



Proposed Plan to Enhance the Effectiveness of the Remedy for Contaminated Groundwater at the Sharpe Site

INTRODUCTION

The Defense Logistics Agency (DLA) is issuing this **proposed plan**¹ to present a proposed amendment to the groundwater remedial actions selected in the 1993 *Remedial Investigation/ Feasibility Study at Defense Distribution Region West-Sharpe Site Record of Decision, Operable Unit 1* (OU 1 ROD) that will improve the effectiveness of the current remedy for cleaning up contaminated **groundwater** at the Defense Distribution Depot San Joaquin – Sharpe Site. The OU 1 ROD currently requires groundwater extraction, treatment, and discharge of treated water. **Cleanup** of contaminated groundwater at the Sharpe Site has been performed since 1987 by extracting groundwater from the **aquifer** and treating it to remove **volatile organic compounds** (VOCs). However, further cleanup is required, and there are limits to the progress that can be made with the current remedy. DLA is proposing to enhance the current remedy in two ways: (1) using **in situ treatment** to clean up areas with the highest contaminant concentrations, and (2) implementing **land use controls** on government and public property to ensure protectiveness.

DLA is also proposing to remove 12 **contaminants of concern** (COCs) from the OU 1 ROD. These compounds have been addressed by the OU 1 remedial action, and they are no longer detected in Sharpe Site groundwater at concentrations that exceed California **maximum contaminant levels** for drinking water or that would negatively impact human health or the environment.

This proposed amendment to the OU 1 ROD was developed in collaboration with the **United States Environmental Protection Agency** (EPA), **California Department of Toxic Substances Control** (DTSC), and the **California Central Valley Regional Water Quality Control Board** (CVRWQCB). Documents concerning the contamination and cleanup at the Sharpe Site can be read at the **Information Repository** at the Sharpe Site’s sister facility, the Defense Distribution Depot San Joaquin – Tracy Site.

This proposed plan describes the preferred remedy enhancement **alternative** and two other alternatives that were also considered. These alternatives were evaluated in the 2010 *OU 1 Remedy Enhancement Focused Feasibility Study, Sharpe Site* (OU 1 FFS). The OU 1 FFS is available in the **Administrative Record** at the Information Repository. This proposed plan is issued pursuant to the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA), Section 117(a), as amended, and **National Contingency Plan** (NCP), Section 300.430(f)(2), to facilitate public participation in the selection of remedial enhancements to the current cleanup action for the Sharpe Site.

¹ Terms in **bold** are defined in the Glossary/Acronyms section on page 10.

CONTENTS

Introduction	1
Public Comment Period	1
Public Meeting	1
Site Background	2
Information Repository	2
Site Characteristics	3
Scope of the Response Action	4
Summary of Site Risks	5
Remedial Action Objectives	6
Remedial Alternatives	6
In Situ Treatment	6
Evaluation of Alternatives	7
Preferred Alternative	9
Community Participation	9
Glossary	10-11

PUBLIC COMMENT PERIOD AND PUBLIC MEETING

PUBLIC COMMENT PERIOD **August 1, 2011 to August 30, 2011**

We consider and respond to all comments received during the public comment period. Written comments should be sent to:

Public Affairs Office
P.O. Box 960001
Stockton, CA 95296
Phone: (209) 839-4226
Fax: (209) 839-4952

Comments must be received by **5 p.m. on August 30, 2011**. After the close of the public comment period, DLA will respond to comments received and select a final remedy that will be presented in a ROD Amendment for the Sharpe Site.

PUBLIC MEETING

Wednesday, August 17, 2011 - 7:00 pm
Lathrop City Hall, City Council Chambers
390 Towne Center Drive, Lathrop, CA 95330

DLA will provide a public briefing on the Sharpe Site cleanup to date and all cleanup enhancement alternatives considered. Representatives of EPA, DTSC, and CVRWQCB will also be available at the meeting.

You can ask questions and provide comments at the meeting. All comments made orally at the meeting will be recorded and responded to in the amendment to the OU 1 ROD for the Sharpe Site.

For more information about the meeting or to make access arrangements, call **(209) 839-4226**.

You can learn more about the site and the alternatives by reading this proposed plan and attending a public meeting on August 17, 2011. You are encouraged to provide comments on this proposed plan orally at the meeting or in writing via a letter, fax, or e-mail during the public comment period (see Public Comment Period and Public Meeting box on page 1).

DLA will consider all comments received during the public comment period before selecting enhancements for the current remedy for the Sharpe Site. We will provide written responses to all comments in the amendment to the OU 1 ROD.

INFORMATION REPOSITORY

An information repository has been created to give the public access to documents related to the investigation and cleanup of environmental concerns. The Sharpe Site Information Repository is located at:

**Defense Distribution Depot San Joaquin
Tracy Site
25600 S. Chrisman Road
Tracy, California**

Hours of operation are **7 a.m. to 3 p.m.
Monday through Friday.**

Please call **(209) 839-4226**
to arrange to view the documents.

