J. H. BAXTER SUPERFUND SITE

United States Environmental Protection Agency • Region 9 • San Francisco, CA • September 1997

EPA Proposes Modification to Groundwater and Soils Remedy

The U. S. Environmental Protection Agency (EPA) is requesting public comments on this Proposed Plan for modifying the cleanup of contaminated groundwater and soils at the J. H. Baxter Superfund site in Weed, California (see Figure 1). Based on the results of additional investigations, site characterization, and evaluations (explained within), EPA has concluded that the previously selected groundwater cleanup technologies cannot achieve the existing cleanup objectives for a part of the site.

After gathering additional data and reevaluating groundwater and soils cleanup alternatives, EPA is now proposing installation of a ***slurry wall***[1] *to contain that area of contaminated groundwater which cannot be cleaned up. Groundwater outside of the slurry wall will be cleaned up to existing groundwater standards (see Table 2 on page 3). EPA is also proposing to regrade and cover the existing excavation on property owned by Roseburg Forest Products.* ***Institutional controls***

Continued on pg. 2

[1]*All* ***bolded terms*** *can be found in the glossary on page 11.*

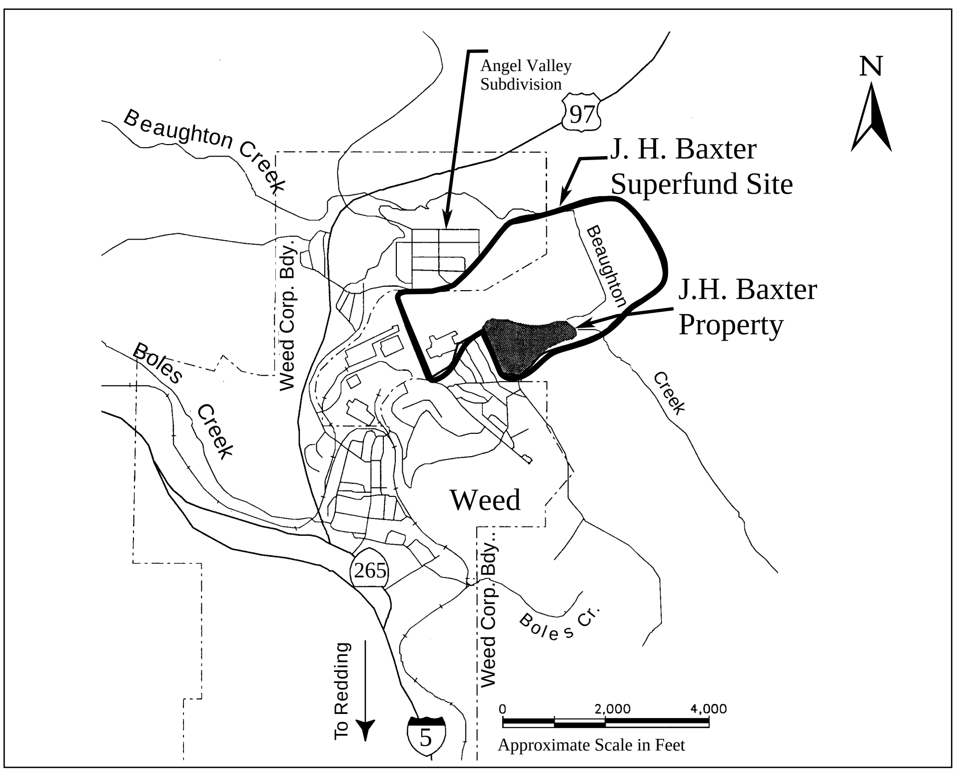

Figure 1: *Site location map of J.H. Baxter Superfund site in Weed, CA*

COMMUNITY MEETING

regarding the Proposed Plan for the J.H. Baxter site

Thursday
October 9, 1997
7:00 to 9:00 p.m.

College of the Siskiyous
Life Sciences Building, LS-9

At this meeting, EPA representatives will describe the alternatives evaluated and present EPA's preferred alternative. You will have the opportunity to ask questions, and give written and verbal comments on all the alternatives.

We encourage you to comment on the Proposed Plan and other site-related documents during the public comment period ***(September 29-October 29, 1997)***. Comments may be submitted either orally or in writing at the community meeting, or you can send written comments postmarked ***no later than October 15*** to:

Kathy Setian, Project Manager
U.S. EPA
75 Hawthorne St. SFD-7-2
San Francisco, CA 94105
e-mail:
setian.kathy@epamail.epa.gov

We will consider and respond to your comments before making the final decision.

(from pg. 1)

would prevent future exposure to contamination left on-site.

This Proposed Plan highlights key information about the extent of contamination at the site, the revised cleanup objectives, and alternatives considered to achieve them. This Proposed Plan also contains EPA's proposals to modify other aspects of the soils remedy previously selected for the site.

The community is encouraged to participate in EPA's remedy selection process by commenting on all alternatives and proposals included in this Proposed Plan. EPA is the lead agency and is supported by the California Department of Toxic Substances Control and the North Coast Regional Water Quality Control Board.

EPA 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 (CERCLA). (See *What is Superfund* on page 11.)

Background

The J.H. Baxter site is located at the northeastern border of the city of Weed in Siskiyou County, California (see Figure 1 on page 1). The site includes property owned by J. H. Baxter & Company and Roseburg Forest Products. J. H. Baxter operates a wood treatment plant, and Roseburg operates a lumbermill and veneer plant. Wood treatment is intended to protect wood from deterioration from insects and fungi, using a variety of chemical compounds including **creosote**, arsenic, chromium, copper, zinc, and **pentachlorophenol**.

