Region 8
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Denver, CO 80202

Colorado, Montana, North Dakota,
South Dakota, Utah, Wyoming

September 2006

Proposed Cleanup Plan for Bountiful/Woods Cross OU2 Site

Bountiful/Woods Cross 5th South PCE Plume Superfund Site - Davis County, UT

Introduction

The U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) seek public comment on the proposed cleanup plan for the Bountiful/Woods Cross Operable Unit 2 (OU2) Site (Site), located in southern Davis County, Utah. This proposed plan summarizes the cleanup alternatives evaluated for OU2, and presents the preferred alternatives for addressing the perchloroethylene (PCE) contamination at the source and the downgradient groundwater plume.

Based on the information available at this time, EPA and UDEQ believe the preferred alternative for cleaning up the source of PCE contamination at OU2 is a combination of Alternative 3 – *Enhanced Anaerobic Bioremediation/Soil Vapor Extraction, Excavation, Disposal, and Monitoring*; and, Alternative B – *Hydraulic Containment, for the downgradient groundwater plume*.

EPA and UDEQ encourage the public to review the Proposed Plan and provide comments or concerns before the final remedy selection.

The Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation (RI) and the Focused Feasibility Study Reports (FFS). To gain more knowledge and understanding of the Site, you will find these documents and others located in the Administrative Record File for this Site at the Davis County Library, South Branch.

EPA and UDEQ will select a final remedy for the Site after reviewing and considering all comments and information submitted during the 30-day public comment period. Based on the public comments and/or new information, EPA may modify the preferred alternative or select another alternative presented in this Proposed Plan.

Mark Your Calendar!

Comment Opportunity

Public Comment Period:
October 2 – October 31, 2006

Public Comment Meeting
Tuesday October 10, 2006
6:00 p.m. – 8:00 p.m.
Woods Cross City Building
1555 South 800 West
Woods Cross, UT 84087

Written or oral comments will be accepted at the meeting.

Send Written Comments to:
Mario Robles (8EPR-SR)
Remedial Project Manager
US Environmental Protection Agency
999 18th Street, Suite 300
Denver, CO 80202-2466
Email: robles.mario@epa.gov

Written comments accepted during the comment period must be postmarked by close of business October 31, 2006.

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The Proposed Plan and other documents in the Administrative Record are available at the Davis County Library, South Branch. See page **2** for locations of the other information repositories where the Administrative Record is kept.

An extension will be provided if a written request is received prior to the close of business October 24, 2006.

INFORMATION REPOSITORIES:
The Proposed Plan and other documents in the Administrative Record are available at the following locations:

Davis County Library, South Branch
725 South Main Street
Bountiful, Utah 84010
801-295-8732

Utah Department of Environmental Quality, Division of Environmental Response and Remediation
168 North 1950 West
Salt Lake City, Utah 84114-4840
Hours: M – F, 8 a.m. to 4 p.m.
801-536-4121

EPA Superfund Records Center
Denver, CO
1-800-277-8917, extension 6473

Site History

OU2 - In 1996, UDEQ conducted a preliminary assessment (PA) after PCE contamination was confirmed at various monitoring points on and surrounding the former Phillips 66 Refinery. The PA identified groundwater as the primary exposure pathway. The PA also identified the oil refinery, several dry cleaners, and various automotive maintenance facilities as potential sources of the PCE contamination in groundwater.

Due to the potential impact to drinking water in the area, EPA placed the Site on the National Priorities List (NPL) in October 2001. Following the listing, the Site was subdivided into the two operable units (OUs) - OU1 and OU2. The OU1 area was called the "Woods Cross 800 West Plume," and OU2 was the 5th South PCE Plume with an unknown source, or the "Unknown Source Plume."

Results from the Remedial Investigation for OU2 concluded that contaminants (primarily PCE) originate from the Bountiful Family Cleaners (BFC) property, the source area. Contamination from the source area is reaching the domestic wells to the west of the Holly Refinery Company.