SITE BACKGROUND

The Sharpe Site is located in San Joaquin County, northeast of the City of Lathrop and approximately 9 miles south of the City of Stockton. Figure 1 shows the Sharpe Site's regional location. The Sharpe Site encompasses approximately 720 acres and forms a 0.5-mile-wide, 2-mile-long rectangle.

Since the 1940s, the Sharpe Site has operated as a storage and distribution depot for military services in the western United States and the Pacific region. It has also operated as a maintenance facility for military equipment. These activities required the use and handling of potentially hazardous materials, such as petroleum hydrocarbon fuels and degreasing **solvents**. Past use and disposal practices resulted in the release of these chemicals into the environment.

In 1979, DLA initiated its **Installation Restoration Program (IRP)** to investigate environmental contamination. Investigation results revealed that previous mission activities were likely to have contaminated portions of the Sharpe Site's soil and groundwater with degreasing solvents, petroleum fuels, metals, and pesticides.

In 1987, the Sharpe Site was placed on the federal **National Priorities List**, also known as the **Superfund** list. As a result, activities that could affect the environment at the Sharpe Site are subject to the requirements established by the federal government in CERCLA, as amended.

In 1989, DLA entered into an agreement, called the **Federal Facility Agreement (FFA)**, with three regulatory oversight agencies: the EPA, DTSC, and CVRWQCB. The FFA requires DLA to conduct environmental studies and perform cleanup activities to protect the health and safety of the community and the environment. These activities follow a prescribed process, in accordance with federal and state requirements. DLA works closely with the regulatory oversight agencies to plan and conduct these activities, which are documented in plans and reports that are reviewed by the regulatory agencies and available for public review at the Information Repository located at the Tracy Site.

Since 1989, DLA has conducted environmental activities in accordance with CERCLA and the FFA to protect the health and safety of the community and the environment. Major activities include (1) construction of an extraction and treatment system to remove VOCs from groundwater and (2) cleanup actions for soils. The 1993 OU 1 ROD established the cleanup remedy and **aquifer cleanup levels** for VOCs in groundwater. The 1996 *Record of Decision, Basewide Remedy for DDRW-Sharpe Site* (OU 2 ROD) established cleanup remedies for contaminated soils at the Sharpe Site.

Community outreach has continued since the start of the IRP at the Sharpe Site. Community involvement has been encouraged through multiple stages of the cleanup process through advertisements in local newspapers, public meetings, fact sheets, interviews of community members, and invitations to the public to review key documents.

**Figure 1.
Location of Sharpe Site**



SITE CHARACTERISTICS

DLA began groundwater cleanup activities at the Sharpe Site in 1987 through an interim **remedial action**. These cleanup actions, documented formally in the 1993 OU 1 ROD, include the extraction and treatment of contaminated groundwater, followed by discharge of the treated water. At the Sharpe Site, contaminated groundwater is pumped from **extraction wells** to the surface then passed through an **air stripper** (at the groundwater treatment plant) to remove VOCs. The treated water is then discharged into percolation ponds on the Sharpe Site. To date, three groundwater treatment plants and 53 extraction wells have been constructed, but 38 of those extraction wells are no longer needed and are not operating. Currently, 15 wells are being used to control contaminated groundwater **plumes** and reduce contaminant concentrations.

The OU 1 ROD also established aquifer cleanup levels for 22 COCs that had been detected at the site and are listed with five additional COCs in Table 1. The COCs most frequently detected at the Sharpe Site include **trichloroethene** (TCE), **tetrachloroethene** (PCE), and **carbon tetrachloride**. Figure 2 shows where these three COC plumes are currently located beneath the Sharpe Site. These COC plumes have migrated off site, and there are potable water supply wells located **downgradient** of these plumes. Many of the residents downgradient from plumes use water provided by municipalities. To protect users of groundwater who must use water from potable water supply wells, DLA has prepared the *Off-Depot Potable Well Contingency Plan* that requires DLA to monitor the quality of water produced by potable water supply wells and to take action if contaminants are detected in the water at levels that diminish its quality.

The data collected during operation of the groundwater extraction system has led to a better understanding of the site than was available in 1993 when the OU 1 ROD was written. The understanding of site conditions is referred to as the **conceptual site model** (CSM). An important improvement to the CSM was the identification of fine-grained soil (clay **aquitard**) beneath the water table, which continues to hold high concentrations of contaminants in localized areas of the Sharpe Site. Because of the low **transmissivity** of the fine-grained soils, the current groundwater extraction and treatment remedy will not effectively address the high concentrations of VOCs in the fine-grained soils, which prolong the time to cleanup.

