Decision* (Groundwater ROD). The Groundwater ROD is a formal decision document that was signed by the Air Force, EPA, DTSC, and Water Board. The three regulatory agencies provide technical oversight to Travis AFB. The ROD also provides the basis for Travis AFB to request funds for the groundwater cleanup actions.

More detailed discussions of the information presented in this Proposed Plan are available in the Basewide Groundwater Focused Feasibility Study (FFS), the original 2014 Proposed Plan for Groundwater Cleanup, and the technology demonstration (TD) construction reports and memorandum. Electronic copies are available for review in the Air Force Civil Engineer Center AR at https://ar.cce.af.mil. These documents provide detailed information regarding Sites FT004 and SD034 and cleanup activities that already have been conducted. A list of applicable documents is found in the References section below.

FIGURE 1
Locations of Sites FT004 and SD034

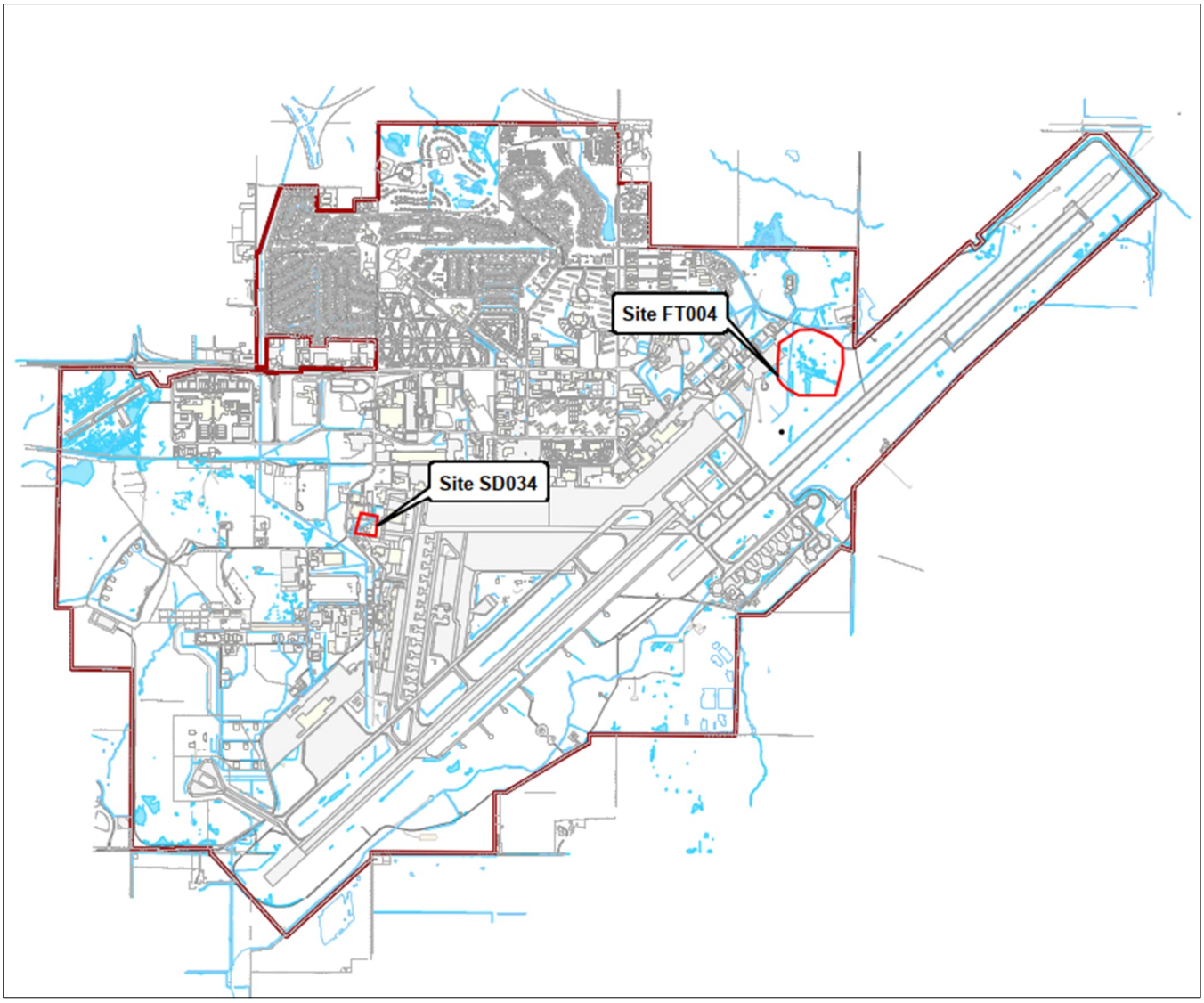

TABLE 1
Summary of Groundwater Sites, Chemicals of Concern, and Maximum Concentrations

COCs[a]	Groundwater Cleanup Goal[b] (µg/L)	Historical Maximum Concentrations[c] (µg/L)	2023 Maximum Concentrations (µg/L)
Site FT004 (FTA 3)			
1,1-DCE	6	42	19
1,2-DCA	0.5	5.12	ND
1,4-DCB	5	3.8	ND
Bromodichloromethane	100	5.7	ND
Chloroform	100	15	ND
cis-1,2-DCE	6	60.5	110[d]
TCE	5	5,200	150
Vinyl chloride	0.5	43.7	72[d]
Site SD034 (Facility 811)			
1,1-DCE	6	3.2	ND
Benzene	1	1.34	ND
cis-1,2-DCE	6	391	5.1
PCE	5	41.4	140[e]
TCE	5	456	37
TPH-D[f]	100	4,210,000	3,200
Vinyl chloride	0.5	11	ND

[a] According to the Groundwater ROD, bis(2-ethylhexyl)phthalate and nickel were initially identified as COCs. However, bis(2-ethylhexyl)phthalate was later determined to be a field or laboratory artifact, and nickel was determined to be leaching from stainless-steel well casings used in monitoring well construction. Thus, neither analyte was representative of groundwater contamination, so they were excluded from this table.