The highest PCE soil[1] concentration at the source (197 parts per million (ppm)), was measured at a depth of 8 feet. Documentation from the South Davis Sewer District supports the premise that this "hot spot" may have been the approximate location of the original dry cleaner septic system drain field prior to the facility hooking up to the main city sewer line in 1966. The highest recorded shallow PCE groundwater contamination, 264 micrograms per liter (µg/L), lies below the source area.

Site Characteristics

The Bountiful/Woods Cross OU2 study area covers approximately 400 acres, located about 10 miles north of Salt Lake City. This area is bounded on the north and south by the streets 750 South and 300 North and on the east and west sides by 500 West to 1400 West streets. These streets are located in the cities of Bountiful, West Bountiful, and Woods Cross, Utah. (See Figure 1)

The OU2 study area, which includes the impacted soils at the source area and the groundwater plume, is contaminated mainly with PCE. Other contaminants of concern include: Trichloroethene (TCE), Vinyl Chloride (VC), Trimethylbenzene, Methyl Tert-Butyl Ether (MTBE), and Benzene.

The depth of the shallow soil contamination adjacent to and under the BFC property ranges from approximately 8 to 10 feet. This contaminated soil at the Site contains concentrations of substances that are highly toxic, mobile, and act as a source for contaminants to move into groundwater, as well

[1] Based on Membrane Interfacee Probe (MIP) testing of off-gas samples.

as affecting the indoor air quality of the BFC facility. If the contaminated sub-soil at the source is not cleaned up, it will continue to release the contaminants of concern into the environment.

The RI/FFS identifies a contaminated groundwater plume at various levels (upper, middle, and lower zones) within the shallow groundwater of the East Shore Aquifer. The plume extends from the source area to the west approximately 1.6 miles (Figure 1). This highly productive aquifer is used extensively for municipal, domestic, and industrial water supplies. Several water supply wells (some artesian) are located in the vicinity of the plume although most municipal and industrial wells produce their water from groundwater zones that are deeper than the PCE plume.

Summary of Site Risks

EPA studied whether contamination at the Site might harm people's health or the health of ecological receptors (plants and wildlife). This study is called a baseline risk assessment. The baseline risk assessment evaluated risk based on current and potential future Site use.