The geology beneath the Sharpe Site is mostly fine-grained soils (silts, clays, and silty sand) with some coarse-grained (sand and gravel) deposits. The water table is first encountered at approximately 10 feet below ground surface. The general groundwater flow direction is west to northwest.

Current land use at the Sharpe Site is designated as industrial and it is anticipated that the land use designation will remain industrial for the foreseeable future. The area surrounding the Sharpe Site includes mixed-use light industrial, agricultural, and residential land. Railroad rights-of-way parallel the eastern and western depot boundaries. The Sharpe Site's contaminant plumes extend off site beneath private property.

Table 1. Contaminants of Concern in Groundwater, Sharpe Site

Benzene	1,1-Dichloroethane	Methylene Chloride
Bromacil (herbicide)	1,2-Dichloroethane	1,1,1-Trichloroethane
Bromoform	1,1-Dichloroethene	1,1,2-Trichloroethane
Bromodichloromethane	cis-1,2-Dichloroethene	1,1,2,2-Tetrachloroethane
Carbon Tetrachloride	trans-1,2-Dichloroethene	Tetrachloroethene
Chloroform	1,2-Dichloropropane	Trichloroethene
Dibromochloromethane	cis-1,3-Dichloropropene	Toluene
1,2-Dichlorobenzene	trans-1,3-Dichloropropene	Vinyl Chloride
1,4-Dichlorobenzene	Ethylbenzene	Xylene (total)

Contaminants proposed for deletion are in **bold** type.

SCOPE OF THE RESPONSE ACTION

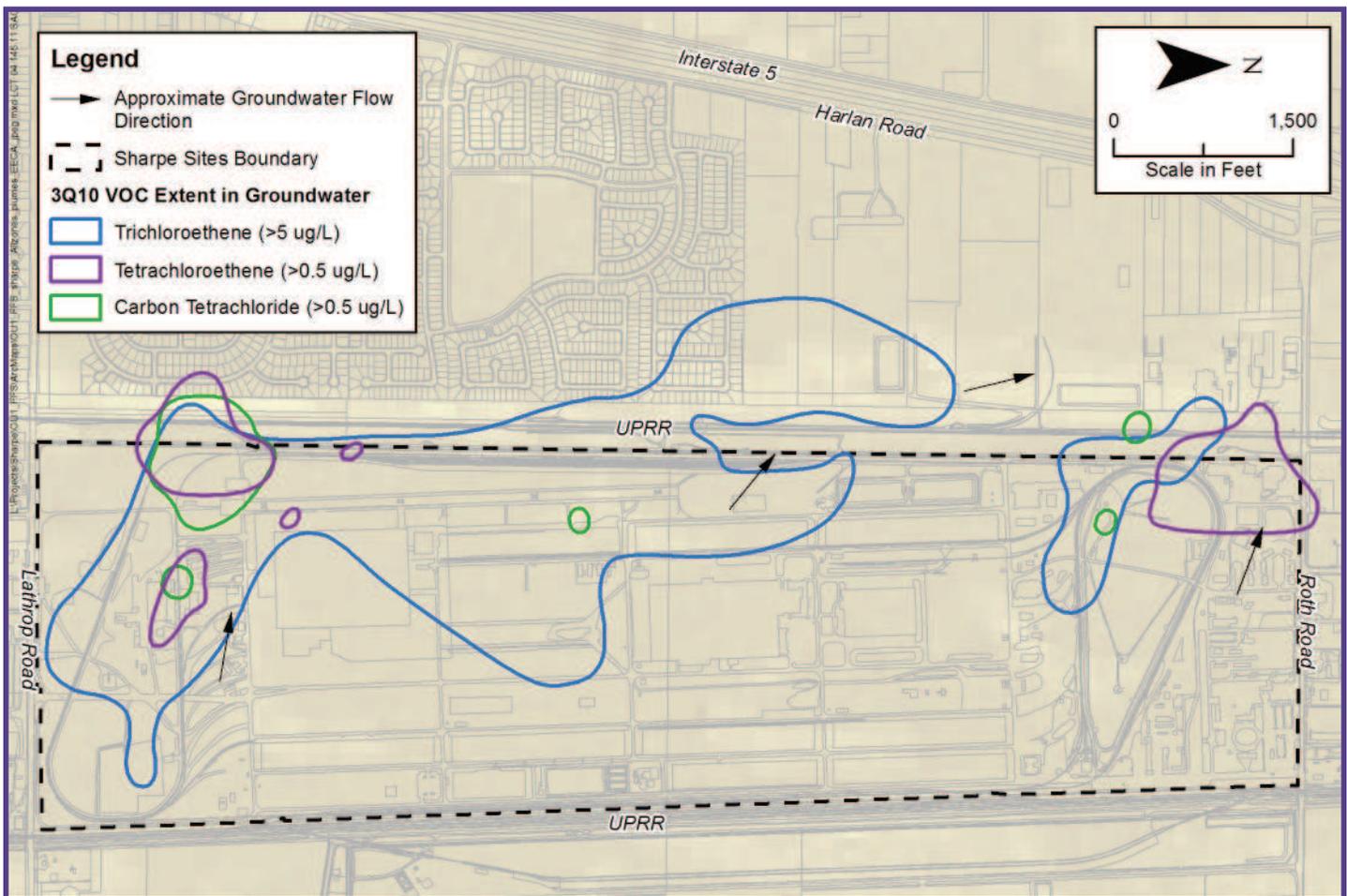
This proposed plan addresses only the first of the two operable units mentioned previously. The OU 1 ROD focuses on groundwater plumes on the Sharpe Site containing VOCs. The OU 2 ROD focuses on the cleanup of soils on the Sharpe Site. Soil cleanup has been performed in a series of remedial actions including excavations, **soil vapor extraction**, and pending land use controls; no changes to the OU 2 ROD are considered in this proposed plan.

The enhancements to the current remedial action for OU 1 described in this proposed plan are specific to the contaminated groundwater beneath the Sharpe Site. These enhancements include *in situ* treatment and implementation of land use controls. The purpose of incorporating these **response actions** is to increase the effectiveness and protectiveness of the current remedial action.

This proposed plan describes the alternatives evaluated in the OU 1 FFS and the preferred alternative for enhancing the remedial action for cleanup of groundwater beneath the Sharpe Site. In addition, this proposed plan also recommends the deletion of 12 COCs (see Table 1), eight of which have not been detected above their respective aquifer cleanup levels since at least 1997. Four other COCs will be deleted because they were detected at only a few wells before 2005 and at no wells since then. The four COCs never had cleanup levels established for them.

Following consideration of comments received during the public comment period, either the enhancements to the remedial action described in this proposed plan or possibly another will be selected. The selected remedy will be documented in an amendment to the OU 1 ROD.

Figure 2. Location and Status of the Sharpe Site Contaminant Plumes



SUMMARY OF SITE RISKS

There is the potential for risks to human health and to ecological receptors (such as plants, birds, and other animals) if they are exposed to COCs in groundwater at the Sharpe Site. The COCs identified in the OU 1 ROD include 26 VOCs and one herbicide (see Table 1). The potential risks are summarized in the following paragraphs.

Human Health Risks. The potential human health risks for OU 1 are posed by VOCs dissolved in groundwater if it were brought to the surface by a well and used for drinking, cooking, or bathing. For the original OU 1 ROD, a **risk assessment** was performed using standard EPA methods to determine the potential human health risks if contaminated groundwater from the site was used for those purposes in a residence. This is not happening now, and the Sharpe Site is likely to remain an industrial/commercial site for the foreseeable future. A risk assessment is a structured, scientific process to evaluate short-term and long-term threats from COCs and to characterize the likelihood of adverse health effects. To be as protective as possible, the risk assessment was based on the assumption of future conditions that do not exist: a residence with a well tapping contaminated groundwater from the Sharpe Site.

The risk assessment considered both **carcinogenic** risks and non-carcinogenic health effects that could result from long-term exposure to the COCs. Carcinogenic risks were calculated for multiple COC concentrations detected in seven plumes on the Sharpe Site; this resulted in a range of risk values. A carcinogenic risk value represents the chance that a resident using groundwater from one of the Sharpe Site contaminant plumes will develop cancer. The estimated cancer risks for a resident using contaminated Sharpe Site groundwater range from a low of 2.47 chances in 10 million to a high of 2.2 chances in 10,000 of developing cancer. Expressed in scientific notation the carcinogenic risk range is 2.47×10^{-7} to 2.2×10^{-4} . The risk values are the sum of all COCs detected in samples from a plume; however, concentrations of TCE account for most of the risk.

A non-carcinogenic health hazard is an estimate of the damage other than cancer to a human internal organ caused by exposure to a COC. The value used to estimate the potential health hazard is the **hazard index** (HI). A HI less than one indicates minimal hazard, whereas a HI greater than one indicates potential for health hazard from groundwater use. The HI values calculated for use of Sharpe Site groundwater range from a low of 0.00378 to a high of 2.77 and are a sum for all detected COCs.

Ecological Risks. There is no risk to ecological receptors from COCs in groundwater because there is no exposure. Groundwater is approximately 10 feet below ground surface. Contaminated groundwater is brought to the surface for treatment and is conveyed in pipelines. No plants, fish, birds, or other animals can come in contact with groundwater until after it is treated and discharged to percolation ponds. There are burrowing animals, including colonies of burrowing owls - a California species of special concern - living in unused parts of the Sharpe Site. Although there is potential that the burrowing animals could breathe vapors of COCs rising from shallow groundwater, a 2010 evaluation by DTSC and the California Department of Fish and Game found that the animals are unlikely to be harmed by the vapors.

The highest estimated values of carcinogenic risk and non-carcinogenic health effects indicate groundwater at the Sharpe Site is not suitable for unrestricted use. To protect potential future users of groundwater, DLA proposes to implement the preferred alternative presented in this plan.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) describe what the remedial action enhancement for groundwater will accomplish. The RAOs for groundwater established in the 1993 OU 1 ROD are:

- Protect human health and the environment
- Mitigate potential long-term contaminant migration

These RAOs continue to be appropriate for the remedy. Over the long term, attaining aquifer cleanup levels in groundwater across the Sharpe Site will be the primary process for meeting the RAOs. However, until that process is complete, DLA will continue implementing the *Off-Depot Potable Well Contingency Plan* to assure that human health and the environment are protected.

REMEDIAL ALTERNATIVES

In the OU 1 FFS, DLA considered remedial alternatives for two different areas within COC groundwater plumes on the Sharpe Site: **high concentration areas** and **distal** plume areas. High concentration areas have concentrations of TCE greater than 1,000 micrograms per liter ($\mu\text{g/L}$) in the groundwater in the aquitard. The distal plume areas are the portions of a plume with TCE concentrations greater than the aquifer cleanup level ($5 \mu\text{g/L}$) but less than levels defining high concentration areas ($1,000 \mu\text{g/L}$).

After screening many enhancement alternatives for their potential effectiveness, DLA chose three alternatives for full evaluation. They are:

Alternative 1: No Action in Addition to the Current Remedy. In accordance with the requirements of the NCP, Alternative 1 serves as a baseline against which “action” alternatives are compared. This alternative is evaluated to determine the risks to human health and the environment if no additional actions are taken to remediate contamination. Under Alternative 1, no additional methods are used to achieve RAOs and no remedial measures are taken other than the OU 1 remedy as currently implemented. Groundwater extraction and treatment would continue at current rates.

Alternative 2: Mass Reduction in High Concentration Areas, Systematic Reduction of Groundwater Extraction and Treatment, Land Use Controls, and MNA. In addition to the current pump-and-treat remedy, this alternative includes a mass removal action through *in situ* treatment in the aquitard where TCE concentrations exceed $1,000 \mu\text{g/L}$. It also includes the addition of land use controls and **monitored natural attenuation** (MNA) as components of the remedy. With increased reliance on natural attenuation processes, a gradual reduction in groundwater extraction

would be based on the demonstrated ability of the natural attenuation processes to maintain plume stability. The land use controls would provide protectiveness until aquifer cleanup levels are reached across the plume because they limit potential exposure of people, animals, and plants to contaminants in groundwater.

Alternative 3: Mass Reduction in High Concentration Areas, Optimization of Groundwater Extraction and Treatment, and Land Use Controls. This alternative is similar to Alternative 2 but it does not establish MNA as a component of the remedy. Alternative 3 includes groundwater pumping and treatment, mass removal through *in situ* treatment in the aquitard where TCE concentrations exceed $1,000 \mu\text{g/L}$, and the addition of land use controls to maintain protectiveness while RAOs are being achieved.

Common elements of all three alternatives are continued pumping of extraction wells to control plumes and remove COC contamination from groundwater and treatment of groundwater by air stripping. However, the number of wells operating and the length of time each would operate differ among the alternatives. Fifteen extraction wells would operate the longest under Alternative 1, until aquifer cleanup levels are reached. Under Alternatives 2 and 3 the total time of pumping and treating groundwater would be less than for Alternative 1 because mass reduction in high concentration areas would remove COCs that could take a very long time to travel to an extraction well if it were not removed. Under Alternative 2, 14 wells would be gradually shut down as MNA contained the distal portions of plumes; only three wells would continue to operate for a longer period. Under Alternative 3, more than three wells would continue to operate, and it is likely that aquifer cleanup levels will be met sooner than under Alternative 2.

IN SITU TREATMENT

“In situ” is a Latin term meaning “in the original position.” An *in situ* treatment in groundwater takes place underground rather than aboveground. In this plan, the preferred method for destroying VOCs in areas with high concentrations is to inject a substance into the aquitard that will oxidize the contaminants rather than bringing the groundwater to the surface to be treated. To help get the oxidizing substance into the small soil spaces in the aquitard, a commonly used technology will be employed to create fractures in a small area of the aquitard.

EVALUATION OF ALTERNATIVES

The three remedial alternatives for groundwater plumes at the Sharpe Site were compared on the basis of nine evaluation criteria established in the NCP for the specific purpose of evaluating remedial alternatives under CERCLA. The criteria are listed in the left column of Table 2 on the next page.

In the OU 1 FFS, the alternatives were compared to each other under Criteria 1 through 7. In the comparison, the alternative that was judged best at meeting one of the criteria was awarded a rank of "A". The other alternatives were awarded ranks of "B", "C", or "Tie". The alternative that was awarded more "A"s than the others for the seven criteria became the preferred alternative. Alternative 3 satisfied Criterion 8 because it has been accepted by DTSC and CVRWQCB. Criterion 9, community acceptance, cannot be evaluated until the community has had the opportunity to review and comment on the alternatives; the public comment period for this proposed plan provides the opportunity for members of the community to comment on the alternatives.

The comprehensive evaluation of Alternatives 1, 2, and 3 is presented in the OU 1 FFS. It is summarized here.

Alternative 1:

includes no additional action except the current groundwater extraction and treatment remedy. In accordance with the requirements of the NCP, Alternative 1 serves as a baseline against which "action" alternatives are compared. This alternative is evaluated to determine the risks to human health and the environment if no additional actions are taken to remediate contamination or to increase protectiveness. This alternative meets the first two criteria—protection of human health and the environment and attaining **applicable or relevant and appropriate requirements** (ARARs) —over the long term. (The first two criteria are threshold criteria, which are requirements that any alternative must meet to be eligible for selection.) Alternative 1 has the lowest capital costs because the wells and treatment plants are already in place. However, it does not rank as well as Alternative 2 or 3 when compared to criteria for long-term effectiveness and reduction in mobility, toxicity, or volume through treatment.

Alternative 2:

It is uncertain whether Alternative 2 would protect human health and the environment and meet ARARs in the long term. However, it does include the implementation of land use controls. Therefore, it can be assigned a "B" ranking. It has the lowest operations and maintenance cost, present worth, and discounted costs, and it ranks better than Alternative 1 when compared to the criteria long-term effectiveness and reduction in mobility, toxicity, or volume through treatment. Alternative 2 does not meet Criterion 8 because DTSC and CVRWQCB are not convinced that MNA would limit plume migration. However, DLA, EPA, DTSC, and CVRWQCB will continue to evaluate MNA by collecting appropriate data. If the data indicate that MNA can limit plume migration in the future, it will be added as a component of the groundwater remedy.

Alternative 3:

is similar to Alternative 2 in that it includes mass reduction in high concentration areas and land use controls. In the long term, Alternative 3 will protect human health and the environment and meet ARARs. Alternative 3 ranks better than Alternatives 1 and 2 when compared to the criteria long-term effectiveness and reduction in mobility, toxicity, or volume through treatment. Alternative 3 ranks better than Alternative 2 for the criteria short-term effectiveness and implementability. Alternative 3 is more costly than Alternative 2 because more wells will be operated for a longer period of time. Alternative 3 also has State Agency acceptance.

**Table 2. Relative Ranking of Remedial Alternatives
Against CERCLA Criteria**

	Alternative 1: No Action in Addition to Current Remedy	Alternative 2: Mass Reduction, MNA, and Land Use Controls	Alternative 3: Mass Reduction and Land Use Controls
1. Overall Protection of Human Health and the Environment	C	B	A
2. Compliance with ARARs	Tie	Tie	Tie
3. Long-Term Effectiveness and Permanence	C	B	A
4. Reduction of Toxicity, Mobility, or Volume Through Treatment	C	B	A
5. Short-Term Effectiveness	A	C	B
6. Implementability	A	C	B
7. Cost	B	A	B
Overall Comparative Ranking for 1 through 7	C	B	A
8. State Agency Acceptance	DTSC and CVRWQCB favor Alternative 3.		
9. Community Acceptance	Community acceptance will be evaluated after the public comment period.		

NOTE: A = highest ranking B = mid-level ranking C = lowest ranking

PREFERRED ALTERNATIVE

Based on information currently available, Alternative 3 will meet the threshold criteria in the long term and provides a reasonable balance of tradeoffs among the other criteria. This alternative satisfies 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) utilize permanent solutions and resource recovery technologies to the maximum extent possible; and (5) satisfy the preference for treatment as a principal element. Therefore, Alternative 3 is the preferred alternative for OU 1 at the Sharpe Site.

The State of California, EPA, and DLA agree that Alternative 3 has a ranking higher than the other alternatives considered in the OU 1 FFS. Alternative 3, the preferred alternative, may be modified if necessary in response to comments from the community.

If the preferred alternative described in this plan receives community acceptance, DLA anticipates that the actions outlined in the preferred alternative will be implemented in 2012.

In addition to modifying the remedy, the OU 1 ROD will be amended with the deletion of 12 COCs identified in the original ROD. Eight of the COCs are at or below their aquifer cleanup levels in groundwater. Concentrations of 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,1-dichloroethane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, 1,1,2,2-tetrachloroethane, 1,1,1-trichloroethane, and 1,1,2-trichloroethane have not exceeded their aquifer cleanup levels during at least 15 years of groundwater monitoring, with one exception. 1,2-Dichlorobenzene was detected at a concentration greater than its aquifer cleanup level once in 1997. The four other compounds that will also be deleted are benzene, ethylbenzene, toluene, and xylene. No aquifer cleanup levels were established for these compounds in the OU 1 ROD. The four compounds were only detected in eight wells from 1997 to 2005. The detected concentrations of the four compounds have been less than their MCLs since 2003 and they have not been detected in any wells since 2005. Because of the absence of these compounds, they do not pose a potential threat to human health or the environment. Therefore, these compounds are no longer COCs and warrant deletion from the COC list for the Sharpe Site.