[b] Groundwater cleanup goals were established in the 2014 Groundwater ROD and will remain unchanged. The groundwater cleanup goal is the more stringent of the federal MCL or State of California MCL. For TPH-D, the cleanup goal is based on environmental screening levels, which are typically used by the Water Board to determine whether additional investigation is required at a site.

[c] According to the Groundwater ROD, the maximum historical concentrations were prior to implementation and long-term operation of the groundwater remedial action at the site.

[d] Cis-1,2-DCE and vinyl chloride are by-products of the degradation of TCE, and therefore concentrations of both of these chemicals initially increased following the TD initiation. However, these by-products are subsequently degraded by the same process that degrades TCE. Concentrations of both cis-1,2-DCE and vinyl chloride have declined with ongoing TD operation and will continue to decrease over time.

[e] During installation of the TD, PCE concentrations were discovered to be higher than historically detected at the site, but concentrations have decreased following the TD initiation and will continue to decrease over time.

[f] TPH-D was not identified as a COC for Site SD034 according to the Groundwater ROD. However, TPH-D is monitored as an indicator contaminant for the presence of Stoddard solvent.

Notes:

µg/L = microgram(s) per liter (or part[s] per billion [ppb])
COC = chemical of concern
DCA = dichloroethane
DCB = dichlorobenzene
DCE = dichloroethene
FTA = Fire Training Area
MCL = maximum contaminant level
ND = not detected
PCE = tetrachloroethene
TCE = trichloroethene
TPH-D = total petroleum hydrocarbons as diesel

The public is encouraged to review and comment on the new preferred cleanup options for Sites FT004 and SD034 presented in this Proposed Plan. The Air Force will accept comments from July 6 to August 7, 2026, by either of the methods listed on page 12 of this Proposed Plan. Comment letters must be postmarked by August 7, 2026. A public meeting can be held to present the Proposed Plan and to answer questions relevant to the document if interested parties request one as part of the public comment period. A public meeting can be requested using any of the contact options provided on page 12 of this Proposed Plan (What Can I Do?) during the public comment period. If a public meeting is requested, it will be held at the Northern Solano County Association of Realtors building located at 3690 Hilborn Road in Fairfield, California.

Site History and Background

Travis AFB occupies approximately 6,368 acres in Solano County, California, midway between San Francisco and Sacramento and near the cities of Fairfield and Vacaville. It is in primarily agricultural or range land, although recent years have seen residential development to the southwest and commercial development to the north and west.

Travis AFB has provided strategic airlift support to military forces worldwide since it was established in 1943. It is home to the largest mobility organization in the Air Force, with a fleet of C-5 Galaxy and C-17 Globemaster III cargo aircraft and the KC-46A aerial refueling aircraft. The KC-46A replaced the KC-10 Extender aerial refueling aircraft and assumed the role of being the air refueling aircraft of the "Gateway to the Pacific." Various hazardous materials, such as oils, fuels, and solvents, are used to maintain these aircraft.

Site FT004

Site FT004 covers approximately 40 acres in the northeastern portion of the Base. This site was used for fire training exercises from 1953 to 1962. During these exercises, waste fuel, oils, and solvents were dumped onto the ground and burned. Solvents released to the environment during these exercises generated contaminant plumes in groundwater. This site is currently an unused, open field. The COCs in groundwater at Site FT004 are volatile organic compounds (VOCs) and include 1,1-DCE, 1,2-DCA, 1,4-DCB, bromodichloromethane, chloroform, cis-1,2-DCE, TCE, and vinyl chloride, with TCE as the primary constituent.

Groundwater extraction and treatment (GET) was selected as an interim remedial action (IRA) to address groundwater contamination at Site FT004. The objective of the Site FT004 GET system was to control the source of chlorinated solvents. The GET system was installed in 1999 and began operating in March 2000. The GET system was partially shut down in December 2007 and fully shut down in 2009 to monitor for rebound. No significant increases in COC concentrations (rebound) have occurred in the groundwater plume since the system was shut down.

The Air Force also performed a monitored natural attenuation (MNA) assessment to address contamination not captured by the GET system in portions of the plumes. In 2012, Site FT004 was also included in a study to assess whether aerobic processes can biodegrade TCE in groundwater. The results of the study indicated that aerobic processes at Site FT004 may be contributing to natural attenuation. Based on the results of the MNA assessment, MNA was selected as the final groundwater remedy in the 2014 Groundwater ROD.

A TD was conducted at Site FT004 between 2016 and 2019 to evaluate the effectiveness of two different methods of delivering nutrients to subsurface bacteria capable of biodegrading groundwater contaminants present at this site.

Construction of the Site FT004 TD was challenging because of the presence of habitat for the endangered California tiger salamander, including numerous vernal pools within the TD area. Construction was completed in January 2016 and included emulsified vegetable oil (EVO) injections and four bioreactor trenches. Both of these are methods of delivering nutrients (primarily organic carbon) to subsurface bacteria capable of breaking down groundwater contaminants. Groundwater was extracted and recirculated through the bioreactor trenches to continuously replenish organic carbon in the aquifer (Figure 2). The TD was designed to target areas with TCE concentrations in groundwater that exceeded 20 µg/L. The concept of injecting EVO and recirculating groundwater through the bioreactor trenches to accelerate treatment was considered a valid bioremediation strategy for portions of the Site FT004 plume. While currently inactive, the GET system infrastructure remains in place and was partially used to supplement the TD infrastructure.