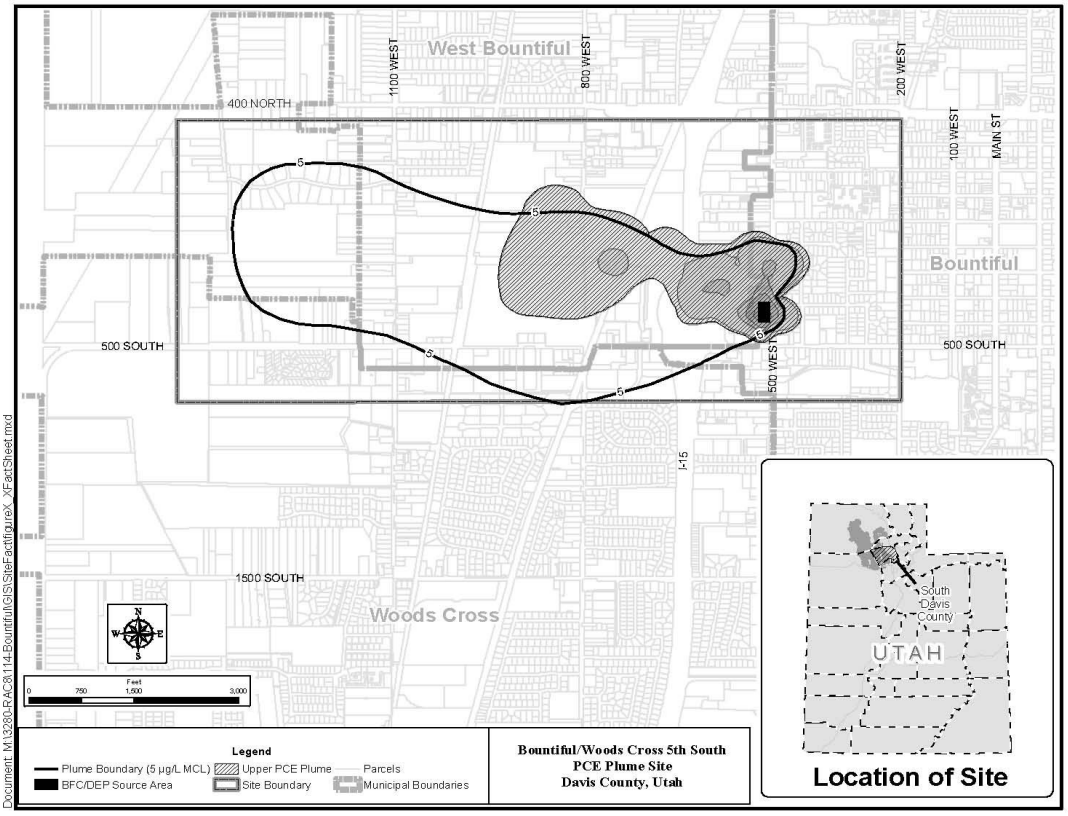

Figure 1 - Bountiful/Woods Cross 5th South PCE Plume Site

The baseline risk assessment focused on the following major exposure pathways for the Site:

Human

- Drinking contaminated groundwater
- Breathing of vapors released to the indoor area from the indoor use of contaminated groundwater
- Breathing of contaminants released directly from groundwater into indoor air

Ecological

- Direct contact with contaminated groundwater released to the surface (e.g., wetlands or ponds)

Human Health Risks

Groundwater data show contamination levels of PCE above the maximum federal standards for drinking water. PCE is a suspected carcinogen and a commonly found environmental pollutant in the groundwater of the United States. If people were to drink and/or use the contaminated groundwater indoors, they would incur an unacceptable risk to their health.

The analysis of indoor and sub-slab area sample results, collected at the BFC facility, showed elevated levels of PCE in both the indoor air (basement) and sub-slab air. Based on the sample results, the cancer risk to workers from indoor air exceeds EPA's acceptable levels for human exposure via the inhalation pathway. It is noted that the indoor air sample results do not exceed the occupational OSHA permissible level for worker exposure.

Contaminants of Concern

Based on human health and ecological risk assessments, **perchloroethylene (PCE)** is the only contaminant of concern present in both groundwater and indoor/sub-slab air in the Bountiful/Woods Cross OU2. PCE is a solvent used to clean machinery, electronic parts, and clothing. PCE is a suspected human carcinogen and is an environmental pollutant, along with other chlorinated aliphatic hydrocarbons (CAHs), often found in groundwaters of the United States.

Breathing very high concentrations of PCE can cause dizziness, headaches, sleepiness, confusion, difficulty speaking and walking, nausea, unconsciousness, and sometimes death. The health effects of breathing air or ingesting water with very low levels of PCE are not known.

Other contaminants of concern at the site include: Trichloroethene, Vinyl Chloride, Benzene, Trimethylbenzene, and Methyl Tert-Buthyl Ether (MTBE); however, these contaminants are not the focus of the OU2 investigation but they will be addressed by the Site-wide investigation. MTBE is being addressed by the Utah Department of Environmental Quality (UDEQ), Division of Water Quality (DERR) under a corrective action plan.

Based on the information available at this time, there are no known indoor air exposures downgradient of the BFC facility.

Sample results from seven out of 26 domestic wells tested showed PCE concentrations above the Maximum Contaminant Level, (MCL), the standard for safe drinking water. If people were to use groundwater from these seven wells for drinking and/or indoor uses, they would incur an unacceptable risk to their health.

Ecological Risks

Risks to the environment and ecological receptors are below the level of concern because there is little potential for contaminated groundwater to discharge to surface water, there is a lack of natural habitat in the area, and the Site is located in an industrial/commercial/ residential area. The Site poses little risk to aquatic life because it is over two miles away from the Great Salt Lake.