Wood treatment operations and related chemical handling and disposal practices over the past 60 years have resulted in contamination of soil, surface water, sediment, and groundwater.

The companies which previously have been responsible for wood treatment operations (since 1937) include American Lumber and Treatment Company, Long Bell Lumber, and International Paper Company. The Potentially Responsible Parties (PRPs), as identified by EPA, have formed the Weed Remediation Group (WRG) in response to EPA's initiative to clean up the site.

The State of California first identified the J. H. Baxter site as an environmental problem in the early 1980s. EPA placed the site on the National Priorities List (NPL) in 1989. EPA began a Remedial Investigation (RI) to characterize the extent of soil, groundwater, and surface water contamination at the site in 1986 and issued the RI report in 1988.

Summary of Site Risks

In April 1990, EPA completed its Endangerment Assessment which determined the current and potential risks to public health from contamination at the J. H. Baxter site. This study determined that if no cleanup occurred at the site, unacceptable risks could result from drinking contaminated groundwater (although there are currently no drinking water wells within the contaminated area), swimming, contact with, or incidental drinking of surface water and sediments, and exposure to contaminated soils and dusts on the Baxter wood treatment property. Both **carcinogenic** and non-carcinogenic compounds are present at this site.

The California Department of Fish and Game reported in 1988 that fish life in Beaughton Creek was impaired downstream of discharge areas from the site. Interim corrective actions required by the State to treat effluent discharges from the site eliminated continuing impacts to Beaughton Creek. The 1990 Record of Decision (ROD) did not propose a remedy for contamination in Beaughton Creek sediments because surveys indicated that fish were returning to the creek. The ROD indicated that EPA would continue to monitor the creek and its aquatic life. In 1993, under the direction of EPA, California Fish and Game, and the Regional Water Quality Control Board, Beaughton Creek was analyzed for contamination in water and sediments, and health impacts on fish and insects. No significant adverse impacts were observed. EPA and the State will continue to monitor the creek.

Remedies Selected for Groundwater and Soils by the 1990 Record of Decision (ROD)

A Feasibility Study (FS), which evaluated options for cleaning up the site, was released by EPA in 1990, along with a proposed plan. Following a public comment period, EPA selected cleanup remedies for the Baxter site as documented in the Record of Decision (ROD) dated September 1990. (See Table 1, on page 3). The WRG was directed by EPA to design and construct the selected remedies under EPA's supervision. As part of the design process, the WRG undertook additional investigations to further characterize the extent of contamination.

New Information About Contaminants in Groundwater and Soils

Under EPA's direction, the WRG undertook Characterization and Treatability Studies in 1992-93 and Groundwater Remedial Design Investigations in 1993-94. The purpose of these studies was to provide specific information necessary to design the remedies selected by EPA in the 1990 ROD. The results of the studies confirmed that creosote contamination at this site is present in the soil, in the groundwater, and in the form of **Dense Non-Aqueous Phase Liquids (DNAPLs)** above and below the groundwater

TABLE 1: SELECTED REMEDIES FOR GROUNDWATER AND SOILS - 1990 ROD

Groundwater	Surface soils	Subsurface soils	Treatment and disposal methods for surface and subsurface soils
Restore aquifer by pumping and treating groundwater until cleanup standards are achieved.	Prevent contact with and ingestion of contaminated **surface soils** by excavating, treating, and disposing on-site.	Prevent **subsurface soils** from degrading groundwater quality by excavating (based on **leachate** standards), treating, and disposing on-site.	**Biotreatment** of **organic contaminants**; **stabilization** of **inorganic contaminants**; disposal in lined cells.

table. However, the studies also indicated that the DNAPLs extended throughout a much wider and deeper portion of the site than was previously thought, and that subsurface soil contamination was also much more widespread. Furthermore, EPA now has a greater understanding of the difficulties and limitations of cleaning up groundwater sites contaminated with DNAPLs compared to 1990 when the FS and ROD for this site were developed. Therefore, EPA undertook a **Focused Feasibility Study (FFS)** in 1996-97 to reevaluate the cleanup for groundwater and soils in the area of the site contaminated with DNAPLs (see Figure 2, page 4).

Baseline Remedies for Groundwater (Outside of the DNAPL Zone) and Soils

The Focused Feasibility Study (FSS) and this Proposed Plan assume a baseline remedy for groundwater and soils cleanup other than groundwater and subsurface soils within the DNAPL zone. The baseline remedy provides that the groundwater outside of the DNAPL zone will still be restored by pumping and treatment, to the standards selected by the 1990 ROD (see Table 2). This aspect of the remedy will be enhanced by constructing a **slurry wall** around the DNAPL zone. A slurry wall is a physical barrier that would prevent the flow of groundwater through the DNAPL area, thereby preventing further contamination and facilitating faster cleanup of the groundwater outside of the DNAPL zone.[2] Conventional slurry wall construction consists of excavating a trench and filling it with a **bentonite** slurry mixture. The slurry wall would connect to the underlying **aquitard**, approximately 30 to 50 feet below ground surface and 4,350 feet long. Construction of the slurry wall will necessitate some extraction of groundwater within the DNAPL zone to maintain an inward **gradient**. Extracted groundwater would be treated and disposed, preferably by reuse on Roseburg's log decks. Monitoring systems are part of the baseline remedy. Any leakage across the slurry wall, or down through the naturally occurring aquitard, would be detected and corrected. The total cost (present worth) of the slurry wall and groundwater remediation outside of the DNAPL zone is estimated to be $10.85 million.