COMMUNITY PARTICIPATION

DLA, along with EPA, DTSC, and CVRWQCB, encourages the public to gain a better understanding of Superfund activities being conducted at the Sharpe Site.

The public comment period for this proposed plan is August 1 to August 30, 2011.

A public meeting to discuss this proposed plan is scheduled for Wednesday, August 17, 2011.

Comments can be sent in writing or via e-mail or fax during the public comment period.

Oral comments will be recorded at the public meeting.

DLA will respond to all written and oral comments in the amendment to the OU 1 ROD.

If you would like to submit comments, send them to:

Defense Distribution Depot San Joaquin

Public Affairs Office

P.O. Box 960001, Stockton, CA 95296

(209) 839-4226

Fax: (209) 839-4952

If you require additional information about the Sharpe Site's environmental cleanup process, contact any of the following resources.

Defense Distribution Depot San Joaquin

Environmental Services Branch

DLA Installation Support at San Joaquin

P.O. Box 960001

Stockton, CA 95296

(209) 839-4065

U.S. Environmental Protection Agency, Region 9

Mr. Phillip Ramsey (SFD-8-3)

75 Hawthorne Street

San Francisco, CA 94105-3901

(415) 972-3006

ramsey.phillip@epa.gov

California Central Valley Regional Water Quality Control Board

Site Cleanup Section

Mr. James Brownell

11020 Sun Center Drive, #200

Rancho Cordova, CA 95670

(916) 464-4675

jbrownell@waterboards.ca.gov

California Dept. of Toxic Substances Control

Site Mitigation Unit, Region 1

Mr. Chris Sherman

8800 Cal Center Drive

Sacramento, CA 95826-3200

(916) 255-6576

csherman@dtsc.ca.gov

GLOSSARY

Administrative Record – The body of documents that form the basis for the selection of response actions at a site. They are stored in the Information Repository.

Aquifer – A saturated underground layer of rock or soil from which groundwater can be readily pumped with a water well.

Aquifer Cleanup Level – A cleanup goal established by the *Remedial Investigation/Feasibility Study at Defense Distribution Region West - Sharpe Site Record of Decision, Operable Unit 1* for specific contaminants of concern in groundwater at the Sharpe Site. The aquifer cleanup levels in the record of decision were developed to protect the health of potential groundwater users.

Aquitard – A saturated underground layer of rock or soil that restricts the flow of groundwater making it difficult to pump with a water well.

Air Stripper/Air Stripping – A treatment system that removes volatile organic compounds from contaminated groundwater or surface water by forcing an airstream through the water and causing the compounds to evaporate.

Alternative – A cleanup technology or plan that is evaluated in a feasibility study. In the feasibility study, several alternatives are identified and then compared to one another for their ability to meet cleanup goals.

Applicable or Relevant and Appropriate Requirements (ARARs) – Applicable requirements are those cleanup standards, standards of control, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not “applicable” to a hazardous substance, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

California Central Valley Regional Water Quality Control Board (CVRWQCB) – One of nine regional boards, each part of the California Water Quality Control Board. The CVRWQCB is a supporting agency for the Sharpe Site environmental restoration program.

California Department of Toxic Substances Control (DTSC) – A department within the California Environmental Protection Agency. DTSC is a supporting agency for the Sharpe Site environmental restoration program.

Carbon Tetrachloride – A colorless organic liquid or vapor containing carbon and chlorine formerly used as a refrigerant and as a cleaning agent.

Carcinogen/Carcinogenic – A chemical or substance capable of causing cancer.

Cleanup – Action taken to deal with the release of contaminants that could affect human health and/or the environment. The term “cleanup” is sometimes used interchangeably with the terms remedial action, removal action, and response action.

Conceptual Site Model (CSM) – A conceptual site model is a narrative and graphic description of contaminant conditions at a site, specifically (1) a summary of the sources of contamination at a site, (2) the way the contaminant was released, (3) the route that the contamination has followed after release, (4) where the contamination is likely to go, and (5) ways that humans, plants, or animals could be exposed to the contamination.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – A 1980 federal law that provides funding and enforcement authority to environmental regulators for hazardous waste site cleanup and hazardous waste spills. The release or threat of release into the environment of any defined hazardous substance could result in CERCLA response or liability. Removal and remediation are the primary response actions under CERCLA. The law has been amended several times since 1980.

Contaminant of Concern (COC) – This is a contaminant in groundwater, soil, or air that may pose a threat to human health or the environment.

Downgradient – Groundwater moves from the direction where its elevation is higher compared to direction where its elevation is lower. The direction to the lower elevation is downgradient.

Distal – The portions of plumes where volatile organic compound concentrations are less than 1,000 micrograms per liter ($\mu\text{g/L}$) but greater than 5 $\mu\text{g/L}$.

Extraction Well – A well installed below the ground surface with a pump that is used to extract contaminated groundwater to the surface where it can be treated.

Federal Facility Agreement (FFA) – Agreement among the operating agency (DLA) and federal and state regulatory agencies on the schedule of cleanup activities, including preparation of work plans, reports, and remedial action designs.

Focused Feasibility Study (FFS) – A feasibility study is the mechanism for development, screening, and detailed evaluation of alternative remedial actions under CERCLA. It is a focused feasibility study when it considers a limited number of alternative remedial actions.

Groundwater – Water beneath the earth’s surface that fills pores between soil and rock particles to the point of saturation. Groundwater often flows more slowly than surface water. Groundwater is the source of 80 percent of the United States’ water supply.

Hazard Index (HI) – A ratio of the contaminant exposure concentrations and the concentrations that are likely to cause non-cancer adverse health effects. A hazard index greater than 1 is generally considered to represent significant risk.

High Concentration Area – An area with trichloroethene concentrations of 1,000 µg/L or greater in fine-grained deposits.

Information Repository – Documents, including the Administrative Record, related to environmental conditions and contaminants at a site. Also used to refer to the place where the documents are maintained for public access.

In Situ Treatment – Destruction of contaminants in place without bringing them to the ground surface.

Installation Restoration Program (IRP) – A program established in 1979 through which the United States Department of Defense began investigating, evaluating, and restoring hazardous waste sites and controlling the migration of hazardous contaminants from those sites.

Land Use Control – Legal and administrative measures that help minimize the potential for exposure to contamination by restricting activity, use, and access to government and public property with contamination.

Maximum Contaminant Levels (MCLs) – These are the maximum allowable level of a contaminant delivered to users of a public water system. Both the State of California and the federal government set the levels.

Monitored Natural Attenuation (MNA) – This is a groundwater cleanup remedy that relies on monitoring and testing to show the progress of the reduction of contaminants by natural physical, chemical, or biological processes.

National Contingency Plan (NCP) – The federal regulation that guides the CERCLA program. The National Contingency Plan is the federal government’s blueprint for responding to oil spills and hazardous substance releases.

National Priorities List – A list of sites developed by the United States Environmental Protection Agency as needing long-term remedial restoration. The purpose of the list is to inform the public of the most hazardous waste sites in the nation. The Sharpe Site is on the National Priorities List, which is also referred to as the Superfund List.

Plume – A body of groundwater that contains contaminants that may spread as the body moves.

Proposed Plan – A document required by CERCLA that summarizes the cleanup alternatives evaluated for a particular

site, identifies the preferred alternative, and explains the rationale for the preference. The proposed plan is made available to the public and includes instructions for providing comments on the cleanup alternatives.

Record of Decision (ROD) – A legally binding document that describes the cleanup action that will be implemented at a CERCLA site. The record of decision is based on investigations, technical analyses, and comments provided by government agencies and the public.

Remedial Action – An action taken to stop or substantially reduce a release, or threat of release, of hazardous substances that do not pose an immediate threat to human health or the environment. Also referred to as cleanup or cleanup action or response action.

Remedial Action Objective (RAO) – The goals or objectives that a remedial action is expected to achieve.

Response Action – See cleanup.

Risk Assessment – The qualitative and quantitative evaluation performed to estimate the potential risk posed to the public health and the environment.

Soil Vapor Extraction – A method used to remove volatile organic compounds from soil by applying a vacuum to a well drilled into the contaminated soil above groundwater.

Solvent – A substance capable of dissolving another substance; commonly used in cleaning and degreasing products.

Superfund – See CERCLA.

Tetrachloroethene (PCE) – A colorless liquid or vapor containing carbon and chlorine that is used as an industrial solvent and degreaser.

Trichloroethene (TCE) – A colorless liquid or vapor containing carbon, hydrogen, and chlorine that was used as an industrial solvent and degreaser.

Transmissivity – The rate at which groundwater is transmitted through a unit width of an aquifer or aquitard under the influence of a gradient.

United States Environmental Protection Agency (EPA) – The government agency that has the primary responsibility for enforcing many of the environmental statutes and regulations of the United States.

Volatile Organic Compound (VOC) – One of a large group of chemicals that include carbon atoms and have the tendency to be emitted as vapors from certain solids or liquids including water.

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**ENCLOSED:
IMPORTANT INFORMATION
ABOUT THE ENVIRONMENT
AND YOUR COMMUNITY**