Results of the baseline risk assessment indicate that action is necessary to make the Site safe for future use. It is EPA and UDEQ's judgment that the preferred alternative identified in this proposed plan, or one of the other active measures considered in the proposed plan, is necessary to protect the public from exposure to the OU2 contaminants.

Cleanup Objectives

The cleanup objectives for OU2 are to protect human health and the environment from exposure to groundwater and indoor air by:

- Preventing human exposure to drinking contaminated groundwater
- Preventing human exposure to breathing contaminated vapors released from groundwater and soils that migrate upward through soil into indoor and sub-slab air space
- Restoring groundwater to beneficial uses

Summary of Remedial Alternatives

The remedial action alternatives for the site are presented below. The alternatives are numbered to correspond with the numbers in the FFS.

Common Elements – except for the No Action Alternative, to be protective, the remedy relies on Institutional Controls and monitoring.

Institutional Controls (ICs)

Each groundwater alternative (except the "no action") requires institutional controls (e.g., land use restrictions such as local ordinances) to prevent unacceptable human exposure to contaminants of concern. The implementation of ICs will be verified annually by EPA and UDEQ. The objectives of the ICs are to:

- Restrict the use of groundwater as a drinking water source until Maximum Contaminant Levels (MCLs) are met
- Restrict new well development on and along the projected path of the contaminated plume
- Recommend to county officials to request vapor intrusion mitigation in all new commercial (office space) or residential construction permits that are located on and along the projected path of the contaminated plume

Monitoring

A long-term groundwater monitoring program will be implemented to collect data to assess the effectiveness of the selected remedy. Monitoring will provide data to determine the contaminant concentration, any occurrences of natural decomposition/transformation processes, and the effectiveness of the remedy at the source and within the plume. The monitoring program will be evaluated annually and subjected to Five-Year reviews by EPA and UDEQ. The Five-Year reviews will continue until the groundwater is returned to unrestricted use.

Proposed Alternatives for Source Removal

The sub-soil at the Bountiful Family Cleaners Property is contaminated with Volatile Organic Compounds (VOCs) and poses a threat to human health and the environment. If the sub-soil is not cleaned up it will continue to release hazardous substances into groundwater and the environment.

Alternative 1 – No Action

Capital Cost: $0
Present Worth Cost: $39,100
Construction time frame: None

Federal regulations require EPA to evaluate the "no action" alternative to compare with other potential cleanup alternatives. Under this alternative, no actions would be taken to address either the contaminated sub-soil at the source or the downgradient contaminated groundwater plume. The contamination in soils and groundwater would remain in its current state. Since contamination would be left in place, five-year reviews are included with the implementation of this alternative.

Alternative 2 – Dual Phase Extraction/Soil Vapor Extraction (DPE/SVE), Excavation, Disposal, Groundwater Extraction, Treatment, Discharge, and Monitoring

Capital Cost: $893,300
Annual O&M Cost (Year 1): $280,700
Annual O&M Costs: $280,700
Present Worth Cost: $1,648,000
Effective time to achieve Remedial Action Objectives (RAO): 3 years

This alternative includes excavation and disposal of contaminated soil in the parking lot of the dry cleaners. Clean backfill will be placed in the excavated area and covered with asphalt. The excavated material will be transported offsite for disposal at a licensed facility.

Appropriate wells will be installed to extract groundwater contaminants and soil vapors from various areas around the source.

The groundwater will be treated and either re-injected in to the source area or discharged to the local publicly owned treatment works (POTW). Vapors from the various treatment systems will be treated using the appropriate technology (i.e., granular activated carbon).

The design of this alternative will include installing monitoring wells and soil gas extraction equipment throughout the source area. Institutional controls will be in place to restrict the use of groundwater as a drinking water source. The remedy will be evaluated every five years until standards are met.

Pilot Study

EPA will conduct a pilot study to evaluate the design parameters necessary to implement the proposed technologies.