The baseline remedy also provides that contaminated surface soils, whether inside or outside of the DNAPL zone, and contaminated subsurface soils (deeper than two feet) outside of the DNAPL zone, will be cleaned up in accordance with the ROD, although certain modifications are proposed and discussed on page 10.

TABLE 2: GROUNDWATER CLEANUP STANDARDS SELECTED BY 1990 ROD

Contaminant	Parts Per Billion (PPB)
Arsenic	5
Chromium	8
Copper	11
Zinc	90
Benzene	1
Pentachlorophenol	2.2
Carcinogenic **PAHs**[3]	5
Non-carcinogenic PAHs[4]	5
Dioxins	0.000025

[2] *The slurry wall was initially introduced as a design component to enhance restoration of groundwater outside of the DNAPL zone. It has additional use in a containment strategy, discussed on page 6.*

[3] *Carcinogenic PAHs: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(k)fluoranthene, indeno(123-cd)pyrene.*

[4] *Non-carcinogenic PAHs: naphthalene, 2-methylnaphthalene, acenaphthylene, acenaphthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(g,h,i)perylene.*

Evaluation of Alternatives to Restore Groundwater Within the DNAPL Zone

EPA evaluated nine alternatives for their ability to clean up groundwater within the DNAPL zone to ROD standards. The alternatives, which represented a broad range of technologies and costs, are summarized in Table 3. (For more details on this analysis, please refer to the 1997 FFS.) None of the alternatives were found certain to be effective and implementable. Therefore, EPA concluded that it is not possible to achieve the ROD cleanup standards for groundwater within the DNAPL zone. EPA is proposing to waive the groundwater cleanup standards within the DNAPL zone based on a determination that it is technically impracticable (TI) from an engineering perspective, and because the slurry wall can effectively contain the contamination left in place. Based on this determination, the DNAPL zone is also referred to as the TI zone for groundwater cleanup.

Proposed Revisions to Cleanup Strategy Within the DNAPL Zone

Within the DNAPL zone, EPA is proposing revisions to the cleanup strategy for groundwater and subsurface soils to ensure that the remedy remains protective of human health and the environment. The proposed revisions include the following elements:

- Contain contaminated groundwater and DNAPLs to prevent their migration;
- Prevent ingestion of contaminated groundwater; and
- Prevent direct contact with contaminated subsurface soils and seeps.