LUCs to restrict access to this site and prevent contaminant exposure to site visitors and Base employees are in place at this site pursuant to the Groundwater ROD and will remain in place even during the remedy change until the cleanup levels are achieved for the entirety of the plume.

Site SD034

Site SD034 covers approximately 4 acres located in the central portion of the Base; it is not surrounded by any walls, fencing, or gates. However, civilian vehicle access is restricted in the northeastern corner of this site because of its proximity to the flightline. Site SD034 includes Facility 811, which consists of a large airplane hangar that is approximately 2 acres in size. Facility 811 also includes an indoor wash rack, an OWS, and an aboveground Stoddard solvent storage tank. Historically, the OWS discharged to a no-longer-used overflow pond located northwest of Facility 811. The OWS and associated overflow pond was the primary source of contamination for Site SD034, and the OWS was removed and replaced in 1994. Facility 811 is currently an active facility and is expected to continue operating for the foreseeable future. The COCs in groundwater at Site SD034 are 1,1-DCE, benzene, cis-1,2-DCE, PCE, TCE, TPH-D, and vinyl chloride, with TPH-D as the indicator chemical for Stoddard solvent. Stoddard solvent is present at the water table as floating product.

An interim remedy of GET combined with passive skimming was implemented at Site SD034, brought online in 2000, and operated until 2010 when the GET was shut down for a rebound study. Passive skimming to address the Stoddard solvent floating product continued.

A final remedy of passive skimming and EA was selected for Site SD034 in the 2014 Groundwater ROD. EA was selected for sites where natural attenuation processes are active but insufficient to contain and remediate the groundwater plume in a reasonable amount of time. At Site SD034, passive skimming, was selected for the source area (to address the Stoddard solvent floating product), while natural attenuation processes address the remaining portion of the plume (VOCs and TPH-D).

As part of a 2015 data gap investigation, characterization of the remaining Stoddard solvent–affected groundwater was refined, the Stoddard solvent source was investigated, and additional data were collected to support evaluation of whether an enhancement to the existing remedy or a TD to evaluate a new treatment method was appropriate. Based on the results of the data gap investigation, and the 2015 groundwater sampling results, it was determined that a TD would be completed to evaluate whether a new treatment method for the remaining Stoddard solvent and TPH-D in groundwater was appropriate at Site SD034.

During project planning for the construction of the Site SD034 TD, subsurface utilities at unanticipated locations were discovered and required revisions to the existing utility infrastructure layout. Construction of the TD was completed in December 2016 and included six bioreactor trenches. Groundwater extracted at Site SD034 is recirculated through the bioreactor trenches for treatment (Figure 2). The TD was designed to evaluate the effectiveness of using aerobic bioreactors (with oxygen) to increase the number and vitality of microorganisms available to degrade groundwater contaminated with Stoddard solvent (represented by TPH-D). The aerobic treatment process for this TD was very effective at treating high petroleum concentrations. The results from the TD also suggest that the system was adaptable to address the unexpected presence of Stoddard solvent pulled from under Facility 811 by the TD groundwater recirculation. While currently inactive, the GET system infrastructure remains in place and was partially used to supplement the TD infrastructure.

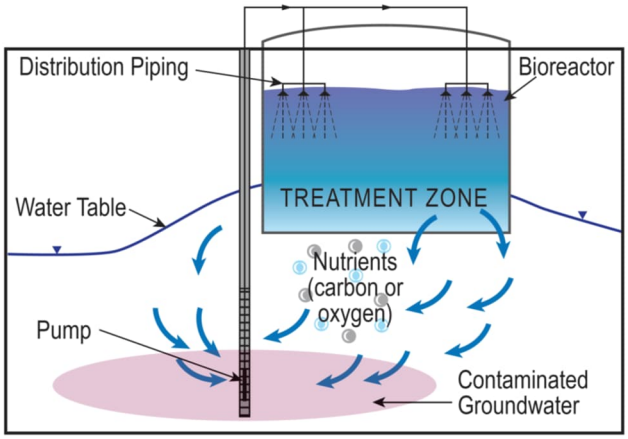

FIGURE 2
Bioreactor Configuration

LUCs to restrict access to this site and prevent contaminant exposure to site visitors and Base employees are in place at this site pursuant to the Groundwater ROD and will remain in place even during the remedy change until the cleanup levels are achieved for the entirety of the plume.

Site Status

Site FT004

Although the TD has concluded, the bioreactor trenches remain in place and have continued operation while the Air Force considered incorporating them into the final groundwater remedy. To date, additional EVO injections have not been needed to successfully operate the bioreactor and continue to reduce concentrations of COCs. Through 2023, the area of the groundwater plume that continues to exceed cleanup levels has been reduced by 96 percent since the initiation of the TD in 2016. Table 1 summarizes maximum historical concentrations and 2023 concentrations at Site FT004.

Site SD034

Although the TD has concluded, the bioreactor trenches remain in place and have continued operation while the Air Force considered incorporating them into the final groundwater remedy. Through 2023, source area TPH-D concentrations have been reduced by 99 percent since the initiation of the TD in 2016. Table 1 summarizes maximum historical concentrations and 2023 concentrations at Site SD034.

Summary of Site Risks

As documented in the Groundwater ROD, the types and concentrations of contaminants currently found at Sites FT004 and SD034 may pose a potential unacceptable risk to human health and the environment. The amount of potential risk depends on the contaminant, its concentration, and where it is found. Based on currently available information, the most plausible current or future human receptor populations that may contact COCs in groundwater consist of an on-base or hypothetical off-base industrial worker and a hypothetical on-base or off-base resident. However, the Air Force has determined that Travis AFB is reasonably anticipated to continue as an active military facility, and current land uses are reasonably anticipated to continue indefinitely to support the mission of the facility. Travis AFB does not use groundwater from beneath its geographical footprint and does not plan to do so in the future.