Alternative 3 – Enhanced Anaerobic Bioremediation / Soil Vapor Extraction (EAB/ SVE), Excavation, Disposal, and Monitoring

Capital Cost: $615,300
Annual O&M Cost (Year 1): $252,500
Annual O&M Costs (Year 2): $235,500
Present Worth Cost $1,075,000
Effective time to achieve RAOs: 2 Years

This alternative also includes excavation and disposal of shallow source area soil in the parking lot of the cleaner's facility. Clean backfill will be placed in the excavated area and covered with asphalt. Excavated material will be transported offsite for disposal at a licensed facility.

Alternative 3 includes installation of a bioremediation recirculation treatment system consisting of injection and extraction wells installed in and around the source area. In this system, contaminated groundwater will be extracted from 130 feet below the ground surface. The extracted groundwater will be mixed with natural substances such as soybean oil and possibly natural bacteria to accelerate the natural transformation/decomposition of the PCE. The contaminated vapors released by the soil located next to the groundwater table will be extracted via a vacuum and treated (i.e., granular activated carbon).

Institutional controls will be in place to restrict the use of groundwater as a drinking water source. The remedy will be evaluated every five years until standards are met.

Pilot Study

As with Alternative 2, a pilot study will be necessary to evaluate design parameters to implement the candidate technologies proposed for this alternative.

Proposed Alternatives for Groundwater Remediation

Groundwater at the Bountiful/Woods Cross OU2 is a potential source for drinking water for communities surrounding the Site. Absent of any treatment, the RI/FFS concluded that even if the source is removed the groundwater plume may continue to expand. Some residences may require an alternate water supply to prevent unacceptable exposure to direct ingestion of untreated groundwater or to prevent breathing of vapors emitted from the indoor uses of groundwater.

Alternative A -Alternate Water Supply and Monitored Natural Attenuation

Capital Cost: $616,500
O&M Cost (Years 1 - 5): $1,679,400
O&M Cost (Years 6 - 30): $1,026,000
Present Worth Cost: $3,323,000
Effective time to achieve RAOs: 100 years based on a two dimensional ground water model

This alternative includes a source removal alternative and the common elements presented above under the **Summary of Remedial Actions Alternatives**. In addition, this alternative would provide an alternate water supply to exposed residents living on or near the plume and who are not connected to a municipal water supply. If a domestic drinking water well

becomes contaminated (e.g., contamination above MCLs) the property owner will be offered a connection to a municipal water supply system and a notice will be provided to the resident regarding the appropriate groundwater use.

Groundwater and soil vapor samples will be collected during the life of the project. The data will be evaluated every year to assess contamination trends and to alert the agencies of potential exposure pathways.

Alternative A does not actively treat the plume; instead, it allows the plume to degrade via natural processes.

Alternative B - Hydraulic Containment

Capital Cost: $3,391,200
O&M Cost (Years 1-5): $3,035,000
O&M Costs (Years 6-30): $5,020,000
Present Worth Cost: $11,446,200
Effective time to achieve RAOs: 50 years based on a two dimensions ground water model

Alternative B has all the same components as Alternative A but also adds hydraulic containment of the plume. Containment will be accomplished by pumping water out of each extraction well. The wells will most likely be placed inside the Holly Refinery Company property and each well will be pumped at a rate of about 150 gallons/minute. Operation of the extraction wells will prevent the contaminants from flowing past the extraction locations; thereby, containing and treating the groundwater plume. The extracted water will be cleaned using granular activated carbon and the clean water will be re-injected into the aquifer. A second option that may be considered with this alternative is to discharge into a publicly owned treatment plant. This option may be considered during the design of the extraction system.

Contaminated ground water past the extraction well location will not be treated; the contamination will be allowed to degrade via natural processes.