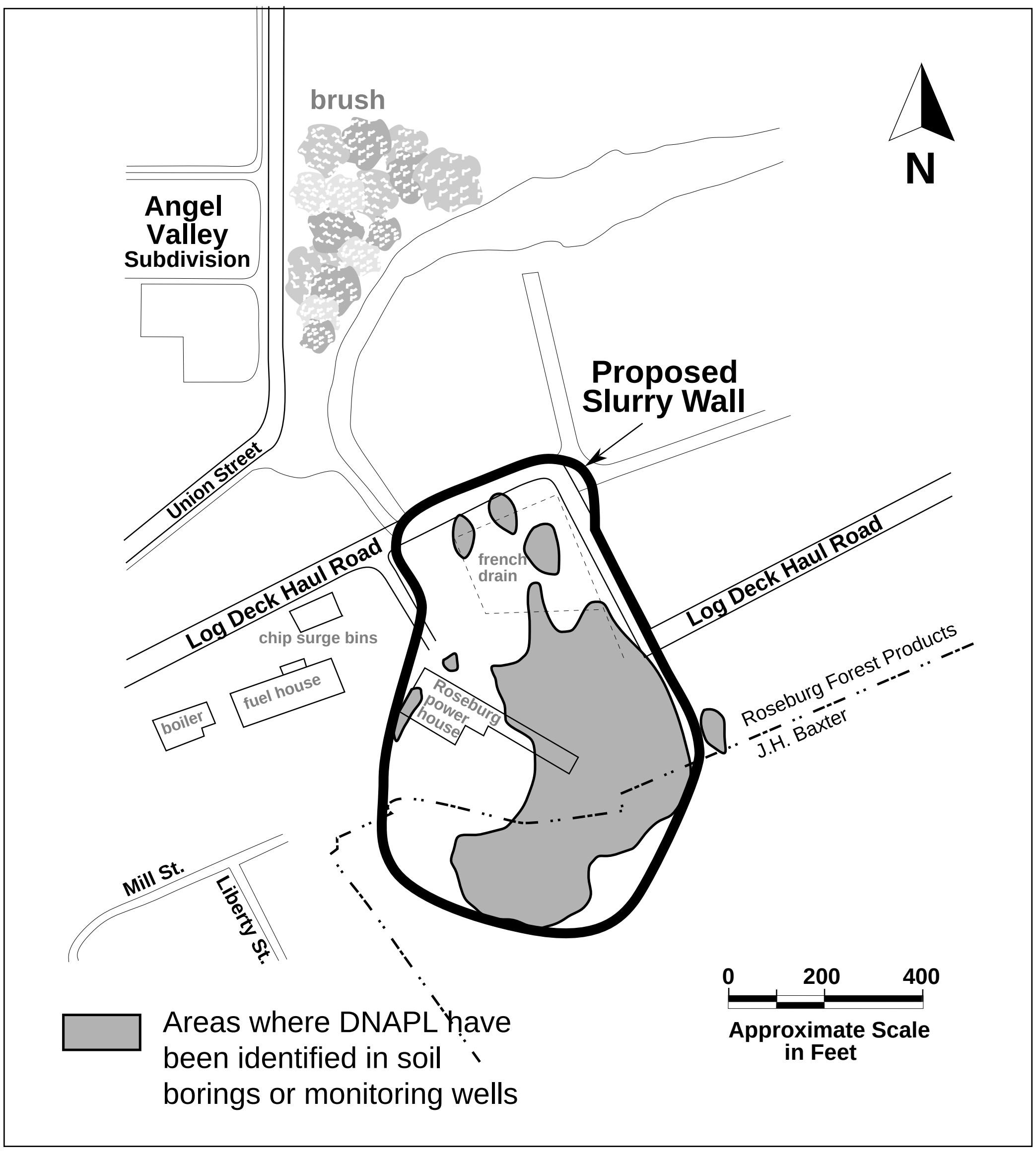

Figure 2: *Areas where DNAPLs have been identified (DNAPL zone)*

SITE CLEANUP ACTIVITIES TO DATE

Operational improvements	In 1991, partially covered drip pads were constructed to collect drippage of wood treatment chemicals from treated wood. In 1996, a covered storage area for treated wood products was constructed.
Stormwater runoff	Prior to soil cleanup, stormwater can become contaminated as it runs over contaminated surface soils. Since 1993, approximately 10.5 million gallons of stormwater runoff have been collected and treated in a pilot water treatment plant. The stormwater storage capacity on site was increased by 750,000 gallons in 1995-96.
Dust control	In order to control emissions of arsenic-laden dust, water from the pilot water treatment plant is sprinkled on the site during the dry season as needed.
Beaughton Creek assessment	In 1993, Beaughton Creek was analyzed for the presence of contaminants in water and sediments, and health impacts on fish and insects. No significant adverse impacts were observed subsequent to implementation of corrective actions to treat effluent discharges from the site. EPA and the State will continue to monitor the creek.
Pretreatment of surface soil	Surface soils contaminated with organic compounds were pretreated using bioremediation in 1996-97. By the end of 1997, approximately 5,400 cubic yards of soil should be successfully pretreated.

TABLE 3: ALTERNATIVES EVALUATED IN THE FFS FOR GROUNDWATER CLEANUP WITHIN THE DNAPL ZONE

1. No further action beyond baseline remedy.
2. Excavate down to the groundwater table, treat, and dispose of soils according to ROD remedy.
3. Control exposure to contaminated soil and ground water with institutional controls.
4. Excavate to depths below the groundwater table (entire DNAPL zone), treat soils by thermal desorption and stabilization.
5. Excavate to depths below the groundwater table (entire DNAPL zone), treat soils by land farming and stabilization.
6. Excavate to depths below the groundwater table (entire DNAPL zone), treat soils by slurry phase bioreactors and stabilization.
7. Partially excavate soils and treat with thermal desorption and stabilization; treat remaining soils by ***in situ*** bioremediation.
8. Inject steam to enhance DNAPL removal; follow with *in situ* bioremediation.
9. Inject chemicals to enhance DNAPL removal; follow with *in situ* bioremediation.

Identification of Cleanup Alternatives

EPA identified and evaluated cleanup alternatives with respect to the proposed revised cleanup objectives. The following cleanup alternatives were evaluated in detail:

1. No further action (baseline)

The baseline remedies, described on page 3, include a slurry wall to enhance groundwater restoration outside of the DNAPL zone by preventing the flow of groundwater through the DNAPL area. Under a containment strategy, the slurry wall plays an additional role of containing DNAPL within the DNAPL zone. Construction of a slurry wall is a proven, effective method of achieving containment. Because this baseline is now part of a containment strategy, it is important to reduce the mobility of the DNAPLs which will not be excavated. Any pooling of DNAPL due to dewatering within the slurry wall would be detected and removed in order to reduce saturation and mobility. Other aspects of the slurry wall installation, described on page 3, include: extraction of groundwater to maintain an inward gradient; treatment and disposal of extracted groundwater, preferably by reuse on Roseburg's log decks; and a monitoring system to detect any leakage across the slurry wall, or down through the naturally occurring aquitard. The proposed location of the slurry wall is shown in Figure 2, page 4; a final determination of its location will be made by EPA during the remedial design.

2. Excavation of soils to the groundwater table after dewatering, *ex situ* biotreatment, stabilization, and on-site disposal of treated soils

This alternative incorporates additional measures beyond the baseline remedy (Alternative 1). Construction of the slurry wall and implementation of the inward hydraulic gradient are expected to result in some dewatering within the DNAPL area. Affected subsurface soils would then be excavated to a depth at which the groundwater prevents effective removal. Based on the estimated volume of soil containing DNAPL, the minimum volume to be excavated is estimated to be more than 100,000 cubic yards. This volume could increase significantly depending on the amount of additional soil that is contaminated but does not contain DNAPL. Excavated soils would be biotreated to clean up organic contamination, stabilized for inorganic contamination, and disposed in lined cells on-site.

3. Additional containment and institutional controls

Under this alternative, additional containment measures would be undertaken after implementation of the baseline remedy (Alternative 1). The open excavation on Roseburg property (Roseburg excavation) which acts as a collection point for contaminated surface runoff would be regraded and covered with a minimum of two feet of clean soil. These measures would improve surface drainage, eliminate contamination of surface water runoff, and eliminate the potential for worker exposure to contaminated soils. In addition, liquids from DNAPL seeps in the excavation would be collected and treated.

This alternative also includes institutional controls to prevent exposure to wastes left in the DNAPL area. These controls would include:

a) limiting future land uses to appropriate industrial uses (and prohibiting other uses);

b) restricting access to and use of contaminated groundwater;

c) prohibiting activities that would disturb the integrity of the remedy including appropriate prohibitions on activities that would disturb the soil and/or any cap placed upon such soil;

d) requiring appropriate handling of excavated materials;

e) providing for appropriate notice (e.g., in land records) that hazardous wastes remain on site; and

f) prohibiting other activities which could cause a potential threat to human health or the environment.

In addition to the above legal controls, access restrictions might also be applied (such as fences and/or warning signs).

Evaluation of Alternatives

EPA performed a detailed evaluation of the above alternatives based on the nine criteria established in the National Contingency Plan. (See Figure 3, at right.) These criteria include protection of human health and the environment; ability to meet federal and state environmental laws and standards; reduction of contaminant toxicity, mobility and volume through treatment; short-term and long-term effectiveness; implementability; cost; and state acceptance. Evaluation of community acceptance of the alternatives will be conducted after receiving comments during the public comment period.

Details about the evaluation of the three alternatives can be found in the FFS, and are summarized comparatively in Table 4 on page 8.

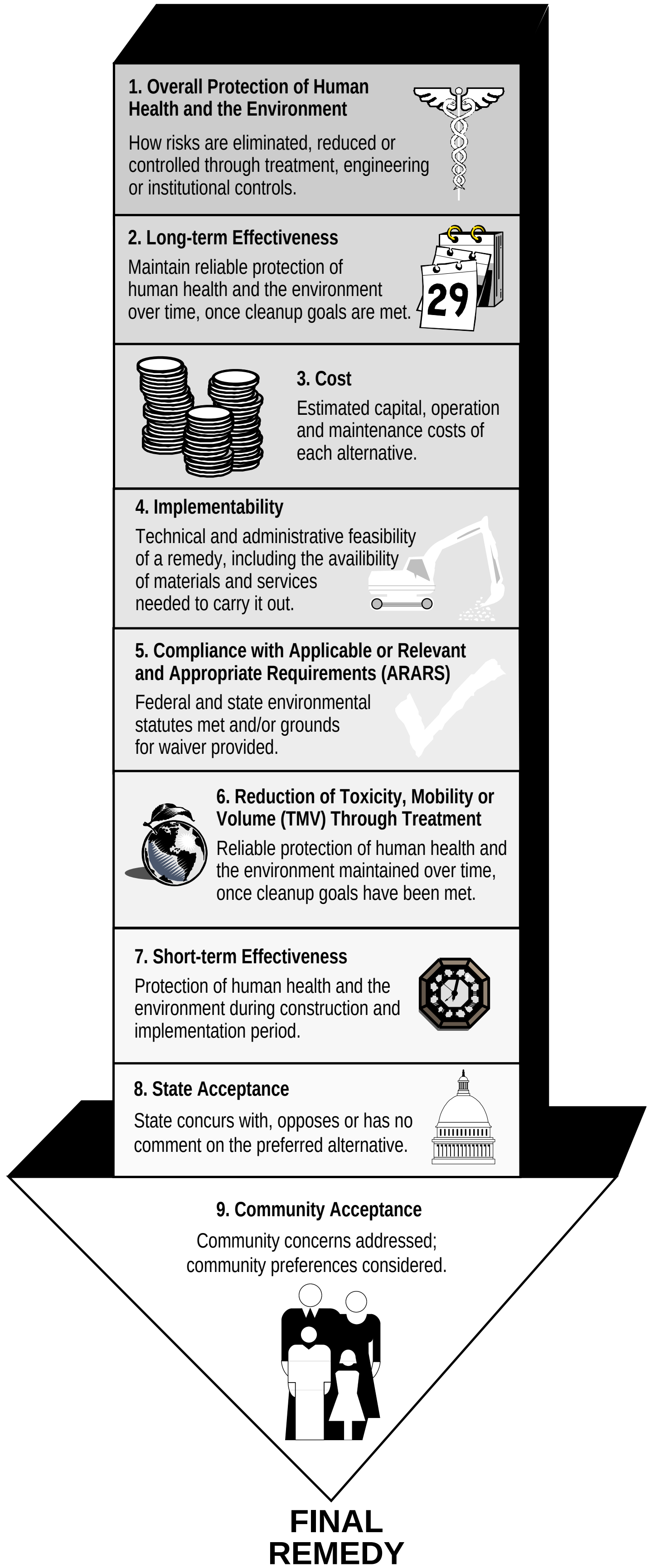

Figure 3: *U.S. EPA's nine cleanup criteria*

TABLE 4: COMPARISON OF ALTERNATIVES

	1 No further action	2 Excavation, bio-treatment, stabilization, and on-site disposal	3 Additional containment and institutional controls (preferred alternative)
Overall protection	DNAPL zone is contained; risk of further contaminant migration is minimized; no reduction in potential risk to human health from ingestion of groundwater in the DNAPL zone or through direct contact with sub-surface soils.	DNAPL zone is contained; risk of further contaminant migration is minimized; exposure potential to contaminated subsurface soils is minimized; no reduction in potential risk to human health from ingestion of groundwater in the DNAPL zone.	DNAPL zone is contained; risk of further contaminant migration is minimized; potential for exposure to contaminated subsurface soils and ingestion of groundwater is reduced; potential for surface water contamination and leaching to subsurface from Roseburg excavation is eliminated.
Compliance with ARARs	Would not meet ROD groundwater cleanup standards.	Would not meet ROD groundwater cleanup standards.	Would not meet ROD groundwater cleanup standards.
Long-term effectiveness and permanence	**Residual risk** outside of slurry wall is reduced; reliability of containment depends on continued monitoring and maintenance.	Residual risk outside of slurry wall is reduced; reliability of containment depends on continued monitoring and maintenance; residual risk within slurry wall permanently reduced by excavation.	Residual risk outside of slurry wall is reduced; reliability of containment depends on continued monitoring and maintenance; residual risk within slurry wall reduced by institutional controls, the effectiveness of which depends on the compliance of the landowners.
Reduction of toxicity, mobility, & volume	Mobility of contaminants reduced by slurry wall; no reduction in toxicity or volume within the DNAPL zone.	Mobility of contaminants reduced by slurry wall and soil stabilization; significant reductions in toxicity and volume of organic contaminants.	Mobility of contaminants reduced by slurry wall and by regrading and covering Roseburg excavation; no reduction in toxicity or volume.
Short-term effectiveness	Standard safeguards can protect workers from exposure to fugitive dust and contaminants during implementation; slurry wall must be properly located outside of the DNAPL zone.	Standard safeguards can protect workers from exposure to fugitive dust, contaminants, and odors during implementation; slurry wall must be properly located outside of the DNAPL zone.	Standard safeguards can protect workers from exposure to fugitive dust and contaminants during implementation; slurry wall must be properly located outside of the DNAPL zone.
Implementability	Conventional technology readily available.	Conventional technology readily available; excavation of large volumes of soil could significantly affect site operations; availability and transport of clean fill material may be difficult; large areas of land would be needed for landfarming and disposal cells.	Conventional technology readily available; compliance of landowners and cooperation of all levels of government needed for institutional controls.
Cost (above baseline):			
Capital Costs	$0	$25-$158 million	$1 million
Annual O&M	$0	$46,000-$102,000	$8,000
Total Present Worth	$0	$26-$160 million	$1.3 million
State acceptance	Not acceptable	Acceptable	Acceptable and preferred

Comparison of Alternatives

An alternative must first be protective of human health and the environment in order to be selected. Alternatives 2 and 3 are both more protective than Alternative 1. Although Alternative 2 provides a more permanent reduction of toxicity and volume of contaminated subsurface soils, Alternative 3 reduces exposure to these soils, is easier to construct, and ranks higher in short-term effectiveness. Finally, there is a significantly lower cost associated with Alternative 3.

EPA's Preferred Alternative

EPA's preferred alternative for groundwater and subsurface soil within the DNAPL zone is Alternative 3, *Additional Containment and Institutional Controls*, provided that the institutional controls can be effectively implemented. Alternative 3 protects human health and the environment and achieves the cleanup objectives of containing contaminated groundwater in the DNAPL zone, preventing ingestion of contaminated groundwater, and preventing direct contact with contaminated subsurface soils and seeps.

In addition, EPA believes that Alternative 3 provides the best balance of the first eight criteria described in Figure 3. Under this alternative, a slurry wall would be constructed to facilitate groundwater cleanup outside of the DNAPL zone and contain contamination inside the DNAPL zone. Construction of the slurry wall by placing the slurry mixture (consisting of bentonite and excavated soil) into the slurry wall trench will not constitute land disposal of hazardous waste because EPA intends to designate the slurry wall trench as a Corrective Action Management Unit (CAMU). An inward gradient would be established by extracting groundwater within the slurry wall. Contaminant migration outside of and below the DNAPL zone would be detected by a monitoring system and corrected. Pooling of DNAPLs within the zone itself would be detected by a monitoring system and extracted. The Roseburg excavation would be regraded and covered. Institutional controls would be implemented to prevent future exposures to contaminants. EPA estimates that it will take an additional one to two years to implement this remedy.