VOC contaminants (TCE and vinyl chloride) in groundwater at Site FT004 pose a potential unacceptable risk to human health from direct contact with groundwater and inhalation of volatiles migrating from groundwater (vapor intrusion into indoor air) and does not allow for unlimited use and unrestricted exposure. VOC concentrations in groundwater at Site FT004 are above industrial cleanup levels for direct contact with groundwater. However, the residential scenario for exposure to groundwater through direct contact (such as showering or other household activities) was not evaluated at Site FT004. For inhalation of volatiles migrating from groundwater, VOC concentrations in groundwater at Site FT004 are above residential and industrial cleanup levels.

VOC contaminants (TCE, PCE, vinyl chloride, and benzene) in groundwater at Site SD034 pose a potential unacceptable risk to human health from direct contact with groundwater and inhalation of volatiles migrating from groundwater (vapor intrusion into indoor air) and does not allow for unlimited use and unrestricted exposure. VOC concentrations in groundwater at Site SD034 are above residential and industrial cleanup levels for direct contact with groundwater. For inhalation of volatiles migrating from groundwater (through showering or other household activities), VOC concentrations in groundwater at Site SD034 are above residential cleanup levels for cancer risk only and do not exceed industrial cleanup levels.

At Sites FT004 and SD034, groundwater is located below the depth at which ecological receptors are present. Therefore, there are no chemicals posing risks to environmental receptors at either site. No ecological receptors of concern were identified for groundwater, as stated in the Groundwater ROD.

It is the Air Force's current judgment that the preferred alternatives identified in this Proposed Plan are necessary to protect human health and the environment from actual or threatened releases of hazardous substances into the environment.

Rationale for Remedy Changes

Although the original remedies remain protective, enhancements to the remedies were considered to reduce the remediation timeframe and the Air Force's environmental liability. The infrastructure for the enhanced remedies is already in place; therefore, no additional capital costs, beyond the costs that have already been incurred, would be required.

Remedial Action Objectives

Remedial Action Objectives (RAOs) describe what a proposed cleanup action is supposed to accomplish. According to the Groundwater ROD, the RAOs for groundwater at Travis AFB provide for protection of human health and include the following:

- Restrict human ingestion and direct dermal contact with contaminated groundwater and reduce concentrations of COCs in groundwater to restore designated beneficial uses.
- Restrict inhalation of COCs that are volatilizing from groundwater into indoor air until those levels do not pose unacceptable risk to human health.
- Prevent or minimize further migration of the contaminant plume that is above the cleanup levels.
- Remove Stoddard solvent, containing dissolved COCs, floating on the groundwater table at Site SD034 and potentially impacting designated beneficial uses to the maximum extent practicable.

Cleanup Alternatives

Remedial Alternatives 2 and 7 as described in the 2014 Groundwater ROD have not changed and are currently being implemented. However, based on the results of the TDs, one additional alternative (Alternative 8) is proposed to be added, as described in this Proposed Plan. The new alternative is a combination of components from the existing alternatives in the Groundwater ROD. Table 2 describes the groundwater cleanup alternatives presented in this Proposed Plan. The Groundwater FFS looked at available cleanup technologies, screened out the technologies that would not work, and used the remaining technologies to develop remedial alternatives. The FFS evaluated the alternatives using the criteria in the NCP outlined in 40 *Code of Federal Regulations* Section 300.430(e)(9) and described in Table 3. These evaluations of the alternatives were previously presented in Section 8.0 of the Groundwater FFS and then summarized in Section 2.10 of the Groundwater ROD. Most of the evaluations have not changed over time, so their results are still valid for comparison purposes.

For each alternative, as per the Groundwater ROD: "Land use restrictions are required as part of this response action and will be achieved through imposition of LUCs that restrict access or use of groundwater, including development of main-base water wells, restrict soil excavation and other subsurface work where a worker might encounter contaminated groundwater or vapors …. No water supply wells will be allowed at Travis AFB without prior approval from the AF and appropriate regulatory agencies until concentrations of contaminants remaining in groundwater are at such levels to allow for designated beneficial uses of groundwater (domestic, municipal, agricultural, and industrial supply) as well as unlimited use and unrestricted exposure (i.e., MCLs). Land use restrictions for vapor intrusion are also required as part of this response action and will be achieved through imposition of LUCs that restrict residential and commercial/industrial exposures to VOCs migrating from groundwater into indoor air and incorporate Travis AFB's current indoor air vapor intrusion mitigation policy that restricts new residential/industrial construction at portions of these sites unless vapor barriers and passive ventilation systems are installed. Residential and commercial/industrial land uses at Sites FT004 … will not be allowed without prior approval from the AF and appropriate regulatory agencies until concentrations of volatile COCs in groundwater posing a potential indoor air risk are at such levels that VOCs emanating from groundwater to indoor air do not pose unacceptable risk to human health. Travis AFB will enforce LUCs for vapor intrusion until the residual contaminant concentrations in groundwater … are protective of the vapor intrusion pathway" (Travis AFB, 2014). Site FT004 has groundwater and groundwater-to-indoor-air LUCs. Site SD034 has groundwater LUCs. LUCs are enforced per the *Land Use Control Implementation Plan* (Jacobs and FPM Remediations, Inc., 2022).

The costs associated with each alternative will have changed due to inflation and additional costs to comply with more recent federal and state regulations. However, these costs would increase proportionately and therefore do not impact the comparison of the alternatives.

TABLE 2
Summary of Groundwater Cleanup Alternatives for Sites FT004 and SD034

Cleanup Alternative	Description*
2. MNA	Naturally occurring physical, chemical, and biological processes remediate COCs in groundwater. MNA utilizes groundwater data collected over time to develop contaminant trends and to evaluate reductions in contaminant concentrations brought about by naturally occurring processes.
7. Passive Skimming and EA	Stoddard solvent, containing dissolved COCs, floating on the groundwater table will be physically removed using passive skimmers and recycled. Removal of the continuing source and naturally occurring physical, chemical, and biological processes will remediate COCs in groundwater.
8. Bioreactor and EA	An in situ bioreactor will facilitate degradation of organic contaminants in the portion of the groundwater plume with the highest residual COC concentrations. Existing extraction wells will circulate groundwater through the bioreactor. Naturally occurring physical, chemical, and biological processes will remediate COCs in groundwater downgradient of the treated area. The natural processes are enhanced by the reduced contaminant concentrations in groundwater coming from the treated area.

* For each alternative, LUCs are included as part of the remedy to restrict groundwater access and use and residential and industrial land uses.

TABLE 3
Evaluation Criteria for Superfund Remedial Alternatives

Criterion	Description
Threshold Criteria	
1. Overall Protection of Human Health and the Environment	Determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through LUCs, engineering controls, or treatment.
2. Compliance with ARARs	Evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements, which specify a level or degree of cleanup or of control of future releases that pertain to the sites or determines whether a waiver is justified.
Balancing Criteria	
3. Long-term Effectiveness and Permanence	Considers the ability of an alternative to maintain protection of human health and the environment over time.
4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment	Evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
5. Short-term Effectiveness	Considers the length of time needed to implement an alternative and the potential risks the alternative poses to workers, residents, and the environment during implementation, including sustainability.
6. Implementability	Considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
7. Cost	Includes estimated capital and annual operations and maintenance costs and costs incurred over the life of the alternative (monitoring and LUCs), as well as net present value cost. Net present value cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
Modifying Criteria	
8. State Support/Agency Acceptance	Determines whether the state agrees with the Air Force's analyses and recommendations as described in the RI, FS, and Proposed Plan.
9. Community Acceptance	Determines whether the local community agrees with the Air Force's analyses and preferred alternative for each site. Comments received on the Proposed Plan are an important indicator of community acceptance.

Notes:

ARAR = applicable or relevant and appropriate requirement
FS = Feasibility Study
RI = Remedial Investigation

The last two criteria are state and community acceptance. Both State of California regulatory agencies, DTSC and Water Board, support the preferred alternative, Alternative 8 (Bioreactor and EA) for Sites FT004 and SD034. Community acceptance is measured through the review of comments on this Proposed Plan during the 30-day public comment period and will be presented in the ROD Amendment for these sites.

Evaluation of Alternatives

The current remedies for Sites FT004 and SD034 are considered the "No Action" alternatives for the purposes of the nine-criteria analysis. The Air Force used the nine-criteria evaluation to identify the preferred alternatives for modifying the existing remedies at Sites FT004 and SD034. Table 4 summarizes the evaluation of the cleanup alternatives from Table 2 that are proposed for these environmental restoration sites.

Site FT004

Overall Protection of Human Health and the Environment

Alternatives 2 and 8 both provide protection of human health. No unacceptable risks were identified for ecological receptors, so additional measures for protection of the environment are not required. Alternatives 2 and 8 provide adequate protection for human health and the environment by implementing LUCs to limit direct contact of humans to groundwater until concentrations of COCs in groundwater allow for unlimited use and unrestricted exposure. Over the past 10 years, monitoring has shown decreases in COCs in groundwater, although groundwater MCLs are still exceeded.

Compliance with ARARS

Alternatives 2 and 8 are assessed with respect to compliance with federal and state environmental regulations that are legally applicable or relevant and appropriate. Both alternatives meet regulatory requirements. In general, both alternatives address federal and state environmental regulations including, but not limited to, the Safe Drinking Water Act, California Toxics Rule, endangered species and migratory bird acts, and hazardous materials management. Details of all federal and state environmental regulations applicable to Site FT004 can be found in the Groundwater ROD (Travis AFB, 2014).

Long-term Effectiveness and Permanence

Alternatives 2 and 8 both provide long-term and permanent remedies that will meet cleanup levels and allow for designated beneficial uses of groundwater (domestic, municipal, agricultural, and industrial supply). Both alternatives require implementation of LUCs, which also provide long-term effectiveness while MNA or the bioreactor are operating.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 2 and 8 both result in the reduction of toxicity, mobility, or volume of COCs in groundwater through treatment and degradation of COCs. Alternative 2 relies on inactive treatment through naturally occurring physical, chemical, and biological processes that predominate at Travis AFB (such as dilution and dispersion). These attenuation processes effectively can reduce toxicity and volume of COCs in groundwater. Alternative 8 offers active in situ treatment to permanently reduce the toxicity and volume of contaminants. Recirculating groundwater (previously injected with EVO) through the bioreactor trenches accelerates treatment of the highest residual concentrations of COCs in groundwater to non-toxic chemicals.

Short-term Effectiveness

Alternative 2 involves minimal impacts to the Base mission, environment, and personnel because monitoring well networks have already been constructed, and groundwater monitoring is ongoing. The remediation timeframe is approximately 16 years.

For Alternative 8, no short-term impacts from construction result because treatment systems are already in place as a result of the TDs. Additionally, during operation, risk to workers will be minimized by following standard safety practices. Alternative 8 also results in protection of human health by adding groundwater treatment that will shorten the time to complete remediation. Remediation will occur three times faster when compared to the current remedy (Alternative 2) (Air Force, forthcoming). Implementing Alternative 8 reduces the remediation timeframe from 16 to 5 years (Air Force, forthcoming). LUCs will remain in place until concentrations of COCs in groundwater allow for unlimited use and unrestricted exposure and will be required for a shorter time than Alternative 2.

Implementability

Alternative 2 relies on natural processes, requires no construction, and is easy to implement. The groundwater plume is monitored in accordance with the Groundwater Remediation Implementation Program (GRIP) using the monitoring well network at Site FT004.

Alternative 8 is also easy to implement. The bioreactor treatment system and the monitoring well network have already been constructed.

Costs

While the total lifetime cost for Alternative 2 ($27,264) is significantly less than Alternative 8 ($781,520), the infrastructure for Alternative 8 is already in place, and the bioreactor is in operation. No additional capital costs are required, and future monitoring and reporting costs are lower for Alternative 8 due to a shorter remediation timeframe.

State/Support Agency Acceptance

The State of California supports the Preferred Alternative without comment.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the ROD Amendment for the site.

Site SD034

Overall Protection of Human Health and the Environment

Alternatives 7 and 8 both provide protection of human health. No unacceptable risks were identified for ecological receptors, so additional measures for protection of the environment are not required. Alternatives 7 and 8 provide adequate protection for human health and the environment by implementing LUCs to limit direct contact of humans to groundwater until concentrations of COCs in groundwater allow for unlimited use and unrestricted exposure. Over the past 10 years, passive skimming and natural attenuation have shown decreases in COCs in groundwater, although groundwater MCLs are still exceeded.

Compliance with ARARS

Alternatives 7 and 8 are assessed with respect to compliance with federal and state environmental regulations that are legally applicable or relevant and appropriate. Both alternatives meet regulatory requirements. In general, both alternatives address federal and state environmental regulations including, but not limited to, the Safe Drinking Water Act, California Toxics Rule, endangered species and migratory bird acts, and hazardous materials management. Details of all federal and state environmental regulations applicable to Site SD034 can be found in the Groundwater ROD (Travis AFB, 2014).

Long-term Effectiveness and Permanence

Alternatives 7 and 8 both provide long-term and permanent remedies that will meet cleanup levels and allow for designated beneficial uses of groundwater (domestic, municipal, agricultural, and industrial supply). Both alternatives require implementation of LUCs, which also provide long-term effectiveness while passive skimming and EA are conducted or the bioreactor is operating.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 7 and 8 both result in the reduction of toxicity, mobility, or volume of COCs in groundwater through passive treatment and degradation of COCs. Passive skimming physically removes free-phase Stoddard solvent containing dissolved COCs floating on the groundwater, and inactive treatment through naturally occurring physical, chemical, and biological processes that predominate at Travis AFB (such as dilution and dispersion) are monitored as reductions are achieved. These physical attenuation processes have effectively reduced the toxicity and volume of COCs in groundwater. Alternative 8 offers active in situ treatment to permanently reduce the toxicity and volume of contaminants. Recirculating groundwater (previously injected with EVO) through the bioreactor trenches accelerates treatment of the highest residual concentrations of COCs in groundwater to non-toxic chemicals.

Short-term Effectiveness

Alternative 7 involves minimal impacts to the Base mission, environment, and personnel because monitoring well networks have already been constructed, and groundwater monitoring is ongoing. Free product removal activities are standard practice and pose few risks to workers or the community. The remediation timeframe is approximately 81 years.

For Alternative 8, no short-term impacts from construction results because treatment systems are already in place as a result of the TD. Additionally, during operation, risk to workers will be minimized by following standard safety practices. Alternative 8 also results in protection of human health by adding groundwater treatment that will shorten the time to complete remediation. Remediation will occur two times faster when compared to the current remedy (Alternative 7) (Air Force, forthcoming). Implementing Alternative 8 reduces the remediation timeframe from 81 to 49 years (Air Force, forthcoming). LUCs will remain in place until concentrations of COCs in groundwater allow for unlimited use and unrestricted exposure and will be required for a shorter time than Alternative 7.

Implementability

Alternative 7 relies on natural processes, requires no construction, and is easy to implement. The groundwater plume is monitored in accordance with the GRIP using the monitoring well network at Site SD034.

Alternative 8 is also easy to implement. The bioreactor treatment system and the monitoring well network have already been constructed.

Costs

While the total lifetime cost for Alternative 7 ($108,863) is significantly less than Alternative 8 ($812,043), the infrastructure for Alternative 8 is already in place, and the bioreactor is in operation. No additional capital costs are required, and future monitoring and reporting costs are lower for Alternative 8 due to a shorter remediation timeframe.

State/Support Agency Acceptance

The State of California supports the Preferred Alternative without comment.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the ROD Amendment for the site.

TABLE 4
Comparison of Groundwater Alternatives for Sites FT004 and SD034

Criterion	FT004		SD034	
	Current Remedy Alternative 2 MNA (No Action Alternative)	Proposed Alternative Alternative 8 Bioreactor and EA	Current Remedy Alternative 7 Passive Skimming and EA (No Action Alternative)	Proposed Alternative Alternative 8 Bioreactor and EA
Overall Protection of Human Health and the Environment	◒	●	◒	●
Compliance with ARARs	●	●	●	●
Long-term Effectiveness and Permanence	●	●	●	●
Reduction of Toxicity, Mobility, or Volume through Treatment	●	●	●	●
Short-term Effectiveness	◒	●	◒	●
Implementability	●	●	●	●
Total Lifetime Cost[a]	●	●[b]	●	●[b]

[a] Source: Air Force, forthcoming.
[b] The TDs are currently in place at the sites and operating successfully to lower concentrations. Therefore, no additional capital costs are required.

Notes:

The "No Action" alternatives for the purposes of this Proposed Plan are the remedies currently in place at the specific site, i.e., MNA at Site FT004 and passive skimming and EA at Site SD034.

Each alternative includes LUCs to limit direct contact of humans to groundwater until concentrations of COCs in groundwater allow for unlimited use and unrestricted exposure.

Total lifetime costs include capital costs.

● = Alternative that best satisfies the criterion.
◒ = Alternative that moderately satisfies the criterion.

Preferred Alternatives

Based on the information currently available, the Air Force has determined that the preferred alternatives identified in Table 4 meet the threshold criteria and provide the best balance of trade-offs among the other alternatives with respect to the balancing and modifying criteria. The preferred alternatives could be subject to change in response to public comment or new information.

After weighing the merits and challenges of the current in-place groundwater remedies at Sites FT004 and SD034, potential implementation of more active remedial alternatives, and future mission requirements that the Base may receive, the Air Force is proposing to change the selected remedy for Site FT004 from Alternative 2 – MNA to Alternative 8 – Bioreactor and EA, and the selected remedy for Site SD034 from Alternative 7 – Passive Skimming and EA to Alternative 8 – Bioreactor and EA.

Both preferred alternatives are expected to achieve the cleanup goals based on federal and more stringent California MCLs that were established to achieve RAOs. Although the costs to treat and manage contaminated groundwater using a bioreactor and EA at both locations will be greater than continued implementation of MNA and passive skimming and EA, the proposed alternatives will shorten the time needed to achieve groundwater cleanup standards, free the encumbered properties from LUCs after the treatment has been completed, make these sites available to support future Air Force missions, and avoid potential future costs associated with changing mission requirements. Enforcement of LUCs will continue until the groundwater cleanup goals are achieved.

Alternative 8 for both Sites FT004 and SD034 consists of a bioreactor and EA. Currently, the bioreactors are operating at these sites as TDs, which were conducted to evaluate the effectiveness of other treatment alternatives for reducing contaminants. At Site FT004, the bioreactor trenches are anaerobic and consist of gravel, mulch, and iron pyrite sand. During initial bioreactor operation, EVO was injected into the contaminant plume and recirculated. Currently, additional EVO injections have not been needed to reduce concentrations of COCs (Figure 2). At Site SD034, the bioreactor is aerobic and consists of a mixture of gravel and calcium peroxide. As part of the TD (and of Alternative 8), groundwater is extracted and recirculated through the bioreactor trenches to accelerate treatment (Figure 2). To keep the bioreactor trenches operating under ideal conditions, technology optimization may be necessary in the future as site conditions change during treatment. Overall, the benefits of Alternative 8 include completed installation (bioreactors were installed during the TD), operational flexibility, minimal maintenance, and reduced cleanup times, whereas Alternatives 2 (Site FT004) and 7 (Site SD034) will take longer to

groundwater cleanup. Under Alternative 8, cleanup times are more than three times faster for Site FT004 and two times faster for Site SD034 when compared to their existing 2014 Groundwater ROD–defined remedies. For these reasons, Alternative 8 is the preferred cleanup alternative for Sites FT004 and SD034.

Until contaminant concentrations remaining onsite are remediated to levels that allow for designated beneficial uses of groundwater (domestic, municipal, agricultural, and industrial supply) as well as unlimited use and unrestricted exposure, a protectiveness review will be conducted every 5 years (Five-year Review) to verify that the remedies are protective of human health and the environment and will remain protective.

Table 5 summarizes the proposed change in groundwater remedies for the two sites and presents the cleanup goals that the remedies must achieve in order to meet their RAOs.

The Air Force acknowledges that its preferred cleanup alternatives are based on current technical and policy information and that they could change in response to public comments or new information.

TABLE 5
Summary of Groundwater Sites, Chemicals of Concern, Previous Remedies, New Proposed Remedies, and Cleanup Goals

COCs	Groundwater Cleanup Goal[a] (µg/L)	Current Remedy	Proposed Alternative
Site FT004 (FTA 3)			
1,1-DCE	6	Alternative 2– MNA	Alternative 8 – Bioreactor and EA
1,2-DCA	0.5		
1,4-DCB	5		
Bromodichloromethane	100		
Chloroform	100		
cis-1,2-DCE	6		
TCE	5		
Vinyl chloride	0.5		
Site SD034 (Facility 811)			
1,1-DCE	6	Alternative 7 – Passive Skimming and EA	Alternative 8 – Bioreactor and EA
Benzene	1		
cis-1,2-DCE	6		
PCE	5		
TCE	5		
TPH-D[b]	100		
Vinyl chloride	0.5		

[a] Groundwater cleanup goals were established in the 2014 Groundwater ROD and will remain unchanged. The groundwater cleanup goal is the more stringent of the federal MCL or State of California MCL. For TPH-D, the cleanup goal is based on environmental screening levels, which are typically used by the Water Board to determine whether additional investigation is required at a site.

[b] TPH-D is not managed under the CERCLA program. It is managed under the petroleum only contaminated (POCO) sites program. If residual TPH is present after RAOs are achieved, then Site SD034 will be transferred from the CERCLA program to the POCO program.

Summary

Based on the information currently available, the Air Force believes the preferred alternatives meet the threshold criteria and provide the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Air Force expects the preferred alternatives to satisfy the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment, (2) comply with ARARs, (3) be cost effective, (4) use permanent solutions and alternative treatment technologies to the maximum extent practicable, and (5) satisfy the preference for treatment as a principal element.

Final Decision

The Air Force and EPA will make a final decision about modifying the current groundwater remedies based on the AR file as well as public and state comments, if any, on the preferred alternatives presented in this Proposed Plan.

Comments received on this Proposed Plan during the public comment period from July 6 to August 7, 2026, will be used to

evaluate public acceptance. The Air Force's (and EPA's) final decision regarding the selected remedy at Sites FT004 and SD034 will be formally documented in an amendment to the Groundwater ROD. Responses to public comments received will be published in a section of the ROD Amendment called the Responsiveness Summary. Once the Air Force finalizes the ROD Amendment for these sites, it will be made available for review on the Travis AFB environmental public website. The Air Force will also inform the community of the selected groundwater actions through announcements in the *Vacaville Reporter*, *Tailwind*, and *Daily Republic* newspapers.

What Can I Do?

As a member of the local community, your thoughts on the new preferred alternatives presented in this Proposed Plan are important to the decision-making process. You have three options available to ensure that your voice is heard:

- Talk to us: (707) 424-2011
- Write to us: See address on page 14.
- Send us an e-mail: 60AMWPA@us.af.mil

The Air Force will accept comments on this Proposed Plan from July 6 to August 7, 2026. Comment letters must be postmarked by August 7, 2026. In addition, a public meeting can be requested during the public comment period using any of the three contact options previously provided. Thank you in advance for your time and support of these important Base issues that affect us all.

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Glossary

Administrative Record (AR): The collection of information – including reports, public comments, and correspondence – the Air Force uses to select a cleanup action. The AR makes legally required information available to the public and is available for review at https://ar.cce.af.mil.

Applicable or relevant and appropriate requirements (ARARs): The federal and state environmental cleanup standards and other substantive requirements that a selected remedy must meet.

Bioreactor: A system designed to support and control the growth of biological organisms.

Chemical of concern (COC): A chemical constituent related to site activities (not naturally occurring) that is identified as posing actual or potential unacceptable risk to human or ecological receptors or water resources.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): Also called the Superfund Act. The federal law that establishes a program to identify, evaluate, and remediate sites where hazardous substances have been released to the environment and that present an unacceptable risk to human health or the environment.

Emulsified vegetable oil (EVO): An organic substance delivered into the subsurface to stimulate microbial growth and development and create an anaerobic (not needing oxygen) groundwater treatment zone. This will create conditions that support reducing contaminants (chlorinated solvents) in groundwater into non-toxic compounds.

Enhanced attenuation (EA): The result of applying an enhancement that sustainably manipulates a natural attenuation process leading to an increased reduction in contaminants.

Environmental Restoration Program (ERP): The program established under the Defense Environmental Restoration Program (10 *U.S. Code* Sections 2701 et seq) that evaluates and cleans up sites where hazardous substances have been released to the environment. Formerly called the Installation Restoration

Program, the ERP is implemented at Travis AFB and is consistent with CERCLA.

Feasibility Study (FS): A study required under CERCLA and the ERP to identify and evaluate potential remedial technologies and to compare the technologies for cleanup of a particular site or sites. An FS report is prepared using information contained in the RI report.

Focused Feasibility Study (FFS): A more narrow and detailed examination of a specific aspect or area within a larger project.

Land use controls (LUCs): Administrative, legal, or physical measures used to prevent exposure to contaminants that remain onsite either during or after remedial action and that present an unacceptable risk to human health or the environment. LUCs include restrictions on the use of the land that will be incorporated into the Base General Plan.

Micrograms per liter (µg/L): A unit of measurement of the concentration of a substance present; one µg of a substance in one liter of groundwater.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): EPA's blueprint for responding to both oil spills and hazardous substance releases. It is the result of efforts to develop a national response capability and promote coordination among the hierarchy of responders and contingency plans.

National Priorities List (NPL): EPA's published list of the highest priority hazardous waste sites in the United States for investigation and cleanup.

Preferred alternative: The cleanup alternative proposed for a contaminated site. Selection is based on the best protection of human health and the environment, achievement of RAOs, compliance with applicable laws, and performance against other CERCLA evaluation criteria.

Record of Decision (ROD): A document that explains and legally commits the lead agency to the cleanup alternatives to be used at a site. The ROD is based on information and technical analyses generated during the RI and FS and considers public comments and community concerns. The ROD is signed by the Air Force, EPA, and state agencies.

Remedial Investigation (RI): An investigation of a contaminated site to determine the nature and extent of contamination, to assess human health and environmental risks posed by the contaminants, and to provide a basis for development of remedial alternatives to clean up the site.

Restoration site: A location on an installation or facility where soil contamination is present. A restoration site is typically identified by an alpha-numeric designation, with the letter designation generally based on the way that the contamination was released into the environment. For example, "DP" refers to a disposal pit, "FT" refers to fire training, "SS" refers to surface spill, and "SD" refers to soil deposition.

Site: In Superfund terms, a site is a facility of any kind where contamination is present as a result of a release of hazardous substances. Thus, Travis AFB is a Superfund site.

Stoddard solvent: A petroleum mixture of hydrocarbons that fall within the range of TPH-D and VOC analysis.

Technology demonstration (TD): Technology applications designed to evaluate the feasibility, performance, and methodology of treatment processes for media such as soil or groundwater.

Volatile organic compounds (VOCs): Organic compounds that evaporate readily into the air.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for Environmental Restoration Program Sites FT004 and SD034 at Travis Air Force Base is important to the Air Force. Comments provided by the public are valuable in helping the Air Force to select a final cleanup remedy for each site.

You may use the space below to write your comments (use additional sheets if needed). Comments must be postmarked by August 7, 2026. Your comments can be mailed to:

Public Affairs Office
Chief of Community Engagement
60th Air Mobility Wing Public Affairs Office
400 Brennan Circle
Building 51, Room 231
Travis AFB, CA 94535

If you have questions about the comment period or would like to share directly with Travis Air Force Base, please call (707) 424-2011.

Those with access to email may submit their comments to the Air Force at the following address: 60AMWPA@us.af.mil

Name: _____

Address: _____

City: _____

State: _____ ZIP: _____