Alternative C - In Situ Bioremediation

Capital Cost: $17,680,000
O&M Cost (Years 1-5): $46,044,000
O&M Cost (Years 6-30): $18,763,000
Present Worth Cost: $82,487,000
Effective time to achieve RAOs: 55 years based on a two dimensional ground water model

Alternative C has all the same components as Alternative A but adds groundwater treatment via in-situ biobarrier (in-place treatment). The biobarrier will consist of about 35 fracturing wells installed along a line perpendicular to the contaminated groundwater plume, placed about the same location as the two extraction wells described in Alternative B. High permeability sand slurry will be pumped at high pressure into the ground forcing the formation to fracture, filling the open spaces with the sand and the treatment fluids slurry (slow release electron donors). Groundwater will flow throughout the treatment biobarrier which would stimulate the anaerobic degradation of PCE (in-place treatment).

About ninety-two fractures will be installed in each of the 35 fracturing wells generating approximately 3,220 fractures for in-place treatment. The depth of the fracture zone will range 95 to 210 feet below the ground surface. The total thickness of the fracture zone is approximately 115 feet. It is assumed that the barrier would need to be recharged every five years for the duration of the remedy.

Evaluation of Alternatives

Nine criteria are used to evaluate each remediation alternative and then, to select the remedy, each alternative is evaluated against each other. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. Tables 2 and 3 provide a comparison between the alternatives for the source removal and for groundwater treatment. The detailed analysis of the alternatives can be found in the FFS reports.

1. Overall Protection of Human Health and Environment

Except for the no action alternative, all the alternatives provide protection of human health and the environment and can meet all the Remedial Action Objectives (RAOs). Provision of an alternate water supply to impacted residents will prevent direct exposure to untreated groundwater. The indoor air quality at the Bountiful Family Cleaners facility will be addressed by the removal and the treatment of the contaminated soils at the source.

For the groundwater plume, Alternative B would be more protective because it removes more of the downgradient contaminant plume mass over the 50 year period.

2. Compliance with Federal and/or State Requirements – (ARARs)

All the alternatives, except the no action alternative, will comply with all the Federal or State Applicable or Relevant and Appropriate Requirements (ARAR).

3. Long-Term Effectiveness and Permanence

For the source, Alternatives 2 and 3 provide long-term effectiveness and permanence by treating groundwater and removing soils, which are the source of contamination to both groundwater and indoor air.

For the groundwater plume, following contaminant source removal, all three alternatives are effective in the long term by preventing exposure to contaminated groundwater through provision of alternate drinking water to residents. Alternatives B and C are more effective than Alternative A in that they reduce the time to clean up groundwater by approximately 50 years.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1, the no action alternative, has no treatment component and therefore provides no reduction of toxicity, mobility, or volume of PCE in soil, indoor air, or groundwater. However, both Alternatives 2 and 3 remove the source material and treat the contaminated sub-soil. Therefore, both Alternatives 2 and 3 reduce toxicity, mobility, and volume of PCE through treatment. In addition, Alternative 3 will destroy the PCE contamination in soils and groundwater via biodegradation. Alternative 2 simply removes the contaminants and transfers them to another medium that will require disposal.

For the groundwater plume, Alternative A reduces toxicity, mobility and volume via natural processes. Alternative B reduces toxicity, mobility and volume by extracting the contaminant mass, and re-injecting clean water into the aquifer. Alternative C reduces toxicity, mobility and volume by in-situ treatment of groundwater as it passes through a biobarrier.

Alternatives B and C provide better protection by providing active treatment and reducing the time to clean up the groundwater plume. Alternative B provides additional protection by reducing mobility by containment of the groundwater plume.

5. Short-Term Effectiveness

At the source, Alternative 1 would be ineffective in limiting short-term exposure to contaminated indoor air at the cleaners. Alternative 1 would not reduce short-term exposure to contaminated groundwater.

Implementation of either Alternative 2 or 3 would result in reductions in PCE levels at the source, in groundwater, and indoor air within a short time after construction completion. The soil removal component of both alternatives would provide an immediate reduction in indoor air contamination at the cleaners. Fugitive dust emissions and vapors from the excavation or Site preparations would be controlled and monitored. Therefore, both Alternatives 2 and 3 are highly effective in the short term.