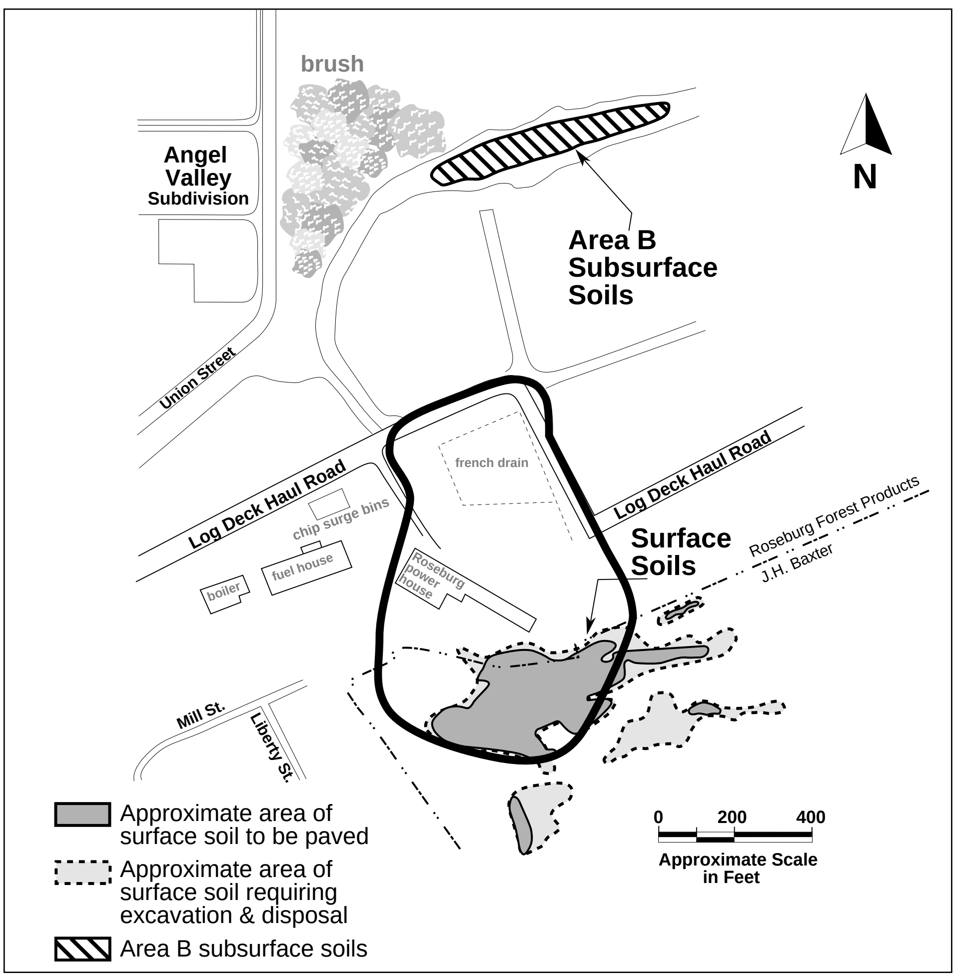

Figure 4: *Surface soils and Area B soils*

Proposed Modification for Disposal of Treated Water

The 1990 ROD for this site listed several disposal options for treated water. Although EPA did not include the option of direct discharge to Beaughton Creek, EPA stated an intent to work closely with the Regional Water Quality Control Board (RWQCB) and the Responsible Parties to identify additional disposal options agreeable to all. Subsequently, the RWQCB has taken regulatory actions to require treatment of water to best practicable methods prior to discharge to Beaughton Creek, and has established a time schedule for ultimate elimination of the discharge as cleanup proceeds. EPA is proposing to add this regulated method of discharge to Beaughton Creek to the list of possible disposal options, with the preferred disposal option still being reuse on Roseburg's log decks.

Additional Proposed Modifications to Soils Remedies

The soils component of the remedy discussed above referred only to subsurface soils within the DNAPL zone. The soils remedies selected by the ROD (outlined in Table 1 on page 3) still pertain to other site soils, including surface soils both inside and outside of the DNAPL zone and subsurface soils outside of the DNAPL zone. (See Figure 4, page 9.) Table 5, below, lists the 1990 ROD treatment standards for soils. EPA is proposing the following modifications to the remaining soils remedies.

1. Surface soils containing inorganic concentrations above background and below the 1990 ROD treatment standard

EPA is proposing to cover these soils with a protective asphalt concrete surface, rather than excavating and reburying the soils on-site at a depth greater than two feet. All soils exceeding the standard leachate test for any contaminant will still be excavated, in accordance with the 1990 ROD.

2. Modification of procedure to verify attainment of soils treatment standard

The ROD treatment standard for soils consists of a numerical limit as well as a specific leachate test procedure (such as **TCLP** or **WET**) to measure compliance. EPA proposes to modify the ROD treatment standard for soils (including Area B soils that are disposed on site in lined cells) by modifying the leachate test procedure. EPA proposes to test that soils have met the numerical limit selected in the ROD by using deionized water rather than a citric acid buffer for the leaching solution. Because testing has shown that site soils are not acidic, deionized water, which is neutral, may be more representative of site conditions.

3. Modification of biotreatment implementation

The ROD specified that all biotreatment of soils be performed in lined cells after excavation. EPA proposes to broaden the implementation options for biotreatment to allow treatment in place (*in situ*), with appropriate monitoring and controls.

4. Designation of treatment areas and disposal cell for soils

All soils that have been excavated and/or treated will be placed on-site in lined cells that comply with all applicable and relevant and appropriate requirements, including groundwater monitoring, leachate control, and closure requirements. Placement of remediation wastes into lined cells will not constitute land disposal of hazardous waste because EPA intends to designate the lined cells as RCRA Corrective Action Management Units (CAMUs). Areas designated by EPA for treatment of soils prior to disposal will also be designated as CAMUs.

5. Alternative treatment and disposal options for Area B soils

The full extent of contaminated subsurface soils was delineated during site characterization under EPA direction in 1994-95. Area B subsurface soils (Figure 4) are believed to have been excavated from the DNAPL zone and moved to their current location when Roseburg began preparations for new building construction. Area B soils are contaminated with organic contaminants, and in accordance with the ROD, shall be biotreated and disposed of in a lined cell. (See Table 1.) However, EPA is willing to evaluate an alternative treatment method, which would allow Area B soils to be treated and left in place. EPA is proposing that the WRG conduct a treatability study using **bioventing** as the treatment technology. If EPA finds that bioventing is capable of achieving the ROD cleanup standards (see table below) for all contaminants in a reasonable time period and if no impact to groundwater is observed or anticipated, EPA would allow treated soils to remain in place in the subsurface of Area B, covered by two feet of clean surface soils.

TABLE 5: SOILS TREATMENT STANDARDS SELECTED BY 1990 ROD

CONTAMINANT	NUMERIC STANDARD PARTS PER MILLION (PPM)	LEACHATE TEST PROCEDURE
Arsenic	5	TLCP
Chromium	5	WET
Copper	25	WET
Zinc	250	WET
Pentachlorophenol	1.7	WET
Carcinogenic PAHs	0.005	TCLP
Non-carcinogenic PAHs	0.15	TCLP
Dioxins	0.001	TCLP

What is Superfund?

Superfund is the commonly used name for the Comprehensive Environmental Response, Liability and Compensation Act (CERCLA), a federal law enacted in 1980 and amended in 1986. CERCLA enables EPA to respond to hazardous waste sites that threaten public health and the environment. Two significant components in the Superfund process are: (1) site investigation (Remedial Investigation) and (2) evaluation of possible cleanup alternatives (the Feasibility Study). During the Remedial Investigation (RI), information is gathered to determine the general nature, extent, and sources of contamination at a site. The Feasibility Study (FS) evaluates cleanup options against nine criteria. (See Figure 3.) A Proposed Plan presents EPA's analysis and identification of a preferred alternative for public comment. Once the final cleanup plan has been selected, EPA formalizes this decision by signing a Record of Decision (ROD). The ROD also contains a Responsiveness Summary - EPA's response to public comments on the RI, FS, and Proposed Plan. Design and construction (Remedial Design and Remedial Action) can then proceed.

Glossary

aquitard A naturally occurring soil layer that is relatively impermeable, thus preventing the vertical movement of groundwater.

bentonite An absorptive and colloidal clay.

biotreatment The use of microorganisms (such as bacteria) to transform harmful substances into nontoxic compounds.

bioventing An *in situ* process in which air or oxygen is supplied to the soil to stimulate biotreatment.

carcinogenic Cancer causing.

creosote A petroleum-based product used as a wood preservative; it contains many compounds (PAHs), some of which are considered to be carcinogenic (cancer-causing).

DNAPL A Dense Non-Aqueous Phase Liquid is an oily (or other non-water soluble) form of a substance such as creosote, making it difficult to remove. DNAPLs are denser than water and can therefore be pulled down through the subsurface by gravity.

Focused Feasibility Study (FFS) A supplemental study that identifies, screens, and evaluates cleanup alternatives.

gradient Slope; a hydraulic gradient causes groundwater to flow in the direction of decreasing water-level elevation.

inorganic contaminants At the J. H. Baxter site, inorganic contaminants include the following metals which have been used as wood preservatives: arsenic, chromium, copper, and zinc.

in situ A Latin term meaning *in place*; in situ treatment of soil is performed without the need for excavation.

institutional controls Measures to reduce or eliminate potential exposure to contamination. These may include land use restrictions, notice requirements, and prohibitions on activities that would disturb the integrity of the remedy.

leachate Liquid which percolates out of soil.

organic contaminants PAH contaminants containing carbon; at the J. H. Baxter site, these include creosote, PCP, dioxins and furans. Polynuclear aromatic hydrocarbons are the class of compounds constituting creosote.

pentachlorophenol (PCP) A chlorinated carbon compound used as a wood preservative. All non-wood preservative uses of PCP have been banned by EPA due to concerns about its potential for causing tumors and birth defects.

residual risk The risk remaining after the cleanup has been completed.

slurry wall A physical barrier constructed below groundsurface to prevent the lateral movement of groundwater. Typically a trench is excavated, the excavated soils are mixed with bentonite, and the resulting slurry mixture is placed back into the trench.

stabilization The use of chemical additives to immobilize contaminants.

subsurface soils In this Proposed Plan, subsurface soils are soils greater than two feet below ground surface.

surface soils In this Proposed Plan, surface soils are soils less than two feet below ground surface.

TCLP Toxicity Characteristic Leachate Procedure; a leachate test used by the federal government to identify hazardous waste.

WET Waste Extraction Test; a leachate test used by the State of California to identify hazardous waste.

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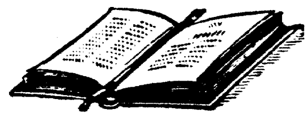
Questions or Comments?

Anyone with questions or comments can call
Vicky Semones
Community Involvement Coordinator
toll-free at (800) 231-3075
and leave a message
mentioning the J. H. Baxter site.

You can also contact
Kathy Setian
Remedial Project Manager
directly at (415) 744-2254 or
via fax at (415) 744-2180

Written comments or questions may be addressed to:
Kathy Setian, Remedial Project Manager
U. S. Environmental Protection Agency
75 Hawthorne Street (SFD-7-2)
San Francisco, CA 94105

Information Repositories



The Final Focused Feasibility Study and Evaluation of Technical Impracticability (May 1997) and other site-related documents are available for review at the following locations:

College of the Siskiyous Library
800 College Avenue
Weed, CA 96094

U. S. EPA Superfund
Records Center
95 Hawthorne Street
Suite 403S
San Francisco, CA 94105-3901
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Region 9
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Permit No. G-35

Official Business
Penalty for Private Use, $300