For the groundwater plume, all three alternatives (A, B, and C) are effective in the short-term by

preventing exposure to contaminated groundwater through provision of alternative drinking water and by completing the source removal.

6. Implementability

At the source, both Alternatives 2 and 3 use proven technologies and treatment systems which could be easily implemented at a site. However, drilling wells for either Alternative 2 or 3 in the source area will require coordination with businesses and land owners in that area.

Alternative 2 will require installation of 11 dual phase extraction (DPE) wells, one groundwater extraction well, and one soil vapor extraction (SVE) well. The treatment system will require a facility to treat the soil vapors and groundwater. Alternative 3 will require installation of three injection wells, four extraction wells, and a system to inject a sodium lactate solution as well as organisms (microbes) to stimulate the degradation of PCE. The wells will be operated such that groundwater recirculation is created in the source area. Above ground treatment of the extracted groundwater will not be required.

Therefore, due to slightly lower operation and maintenance costs, Alternative 3 is somewhat more implementable than Alternative 2.

For the groundwater plume, all alternatives are implementable. Alternatives B and C utilize proven technologies that are commercially available; however, Alternative C relies on hydraulic fracturing technology which has not been demonstrated at the scale necessary for the barrier application. The size of the barrier (approximately 3,400 feet long) and the fact that the installation of about 35 pre-drilled wells would be required on private and commercial properties presents additional challenges. Alternative A would be the easiest to implement because it does not require active treatment for the downgradient groundwater plume.

7. Cost

For the source area removal, Alternative 3 is lower in cost than Alternative 2, and it meets cleanup goals more quickly.

For the groundwater plume, the cost of Alternative B is higher than Alternative A and much lower than Alternative C. However, Alternative B meets the RAO in one-half the time as Alternative A and about the same time as Alternative C.

8. State or Support Agency Acceptance

The State of Utah, Department of Environmental Quality (UDEQ) supports a combination of Alternative 3 - Excavation, Anaerobic Bioremediation/Soil Vapor Extraction and Alternative B – Hydraulic Containment as the preferred cleanup options. While they support these alternatives, they will make their final determination after the public comment period.

9. Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the 30-day public comment period ends and will be described in the Record of Decision (ROD) for the Site.

A summary of the comparison of alternatives is presented in Tables 2 and 3.

Summary of Preferred Alternative

Based on the information available at this time, EPA and UDEQ believe the preferred alternative for cleaning up the PCE contamination at the OU2 source is Alternative 3 – Enhanced Anaerobic Bioremediation/Soil Vapor Extraction, Excavation, Disposal, and Monitoring. Alternative 3 was selected over Alternative 2 because it is estimated that the clean up goals can be reached sooner than Alternative 2, making it slightly more effective. Alternative 3 does not require a ground-water treatment system above the ground surface; therefore, making it more implementable.

Also, Alternative 3 has a lower capital, operation and maintenance cost.

EPA and UDEQ believe that the combination of Alternative 3 – source removal, and Alternative B – groundwater containment, are the best options to clean up the contaminated groundwater at OU2. Alternative B was selected as the preferred alternative over Alternative A because it is estimated that Alternative B will meet the clean up goals 50 years sooner than Alternative A. Alternative B was selected over Alternative C because Alternative B is a proven technology and can be implemented at a fraction of the cost of Alternative C.

EPA and UDEQ believe the preferred alternatives would be protective of human health and the environment, would comply with ARARs, would be cost-effective, and would use permanent solutions to the maximum extent practicable.

EPA and UDEQ encourage the public to review and comment on all the alternatives presented in this proposed plan. A final remedy for the Site will be selected after reviewing and considering all comments and information submitted during the 30-day comment period. Based on public comments and/or new information, EPA may modify the preferred alternative or select another alternative presented in this proposed plan.

Table 2 - Comparison of Alternatives For the Source			
Evaluation Criteria	**Alternative 1**	**Alternative 2**	**Alternative 3 (Preferred)**
Overall protection of human health and the environment	Not protective of human health	Protective of human health	Protective of human health
Compliance with ARARs	Not compliant with ARARs	Compliant with ARARs	Compliant with ARARs
Short-term effectiveness	Not effective	Highly effective	Highly effective
Long-term effectiveness	Not effective	Highly effective	Highly effective
Reduction of toxicity, mobility, or volume through treatment	Provides no treatment	Moderate to High	High
Implementability	High	Moderate	Moderate to High
Present Worth Cost ($)	$39,000	$1,648,000	$1,075,000
Effective Time of Remedy	N/A	3 Years	2 Years
State Acceptance	TBD	TBD	TBD
Community Acceptance	TBD	TBD	TBD

TBD – To be determined after public meeting

Table 3 - Comparison of Alternatives For the Groundwater Plume			
Evaluation Criteria	**Alternative A**	**Alternative B (Preferred)**	**Alternative C**
Overall protection of human health and the environment	Protective of human health	Protective of human health	Protective of human health
Compliance with ARARs	Compliant with ARARs	Compliant with ARARs	Compliant with ARARs
Short-term effectiveness	High	High	High
Long-term effectiveness	Moderate	Moderate	Moderate
Reduction of toxicity, mobility, or volume through treatment	Provides no active treatment Low	High	Moderate to Low
Implementability	High	Moderate	Moderate to Low
Present Worth Cost ($)	$3,323,000	$11,446,200	$82,487,000
Effective Time of Remedy	100 Years	50 Years	55 Years
State Acceptance	TBD	TBD	TBD
Community Acceptance	TBD	TBD	TBD

List of Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
BFC	Bountiful Family Cleaners
CAH	Chlorinated Aliphatic Hydrocarbons
DPE	Dual Phase Extraction
EAB	Enhanced Anaerobic Bioremediation
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
ICs	Institutional Controls
MCL	Maximum Contaminant Levels
NPL	National Priority List
OU	Operable Unit
OU1	Operable Unit 1 – Hatchco site, TCE Plume
OU2	Operable Unit 2 – PCE Groundwater Plume
PA	Preliminary Assessment
PCE	Perchloroethylene
POTW	Public Owned Treatment Works
RAOs	Remedial Action Objectives
RI	Remedial Investigation
RI/FFS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Site	Bountiful/Woods Cross/ 5th South NPL List Site (OU1 and OU2)
SVE	Soil Vapor Extraction
UDEQ	Utah Department of Environmental Quality
ug/L	Micrograms per liter

We Value Your Opinions About This Fact Sheet!!!!!

Please take a few minutes to either telephone or e-mail your responses to **Peggy Linn, 1-800-277-8917, x6622 or linn.peggy@epa.gov.**

1. How clear and understandable are our fact sheets and other mailings?

2. Are we providing the information you need and in a timely manner?

3. What other information can we provide to help you?

Your input on the Proposed Plan for the Bountiful/Woods Cross/5th South PCE Plume Superfund Site Operable Unit 2 is important to EPA. Comments provided by the public are valuable in helping EPA select a final cleanup remedy for the Site.

You may use the space below to write your comments, then fold and mail this self-addressed page. Comments must be postmarked by October 26, 2006. If you have any questions about the comment period, please contact Peggy Linn at (303) 312-6622 or through EPA's toll-free number at 1-800-227-8917, x6622. Those with electronic communication capabilities may submit their comments to EPA via the Internet at the following e-mail address: robles.mario@epa.gov.

Use This Space to Write Your Comments

COMMENTS:

Name:				
Address:				
City:				
State:			Zip:	
Phone #:			e-mail:	

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For More Information Please Contact the Following:

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MAILING LIST -- ADDITIONS OR DELETIONS

EPA maintains a mailing list of people interested in activities at the Bountiful/Woods Cross Superfund Site. **If there are any changes to your address or you wish to not receive information, please call or e-mail Peggy Linn at 1-800-227-8917 or linn.peggy@epa.gov**

U.S. Environmental Protection Agency
999 18th Street, Suite 300 8OC (Linn)
Denver, CO 80202-2466

To: