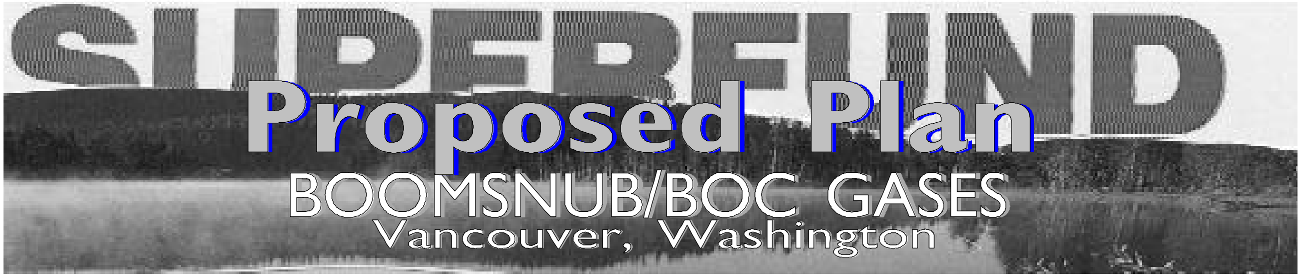


EPA U.S. Environmental Protection Agency August 6,1999

This Proposed Plan presents the US Environmental Protection Agency's (EPA's) Preferred Alternative for the cleanup of soils and groundwater at the Boomsnub/BOC Gases Superfund Site in Clark County, Washington. EPA proposes to upgrade the existing treatment system to 200 gallons-per-minute for containment and cleanup of groundwater contamination. EPA also proposes to conduct additional soil excavation on the Boomsnub property to reduce contamination entering groundwater. You are invited to comment on this proposal.

INTRODUCTION

This Proposed Plan is being issued by EPA. EPA will select a final remedy for the Site after review and consideration of the information submitted during the 30-day comment period that closes on Tuesday September 7, 1999. EPA may modify the preferred alternative or select another alterative based on information received during the public comment period. You are encouraged to review and comment on all the alternatives presented in this plan since the preferred alternative may be modified based on comments received.

HOW TO COMMENT

EPA invites your written comments on the plan.
Written comments must be received by
Tuesday September 7, 1999. Send comments to:

Peter Contreras
US EPA Region 10
1200 6th Avenue, ECL-113
Seattle, Washington 98101-3188

EPA will also hold a public meeting at the Hazel Dell Sewer District Offices on Tuesday August 17, 1999 at 7:00 PM
to receive oral comments about the proposed plan.

This plan is issued as part of EPA's public participation responsibilities under Section 117(a) of the Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) of 1980, as amended by the Superfund Reauthorization Act of 1986 (SARA). The information summarized in this plan can be found in greater detail in the Remedial Investigation/Feasibility Study Reports and other documents in the Administrative Record for this Site. You are encouraged to review these documents to get a better understanding of the Site and Superfund activities that have been conducted at the Site.

A copy of the Administrative Record for the Site is available for review at these locations:

- Vancouver Community Library
  1007 East Mill Plain Boulevard
  Vancouver, Washington
  (360) 695-1566

- U.S. EPA Records Center
  Region 10
  1200 Sixth Avenue
  Seattle, Washington
  Toll-free 1-800-424-4EPA
  or (206) 553-4494

SITE BACKGROUND

This Site is located in the Hazel Dell community, north of Vancouver, Washington (see Figure 1). Boomsnub operated a metal plating facility from 1967 until June 1994 at 7608 NE 4th Avenue. BOC Gases, located across the street from Boomsnub at 4758 NE 78th Street, is an active compressed gas manufacturing plant.

The Washington State Department of Ecology began investigation of the Boomsnub property in the early 1990's. High chromium levels were detected in soils and chromium was also found in groundwater. Ecology installed a groundwater treatment system to

What's in this Plan? — **Page**

remove contamination migrating in groundwater off the Boomsnub property. During those investigations, Ecology also identified volatile organic compounds (VOCs) in groundwater, which were determined to be coming from historical practices at the adjacent BOC Gases property. For the purposes of investigating groundwater contamination, EPA considers Boomsnub and BOC Gases one site because migrating contamination from both properties has resulted in a commingled plume of contaminated groundwater, including VOCs and chromium (see Figure 1).

In the summer and fall of 1994, EPA demolished the building where chrome plating took place. Building debris and 6,051 tons of chromium-contaminated soil were removed from the Site. Elevated levels of chromium and VOCs were detected in groundwater samples from wells both on and off the Boomsnub property. As part of EPA's soil removal, EPA also installed a new pump-and-treat system designed to more efficiently treat large volumes of chromium and VOCs in groundwater to slow the movement of contamination. On April 25, 1995 EPA added the site to the "National Priorities List", making the Site eligible for federal cleanup money.

CONTEXT FOR THIS PROPOSED PLAN

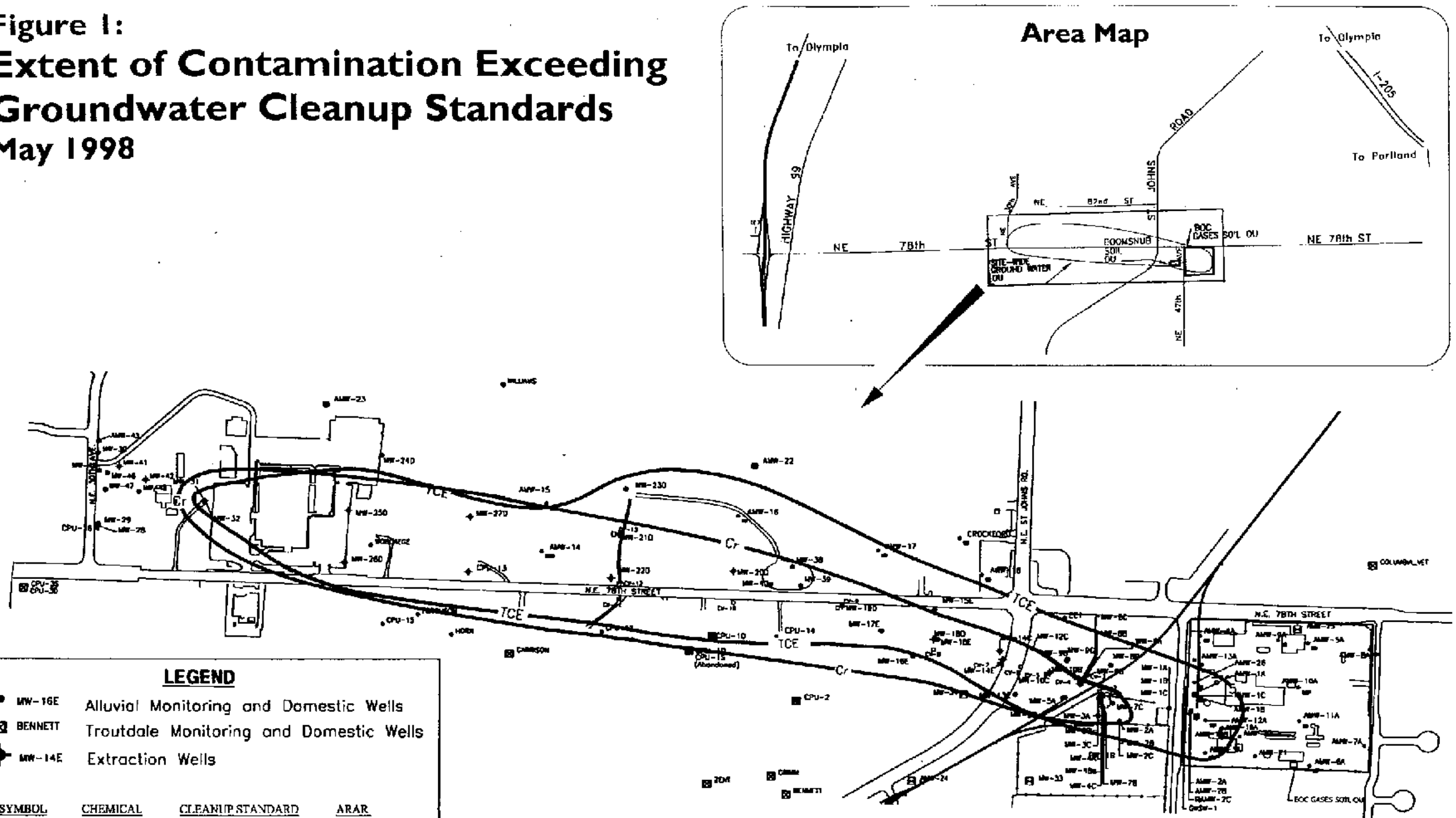
EPA's investigation and evaluation of cleanup options has been organized by operable units (OUs). The Boomsnub Soils OU addresses contamination on the Boomsnub property. The BOC Gases Soils OU addresses contamination on the BOC Gases property. The Site-Wide Groundwater OU addresses groundwater contamination that has migrated off of the properties in groundwater.

This Proposed Plan summarizes the cleanup options that EPA evaluated during investigation of the Boomsnub Soils OU and the Site-Wide Groundwater OU. Publication of this Proposed Plan for comment is a major step in establishing a plan for the cleanup of these two operable units. Once comments have been considered, and a cleanup plan is selected, EPA will issue a "Record of Decision" that documents EPA's cleanup choice for these two OUs.

Evaluation of the cleanup needed for the BOC Gases OU is taking place through a separate process. EPA will announce a separate 30-day public comment period in the future during which you can comment on the alternatives presented for the BOC Soil OU.

The evaluation of each of the two operable units covered by this proposed plan follows. The alternatives for each OU are presented separately.

Figure 1: Extent of Contamination Exceeding Groundwater Cleanup Standards May 1998



LEGEND

- ● MW-16E — Alluvial Monitoring and Domestic Wells
- ⊠ BENNETT — Troutdale Monitoring and Domestic Wells
- ✚ MW-14E — Extraction Wells

SYMBOL	CHEMICAL	CLEANUP STANDARD	ARAR
—Cr—	Chromium	80 ug/L	MTCA B
—TCE—	Trichloroethene	3.98 ug/L	MTCA B

NOTES

ARAR: Applicable or Relevant and Appropriate (regulatory basis for clean up standard)
MTCA B: Cleanup standard based on Washington Department of Ecology Model Toxics Control Act, WAC 173-340-720
ug/L: micrograms per liter or parts per billion

N

0 150 300 600
SCALE IN FEET

SUMMARY AND EVALUATION OF THE SITE-WIDE GROUNDWATER OPERABLE UNIT

NATURE AND EXTENT OF CONTAMINATION
Groundwater at this Site is located in two aquifers, the Alluvial aquifer, and the Troutdale aquifer which lies beneath the Alluvial aquifer. The Troutdale aquifer serves as a regional drinking water supply. The aquifers are separated by a clay barrier (also called an aquitard). The plume of contaminated groundwater is primarily contained in the Alluvial aquifer and is approximately 4,000 feet long and 700 feet wide (see Figure 1). It extends from the BOC Gases property on the southeast corner of NE 78th Street and NE 47th Avenue to the northeast corner of NE 78th Street and NE 30th Avenue. The highest levels of contamination are generally found from about 70 to 110 feet below the ground.

Since it's startup in 1994, the current 100 gallon-per-minute groundwater treatment system has removed 20,000 pounds of chromium and 1,700 pounds of trichloroethene (TCE), a VOC, from the groundwater. Despite these efforts the contamination continues to slowly extend and is now beyond the Church of God building and moving toward NE 30th Street. In an attempt to stop the spread of contamination EPA has installed new monitoring and extraction wells near NE 30th Street, and has increased the extraction rates in this area. The existing extraction and monitoring wells are shown on Figure 1.

Chromium and TCE are the contaminants generally found in highest concentration and are indicator chemicals for the extent of contamination at the Site. In May 1998, the average concentration of chromium in monitored wells at the site was about 2,300 parts per billion (ppb) and the maximum concentration of chromium was 6,300 ppb. These chromium levels exceed federal drinking water standards for chromium of 100 ppb (or parts per billion). For TCE the average concentration in monitoring wells was 590 ppb and the maximum concentration was 3,200 ppb. These TCE levels also exceed the federal drinking water standard for TCE of 5 ppb.

SITE RISKS
As part of the Remedial Investigation and Feasibility Study, EPA conducted a baseline risk assessment to determine the potential current and future effects of contaminants on human health and the environment. The baseline risk assessment for the Site-Wide Groundwater OU focused on health effects for both children and adults that might drink contaminated groundwater used as a domestic water supply. Because of EPA's groundwater treatment system, no one is currently being exposed to contaminated groundwater at levels above health concerns. However, EPA evaluated what the potential risk to future residents would be if EPA did not continue cleanup of the Site.

- Human Health Risks
The baseline risk assessment for groundwater evaluated twenty-six contaminants of potential concern. Three contaminants --TCE, 1,1-dichloroethene and chromium -- account for most of the risk to residents from use of contaminated groundwater as a domestic water source. Human health risks are discussed in two categories below – cancer and non-cancer risks. The risks are discussed in ranges because the contaminant levels are higher in some parts of the Site and lower in others.

Cancer Risks. The potential cancer risk to a resident drinking contaminated groundwater as a primary water source over a lifetime ranges from one additional cancer case in 125 people to one additional cancer case in 50,000 people.

The potential cancer risk to a resident exposed only during their childhood ranges from one additional cancer case in 250 people to one additional cancer case in 100,000 people.

EPA generally considers risks greater than one excess cancer risk in 10,000 people unacceptable. The State of Washington has determined that risks above one excess cancer case in 100,000 people generally require action to address the risks.

Non-Cancer Risks. Non-cancer risks are measured by a system that generates a numeric value. Any value greater than 1.0 may indicate a need for action. The non-cancer risk for a lifetime of exposure to contaminated groundwater ranges from 260 to 0.1. For a person exposed only during childhood the risk ranges from 780 to 0.24. These risks were determined based on concentrations at individual monitoring and extraction wells, and likely overestimate the actual risks, since residents are unlikely to use these wells for a source of drinking water.

- Ecological Risks
EPA also evaluated the ecological risks (risks to plants and animals) at the Site. Impacts are not expected to be significant because of the limited exposure animals or plants are anticipated to have to contaminants. For the Site-Wide Groundwater OU, no significant ecological impacts are anticipated because contaminated groundwater does not enter

any surface-water bodies that could result in exposures to plants and animals.

- Summary of Site Risk

Actual or threatened releases of hazardous substances from this Site, via groundwater exposure, if not addressed by the Preferred Alternative or one of the other active measures considered below, may present a current or potential threat to public health or the environment.

REMEDIAL ACTION OBJECTIVES

Based on the site risks, Remedial Action Objectives were developed to prevent people from exposure to contaminated soil and/or groundwater from the Site. EPA has established the following cleanup objectives for the Site -Wide Groundwater OU:

- Prevent further impacts to the Alluvial aquifer
- Restore groundwater to drinking water standards
- Prevent ingestion of contaminated groundwater above drinking water standards, or in excess of risks EPA and/or Ecology deem acceptable (see Table below)
- Prevent impacts to the Troutdale Aquifer and the public drinking water supply by reducing contamination in the Alluvial aquifer

A Summary of Preliminary Remediation Goals is presented in the following table. It shows the primary contaminants EPA will address and the cleanup standards that apply to those contaminants.

Summary of Preliminary Remediation Goals (PRGs)

Media	Primary Chemicals of Concern	Maximum Exposure Point Concentration[1]	Preliminary Remediation Goal	Source of PRG
Groundwater (assumes future residential use)	TCE	19,300 ppb	5 ppb	MCL
	PCE	254 ppb	5 ppb	MCL
	1,1 DCE	352 ppb	0.07 ppb	MTCA B Residential
	cis 1, 2 DCE	78.6 ppb	70 ppb	MCL
	hexavalent chromium	37,000 ppb	80 ppb	MTCA B Residential

[1] Based on data collected from May 1995 to October 1997

MCL = “Maximum Contaminant Level” and is a Federal Drinking Water Standard

MTCA B Residential = “Model Toxics Control Act, Method B for Residential Areas” is set by the State of Washington

ppb = parts per billion.

Note: Other VOCs were identified above cleanup standards and will be listed in the Record of Decision for the Site. Only the primary contaminants of concern are shown here.

ALTERNATIVES FOR SITE-WIDE GROUNDWATER CLEANUP

The Feasibility Study report presents a complete description of the alternatives for soil and groundwater. The groundwater alternatives are described below.

Alternative GroundWater 1 (GW1)
No Action

This alternative is used to evaluate future conditions at the Site under the assumption that the existing interim remedial actions (extraction and treatment of groundwater) would be terminated. The no action alternative provides a useful baseline for comparing the effectiveness of other alternatives. No controls are provided to control the migration or otherwise inhibit the use of contaminated groundwater. Groundwater contaminants at the Site would continue to spread to uncontaminated areas.

Alternative GW2
Institutional Controls

This alternative would implement safety measures to prevent exposure to contaminated groundwater at the Site. Institutional controls could include placement of restrictive covenants in property deeds to prohibit the installation or use of groundwater wells for water supply. Contaminated groundwater would not be treated or contained and would continue to spread to uncontaminated areas.

Alternative GW3
100 gallons per minute (gpm) Pump and Treat System

The current 100 gpm pump and treat system was installed in 1994. Treated groundwater is currently being discharged under a permit to the City of Vancouver's Publicly Owned Treatment Works (POTW). GW3 involves operating and maintaining the existing groundwater extraction, ion exchange and air stripping treatment systems currently in use at the Site. The system would operate at the current flowrate of approximately 100 gpm, limited by the capacity of the extraction well network, system components and discharge permit limits.

Alternative GW4
200 gpm Pump and Treat System--EPA's PREFERRED ALTERNATIVE

This alternative upgrades the existing ion-exchange and air stripper treatment system to treat more groundwater. Upgrades include construction of a new treatment building, modification or replacement of the air stripping tower and a larger sewer line. The upgraded system would be designed with a capacity of 200 gpm, and groundwater would continue to be discharged to the City of Vancouver POTW. The increased capacity would be used to ensure contamination does not spread beyond existing boundaries and also to focus efforts on removing more contaminants in areas of highest concentrations. Additional extraction wells would be constructed near the western edge of the plume and along the centerline of the plume. An estimated 3 to 6 additional wells may be required, but the final number and location would be determined during remedial design.

Alternative GW5
One Permeable Reactive Barrier

This alternative consists of installing one permeable reactive barrier (PRB) in the path of the plume of contaminated groundwater. To create a PRB, a four foot wide trench is excavated along the width of the plume. When the trench is refilled iron filings are placed at the level of the contaminated groundwater. The contaminated groundwater is treated as it flows through the iron filings. Contaminated groundwater west of the PRB would be pumped out of the ground and either treated at a plant (like in alternative GW3 and GW4) or reinjected back into the groundwater so that it flows through the PRB for treatment. The PRB would be installed near monitoring wells MW-21D, MW-22D, and MW-23D (see Figure 1) downstream from the areas containing the highest levels of groundwater contamination. The iron would be placed in a 20 foot thick zone at 50 to 70 feet below the ground and be about 400 feet in length from just north of monitoring well MW-23 to just north of NE 78th Street. This would be accomplished with heavy construction equipment, and may require disposal of soil removed to place the iron.

Alternative GW6
Two Permeable Reactive Barriers

GW6 consists of installation of two PRBs in the path of the plume of contaminated groundwater. This alternative differs from Alternative GW5 only in how contaminated groundwater down gradient of the first PRB is treated. This alternative would use a second PRB rather than the extraction system to treat groundwater at the western half of the Site. The first PRB would be installed in the same location as described in GW5. The second PRB would be placed to the north of NE 78th Street between the western edge of the Church of God property and NE 30th Avenue, in a 20-foot zone between 80 and 100 feet below the ground and about 400 feet in length.

Alternative GW7
Modified In-Well Stripping

The in-well stripping technology uses extraction wells to treat both chromium and VOCs. As groundwater is drawn into the well, VOCs are stripped from groundwater and captured for disposal as a hazardous waste. After removal of the VOCs in the stripping well, groundwater would be directed to an eight foot diameter culvert and a chemical reductant would be added to reduce hexavalent chromium to less toxic trivalent chromium. Groundwater would be allowed to re-enter the aquifer, where the trivalent chromium would bind to aquifer soils. In the conceptual design, about ten modified in-well stripping wells are estimated to be needed. Four wells would be installed in a north-south line perpendicular to the groundwater plume, creating a barrier similar to GW5. Six additional wells would be installed at selected locations for treatment where contaminant concentrations are highest. The existing pump-and-treat system would be operated at its current capacity of 100 gpm to treat the western half of the plume.

CRITERIA USED BY EPA TO EVALUATE ALTERNATIVES

EPA's Superfund program uses nine nationally established criteria to evaluate and compare cleanup alternatives. The evaluation tables that follow describe each of the criteria. The criteria are divided into three categories as follows:

Threshold Criteria
- Overall Protection of Human Health and the Environment
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

The alternative that EPA chooses must comply with the threshold criteria.

Balancing Criteria
- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume through Treatment
- Short-Term Effectiveness
- Implementability
- Cost

These five criteria are used by EPA to choose between alternatives which meet the threshold criteria.

Modifying Criteria
- State Acceptance
- Community Acceptance

EPA uses the information received from the community and the Washington State Department of Ecology to determine if new information or additional considerations warrant a change to the preferred alternative.

Once the alternatives have been evaluated using these criteria EPA selects an alternative. EPA then issues a Record of Decision (ROD) to document the selection. The site then proceeds to the design and construction phase.

EVALUATION OF ALTERNATIVES - AREAWIDE GROUNDWATER
The following tables list the site-wide groundwater alternatives in order from high to low relative to how well the criteria are satisfied, and provide a narrative description comparing the alternatives with one another under each criterion.

As shown in the tables, the “no action” and “institutional controls” alternatives do not provide overall protection of human health and the environment, nor do they meet ARARs for the Site. Because EPA cannot select an alternative which does not satisfy these criteria, these two alternatives are not carried forward for evaluation beyond the threshold criteria.

Please note that this Proposed Plan only summarizes EPA’s evaluation. The full detailed analysis performed for the Site can be found in the Feasibility Study Report. This text focuses on the **key distinguishing factors** EPA considered in ultimately selecting its Preferred Alternative. **In some instances, this evaluation differs from the Feasibility Study analysis in how an alternative is ranked. This occurred because of additional comments received or analysis completed by EPA during the course of EPA’s selection of the Preferred Alternative and preparation of this Proposed Plan.**

Overall Protection of Human Health and the Environment

Determines whether a remedial action eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
GW4 (200 gpm Pump and Treat System)	GW4 utilizes a reliable & proven technology to hydraulically control the spread of contamination in the alluvial aquifer and to treat contaminants at the Site. With the increased capacity of 200 gpm, this alternative also provides the ability to focus on maximizing contaminant removal. Pump and treat systems are less efficient as contaminant concentrations near cleanup levels, but the technology is reliable for controlling the migration of contaminants.
GW7 (Modified In-Well Stripping) **GW5 (One Permeable Reactive Barrier)**	GW5 and GW7 both treat contaminants via proven chemical processes, and have been demonstrated to work at other sites. However, both contain some uncertainties for application at this Site. GW7 is has been proven for cleanup of VOCs, but not for treatment of chromium. In addition, the in-well stripping technology is less proven than pump & treat technologies at providing hydraulic containment. GW5 is anticipated to be effective for removing hexavalent chromium from groundwater, and breaking down VOCs to their non-toxic elemental components (ethenes & carbon dioxide). The long-term effectiveness of the PRB technology remains to be seen. All installations of the PRB technology have been within the last five years.
GW6 (Two PRBs)	In addition to factors stated in GW5, installing the second barrier would be complicated by a deeper installation depth to 100 feet and short-term impacts on the BPA power lines and daycare facilities nearby.
GW3 (100 gpm Pump and Treat System)	The maximum treatment capacity of the existing treatment system (GW3) is insufficient to contain the contaminant plume. Contaminants would be allowed to migrate further to the west over time, which would impact neighboring groundwater resources. Although this alternative was carried forward for evaluation in the balancing criteria, EPA has determined that this alternative does not provide for overall protection of human health and the environment as a final remedy for the Site.
GW2 (Institutional Controls) **GW1 (No Action)**	Under both of the alternatives, the plume will continue to migrate further west, potentially threatening municipal water supplies. For GW1 no remedial action would be performed and no controls would be provided to manage plume migration. No controls would prevent extraction and consumption of contaminated groundwater for GW1. GW2 would rely only on zoning or other restrictions for groundwater use to prevent exposures.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Evaluates whether a remedial action meets state and federal environmental laws and regulations that pertain to the site.

ALTERNATIVES (ranked from highest to lowest)	DESCRIPTION
GW4 (200 gpm Pump and Treat System)	The primary ARAR for all groundwater alternatives is federal and state drinking water standards. GW4, GW5, and GW6 all utilize technologies that meet ARARs. GW4 employs proven methods to reduce groundwater contamination and prevent further migration of contaminants beyond current boundaries. GW4 will also meet ARARS for discharging treated water to the City of Vancouver's POTW.
GW5 (One PRB) **GW6 (Two PRBs)** **GW7 (Modified In-Well Stripping)** **GW3 (100 gpm Pump & Treat System)**	GW5 & GW6 utilize relatively new remediation technologies that have been proven to treat groundwater contaminated with VOCs to within ARARs. GW7 can meet ARARs for VOCs, but has not been demonstrated to meet ARARs for chromium. This alternative would have to rely on the pump and treat system at the west to meet ARARs for chromium. The existing 100 gpm pump-and-treat system would meet ARARs in the area influenced by the extraction wells, but may not meet ARARs beyond the area influenced by the current extraction system.
GW2 (Institutional Controls) **GW1 (No Action)**	Neither alternative will meet ARARs for groundwater quality.

Long-Term Effectiveness and Permanence

Considers the ability of a remedial action to maintain protection of human health and the environment over time and the reliability of such protection.

ALTERNATIVES (ranked from highest to lowest)	DESCRIPTION
GW4 (200 gpm Pump and Treat System)	GW4 extracts contaminated groundwater to permanently remove contaminants from the aquifer. There is high confidence that this technology will effectively control plume migration over the long-term and continue contaminant mass removal in the near term. Pump and treat systems become less effective at removing contaminants as contaminant concentrations approach cleanup goals.
GW5 (One PRB) **GW6 (Two PRBs)** **GW7 (Modified In-Well Stripping)**	GW5, GW6 and GW7 all rank below GW4 due to the lack of performance data for the technologies from similar Sites. Because these technologies are relatively new they lack long-term performance data from other Sites. The permanence of chromium immobilization within the reactive barrier for GW5 and GW6 is expected to be excellent. VOCs would react with iron in the wall, breaking down to nontoxic chemical components. However, uncertainties remain about the effective life span of the barrier, the required thickness, and potential for plugging after the first five years that could divert groundwater flow to uncontaminated areas. For GW7, a four-month pilot study at the Site resulted in lower than expected treatment efficiencies for VOCs within the treatment zone, which would lengthen the time frame required for treatment. Chromium removal was not effective in the pilot study. These results lead to uncertainties for the long-term effectiveness of GW7 at full-scale application. Further pilot scale studies during remedial design and a phased implementation approach would be necessary to understand what long-term performance could be achieved at this Site.
GW3 (100 gpm Pump and Treat System)	GW3 is not considered to be effective in the long-term because modeling indicates containment of contaminants cannot be achieved at an extraction rate of 100 gpm.

Reduction of Toxicity, Mobility, or Volume through Treatment

Evaluates a remedial action's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment and the amount of residual contamination remaining.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
GW4 (200 gpm Pump and Treat System) **GW5 (One PRB)** **GW6 (Two PRBs)** **GW7 (Modified In-Well Stripping)**	GW4 extracts contaminants for treatment by ion-exchange and air stripping, the same as the existing treatment system. The existing interim action pump and treat system has shown that contaminants can be treated below the permit-required discharge limits with this technology. GW5 & GW6 would reduce VOCs to their elemental constituents (ethene and carbon dioxide) in a chemical reaction as contaminants pass through the iron in the wall. Chromium would be treated and remain in the barrier wall as trivalent chromium. GW7 was evaluated during a four-month pilot study at this site. The results of the study indicated that treatment efficiencies for VOCs were less than the 95%+ efficiencies originally anticipated, but that treatment does occur. The treatability study did not prove that modified in-well stripping would treat chromium.
GW3 (100 gpm Pump and Treat System)	Groundwater modeling shows that 100 gpm is inadequate to contain the groundwater plume and consequently the plume is only partially treated. Optimization of the system to improve the efficiency of contaminant removal cannot be implemented because the majority of the system's capacity is devoted to keeping the plume from spreading further west.

Short-Term Effectiveness

Considers how fast a remedial action reaches the cleanup goal and the risk that the remedial action poses to workers, residents, and the environment during the construction or implementation of the remedial action.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
GW4 (200 gpm Pump and Treat System) **GW7 (Modified In-Well Stripping)** **GW5 (One PRB)** **GW6 (Two PRBs)**	Groundwater modeling results indicated that it would take at least twenty years to achieve cleanup objectives regardless of the technology used, so cleanup time frames did not provide a clear distinction between GW4, GW5, GW6 and GW7. These groundwater alternatives were also ranked based on the level of remedial construction required to implement each option. GW4 is ranked above GW7 because additional treatment units at each cluster(s) of stripping wells would be required, slightly increasing the needed safety measures to limit public access to these areas, while GW4 involves upgrades to the existing system. Alternative GW5 and GW6 are ranked the lowest because they require large scale construction equipment to install the wall. It also may be necessary to replace the iron after a period of operation. If necessary, this would entail a second construction effort that would be similar to the initial installation.
GW3 (100 gpm Pump and Treat System)	GW3 would mostly contain the contamination from spreading, but would not reach cleanup goals in some areas even after thirty years. Continued use of the current treatment system would not impact the environment or the community in the vicinity of the Site more than is currently occurring. Worker exposure is limited through proper training and use of protective clothing.

Implementability

Considers the technical and administrative feasibility of implementing a remedial action, such as relative availability of goods and services. This criterion also considers whether the technology has been used successfully at other similar sites.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
GW3 (100 gpm Pump and Treat System)	This groundwater system has already been built and proven to be reliable within its capacity limits. Periodic repairs or equipment replacement to the existing treatment system would be expected. System improvements to limit the number of system faults and system down time and would be needed, and a new sewer discharge pipeline is required.

GW4 (200 gpm Pump and Treat System)	Ion exchange and air stripping are proven technologies identified as presumptive remedies by EPA for treatment of groundwater. These technologies are reliable in treating the contaminants of concern and no significant technical problems in implementing this alternative are anticipated.
GW7 (Modified In-Well Stripping)	In-well stripping technology is a proven technology for VOC treatment, but not for chromium. Treatment efficiencies in Site-specific studies were not as good as predicted for VOCs and results were difficult to interpret for chromium. If additional pilot studies produce more favorable results, the implementability of this alternative would improve because the system is easy to construct, requiring well installations similar to the pump and treat alternatives GW4 and GW3.
GW5 (One Permeable Reactive Barrier) **GW6 (Two Permeable Reactive Barriers)**	Both alternatives, GW5 and GW6, use the same technology and would be implemented using the same construction techniques. There have been few successful PRB installations below 50 feet in depth. PRB technology is relatively new and has only been used at sites within the past five years; its ability to treat over the long term (20 years) has not yet been demonstrated. Site-specific treatability studies indicated that the wall might experience some plugging, resulting in the wall may need replacement after 5 to 10 years. GW5 is ranked above GW6 under this criterion because installing an additional PRB at the leading edge of the plume may require installation around Bonneville Power Administration power lines, further complicating installation.

Cost *Includes estimated capital, operation and maintenance costs.*

Cost of Area-wide Groundwater Alternatives
All amounts adjusted to present value (millions of dollars)

Alternative	Capital Cost	Estimated Period of Operation			30 Year Period of Operation	
		Estimated Operation (years)	Operation and Maintenance Cost	TOTAL	Operation and Maintenance Cost	TOTAL
GW3	$0.7	20	$7.1	$7.8	$10.2	$10.9
GW4	$2.7	15[1]	$7.8[1]	$10.5[1]	$11.3	$14.0
GW5	$5.0	20	$7.9	$12.9	$14.2	$19.2
GW6	$7.1	20	$3.5	$10.6	$4.4	$11.5
GW7	$2.5	20	$9.8	$12.3	$16.7	$19.2

[1] EPA's 15 year period of operation for the GW4 cost estimate is from the Feasibility Study. The estimate for GW4 was based on an evaluation of trends in contaminant reduction to date. However, groundwater modeling suggests that a 20 to 30 year time frame should be used for all the alternatives, including GW4. Since the time required for each alternative depends on factors which are uncertain, EPA believes that the 30-year cost scenario is the most appropriate estimate, since it accounts for these uncertainties.

State and Community Acceptance

EPA will consider all public comments received, as well as additional input from the State of Washington prior to selecting the final remedy. The Preferred Alternative may be modified based on new information received or additional factors.

RATIONALE FOR CHOOSING GW4 AS THE PREFERRED GROUNDWATER ALTERNATIVE

GW4 is EPA's preferred alternative because it provides high overall protection of human health and the environment. To date, the interim pump and treat system has removed 20,000 pounds of chromium and 1,700 pounds of TCE. EPA expects the short-term effectiveness to increase by upgrading the existing system to 200 gpm. Short-term effectiveness for pump and treat at 200 gpm is predicted by groundwater modeling to be similar to that of the permeable reactive barrier and in-well stripping technologies. Implementability was another key criterion. The pump and treat technology is a presumptive remedy identified by EPA as a reliable technology. Permeable reactive barriers and in-well stripping each have components that have yet to be proven under similar site conditions. Because all alternatives involve significant costs, EPA believes it is more cost effective to continue the pump and treat system, rather than incur significant capital costs for technologies where long-term performance is less certain.

SUMMARY AND EVALUATION OF THE BOOMSNUB SOILS OPERABLE UNIT

THE NATURE AND EXTENT OF CONTAMINATION
Approximately 300 soil samples were taken at the Boomsnub property and surrounding properties to evaluate the extent of chromium contamination that was not addressed during EPA's soil removal in 1994. Additional sample analysis was also conducted to identify other contaminants that may be present at the Site. The results of EPA's investigations showed that significant chromium contamination remains at the Boomsnub property. Most of that contamination is located to the west of the previous removal effort, where an old septic drainfield was located. Contamination in this area exists mostly between two and twelve feet deep. The maximum chromium value detected (3,600 mg/kg) is located in the septic area at a 3-foot depth. By comparison, the maximum value of chromium detected below fifteen feet is 470 mg/kg, and most chromium values below fifteen feet are less than 50 mg/kg. In addition, some limited surface contamination exists on properties immediately north and south of the Boomsnub property. The aerial extent of contamination is shown on Figure 2. In addition to chromium contamination, lead was also detected in two localized areas. Other contaminants were detected on the properties at low levels, including arsenic, polyaromatic hydrocarbons (PAHs), and semi-volatile organic contaminants.

The results of the soil investigation indicate that chromium contamination is likely to be a low-level source to groundwater contamination. Most of the contamination is likely coming from an old septic field west of the 1994 soil removal, where the highest concentrations of chromium in soil are observed.

SITE RISKS
As part of the Remedial Investigation and Feasibility Study, EPA conducted a baseline risk assessment to determine the potential current and future effects of contaminants on human health and the environment. The baseline risk assessment for the Boomsnub Soils OU focused on health effects for adult workers at the site. Chromium is the primary contaminant of concern.

Chromium can exist in different chemical forms in the environment. "Hexavalent chromium" is the most toxic form present at this Site. "Trivalent chromium" is less toxic to the environment, and is generally not easily converted to hexavalent chromium under natural conditions. The soil sampling at the Boomsnub Soil OU verified the presence of both hexavalent and trivalent chromium in soils.

- Human Health Risks

The Boomsnub Soil OU is zoned for commercial/light industrial use, where the maximum risk would be to future workers potentially exposed to contaminants present in the soil at the Site. The maximum estimated risks associated with contaminants identified at the Boomsnub Soil OU for a future worker is one excess cancer risk in 50,000 people from ingestion, inhalation and dermal contact over a lifetime exposure to all contaminants in soil except lead. Lead was detected at the Site in two localized areas exceeding the State of Washington cleanup standard for industrial soils of 1000 ppm. Assumptions used to evaluate risk are based on conservative estimates, and actual risks would likely be lower.

While site risks at the Boomsnub Soil OU slightly exceed the State of Washington's cleanup standards for direct contact exposures, the primary risks associated with the Boomsnub Soil OU are from hexavalent chromium in soils migrating into groundwater. As a result, soil cleanup alternatives were evaluated based on eliminating or significantly reducing this ongoing source of contamination to groundwater. The alternatives evaluated for soil will also reduce potential exposure concerns to future workers at the Site.

- Ecological Risks
EPA's ecological risk assessment concluded that there may be an increased risk to earthworms at the Site. However, overall risks to the food chain would be insignificant. Little vegetative habitat exists on the Boomsnub property to be impacted.

REMEDIAL ACTION OBJECTIVES
After evaluating Site risks, remedial action objectives were developed based on the potential for future human health exposures to contaminated soil from the Site. EPA has established the following cleanup objectives for the Boomsnub Soils OU:

- Primary Objective. Prevent contaminated soils from serving as an uncontrolled, ongoing source of contamination to groundwater.

- Secondary Objective. Prevent human ingestion of contaminated soil above acceptable risk levels & specified regulatory levels by eliminating residual surface soil exposures based on industrial uses.

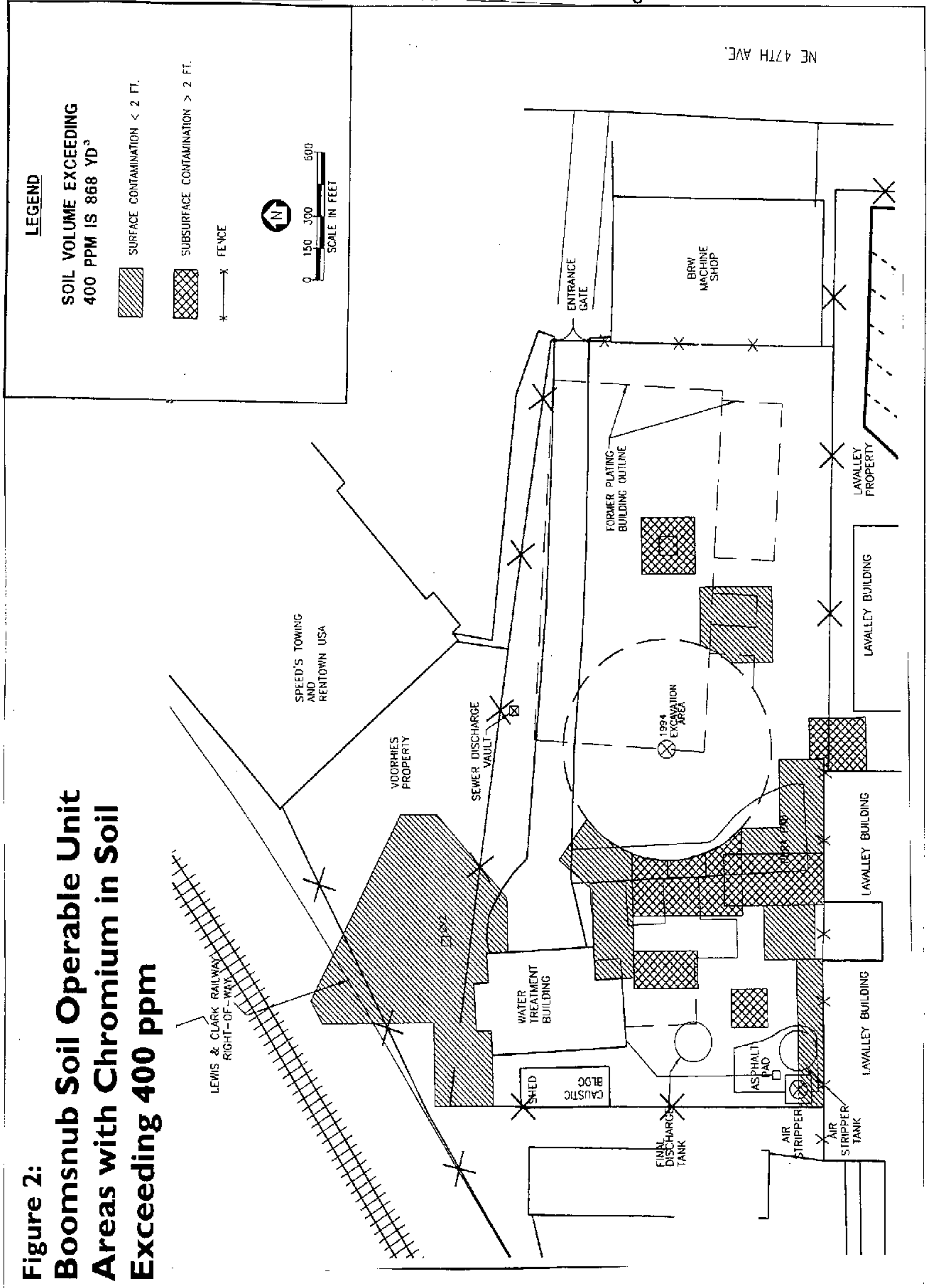


Figure 2: Boomsnub Soil Operable Unit Areas with Chromium in Soil Exceeding 400 ppm

The table below summarizes the primary contaminants EPA will address and what cleanup standards apply.

Summary of Preliminary Remediation Goals (PRGs)

Media	Primary Chemicals of Concern	Maximum Exposure Point Concentration (0 to 2 feet)	Preliminary Remediation Goal	Source of PRG
Soils (assumes future industrial use)	chromium (total chromium)	2,000 ppm	400 ppm	MTCA Site Specific Action Level
	lead	2,580 ppm	1,000 ppm	MTCA C Industrial

MTCA Site Specific Action Level = this action level was established based on site specific conditions and is protective of groundwater
MTCA C Industrial = "Model Toxics Control Act, Method C for Industrial Areas"
(MTCA levels are all set by the State of Washington).

ppm = parts per million.

ALTERNATIVES FOR BOOMSNUB SOILS

The Feasibility Study report presents a complete description of the alternatives for soil and groundwater. The soil alternatives are described below.

Alternative Soils 1 (S1)
No Action

The no action alternative provides a baseline for comparing other alternatives. It establishes the risk levels and site conditions if no remedial actions are implemented. Under the no action alternative Site conditions and risk levels would remain as they currently exist. No changes or restrictions would be made that would affect activities at the Site. No engineering or institutional controls would be put in place and no remedial actions would be initiated to reduce hazard levels at the site. Land development, site maintenance, and site improvements would continue without regard to site conditions.

Alternative S2
Institutional Controls

Institutional controls refers to establishing legal restrictions and/or educational procedures to reduce the potential for exposure to contaminants. For example, the Boomsnub property is currently zoned for light industrial use so that residential uses would not be allowed. This eliminates the possibility of other commercial activities or residential uses with more significant exposure potential (e.g., daycare facilities). Institutional controls would also be used to establish maintenance and monitoring requirements for the Site. As with the no action alternative, this alternative would not treat or contain affected soil and existing potential exposure routes would remain.

Alternative S3
Asphalt Capping

This alternative consists of installing a low permeability asphalt cap over areas where chemical concentrations in soil exceed surface and subsurface clean-up goals. The intent of this action would be to minimize chemical transport by rainwater infiltration and to prevent dermal contact or ingestion of the affected soil by personnel working on Site. The asphalt cap would be maintained in perpetuity. Cap inspections and minor repairs would be made annually, or as needed. It is expected that the cap would sustain damage from weather and traffic use and repair would be required approximately every 10 years. Institutional controls would be needed to ensure the cap was not disturbed by future property development.

Alternative S4
Soil Flushing

Soil flushing would be used in and around the area of the former septic system located immediately west of the circular excavation from 1994. Deep contamination in the septic area would be flushed from soil to groundwater where the groundwater would be collected for treatment. The soil flushing system would consist of a network of distribution pipes installed in shallow trenches above the septic field area. Treated groundwater would be injected onto the network to flush chromium into groundwater. One or more new extraction wells would be installed just to the west of the flushing system to collect the groundwater for treatment. In areas beyond the septic area where contamination is less severe, chromium contamination in surface soil would be capped or excavated and transported to a disposal facility.

Alternative S5
Soil Excavation and Off-site Disposal** -- **EPA's PREFERRED ALTERNATIVE

Under this alternative, the highest concentrations of chromium remaining in soil would be excavated and transported to an approved landfill off-site for treatment and disposal. Remaining chromium in soils would be allowed to migrate to groundwater for capture by the groundwater extraction system. An estimated 878 yd^3 of soil would be excavated in this alternative using an action level of 400 ppm. This action level would reduce surface exposures to safe levels for residential uses and would remove soils with the highest chromium levels as a source of groundwater contamination. EPA has selected a 400 ppm action level for excavation because it is not practical to excavate all soils exceeding the "MTCA Method B Standard for Soils to be Protective of Groundwater" of 8 ppm standard since much of that contamination exists below 15 feet. Institutionals controls would be used to prevent deeper subsurface soil contamination from being disturbed.

CRITERIA USED BY EPA TO EVALUATE ALTERNATIVES

Please refer to the discussion of these criteria in the area-wide groundwater evaluation section on page seven of this Proposed Plan.

EVALUATION OF ALTERNATIVES - BOOMSNUB SOILS

The following tables list the Boomsnub Soils alternatives in order from high to low relative to how well the criteria are satisfied, and provide a narrative description comparing the alternatives with one another under each criterion.

As noted for the groundwater analysis, both the "no action" and "institutional controls" alternatives were evaluated in the Feasibility Study. While these alternatives may receive a high ranking if evaluated based on the balancing criteria, they do not satisfy the threshold criterial of overall protectiveness and meeting ARARs, because little is done to address contamination at the Site. While institutional controls may be effective for reducing future worker exposures to soils on the Boomsnub Soil OU, it would be inadequate for addressing the ongoing source of contamination to groundwater, which is the primary risk at the Site. For these reasons, the "no action" and "institutional controls" alternatives are not presented or discussed beyond the threshold criteria presented below. The remaining alternatives are presented under each criterion in the order of their ranking.

Please note that this Proposed Plan only summarizes EPA's evaluation. The full detailed analysis performed for the Site can be found in the Feasibility Study Report. This text focuses on the **key distinguishing factors** EPA considered in ultimately selecting its Preferred Alternative. **In some instances, this evaluation differs from the Feasibility Study analysis in how an alternative is ranked. This occurred because of additional comments received or analysis completed by EPA during the course of EPA's selection of the Preferred Alternative and preparation of this Proposed Plan.**

Overall Protection of Human Health and the Environment

Determines whether a remedial action eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
S4 (soil flushing) **S5 (soil excavation and off-site disposal)**	Both S5 and S4 provide similar levels of protection, using slightly different approaches. S4 addresses human exposure to soil and protection of groundwater. Accessible areas of the Site would be capped and impacted soil would be removed from adjacent properties. In addition, chromium in soil in the most contaminated areas would be flushed, expecting to effectively remove the chromium and eliminating future releases of chromium from soil to groundwater in 2 to 3 years. In S5 the most contaminated soil above 15 feet would be removed from the Site, assuring that exposure to contaminated soil will not occur through industrial property uses. Protection of groundwater resources from contaminated soil below 15 feet would rely on annual rainfall to eventually flush chromium to groundwater. The predicted time frame for precipitation to flush contaminants is less certain for soil flushing, but it would not be expected to significantly increase the overall cleanup time frame for groundwater.
S3 (asphalt capping)	S3 would be protective of human health and the environment by limiting contamination from entering groundwater. S3 would leave soil conditions relatively unchanged, and would rely on the cap in perpetuity to limit exposure and contaminant migration.
S2 (institutional controls) **S1 (no action)**	In S1 no actions are taken, which leaves the potential for exposure to impacted soil. For S2, no protection of groundwater is provided to prevent leaching of contaminants from the property due to infiltration.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Evaluates whether a remedial action meets state and federal environmental laws and regulations that pertain to the site.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
S4 (soil flushing) **S5 (soil excavation and off-site disposal)** **S3 (asphalt capping)**	The primary ARAR for soils is the MTCA soil cleanup standards. Alternatives S3, S4, and S5 would all comply with this ARAR. In addition, action-specific ARARs related to the underground injection control (WAC 173-218) would also be triggered under alternative S4. Alternative S5 would meet ARARs by excavation and treatment for the worst contamination, and rely on institutional controls for lesser concentrations at depth. S3 meets ARARs using institutional and engineering controls and compliance monitoring.
S1 (no action) and S2 (institutional controls)	S1 and S2 do not comply with MTCA clean-up goals for soils because neither alternative provides treatment or engineering controls to prevent higher concentrations from continuing to impact groundwater.

Long-Term Effectiveness and Permanence

Considers the ability of a remedial action to maintain protection of human health and the environment over time and the reliability of such protection.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
S4 (soil flushing) **S5 (soil excavation and off-site disposal)**	S4 and S5 are ranked similarly for long-term effectiveness and permanence. The three components of alternative S4, in-situ soil flushing of deep contamination, excavation and disposal of contaminated surface soil on adjacent properties, and capping of surface soil contamination on the Boomsnub property, are protective of human health. Soil flushing and capping are also effective in protecting the groundwater resource by eliminating a secondary source to groundwater contamination. S5, excavation of soils, permanently removes the risk of human exposure through contact with contaminated soil and eliminates the most severe contamination remaining from the surface to fifteen feet.

S3 (asphalt capping)	S3 ranks below Alternative S5 in terms of long-term effectiveness and permanence. The asphalt-capping alternative is effective in reducing infiltration and protection of human health due to exposure, but the long-term effectiveness of this option depends on periodic maintenance of the cap and no contamination is permanetly removed.

Reduction of Toxicity, Mobility, or Volume through Treatment

Evaluates a remedial action's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment and the amount of residual contamination remaining.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
S4 (soil flushing) **S5 (soil excavation & off-site disposal)**	S4 treats the most severe chromium contamination, by flushing contaminants to groundwater for treatment by the selected groundwater alternative. S5 would provide treatment of excavated soils at the designated off-site disposal facility.
S3 (asphalt capping)	S3 relies on engineering controls and does not provide treatment.

Short-Term Effectiveness

Considers how fast a remedial action reaches the cleanup goal and the risk that the remedial action poses to workers, residents, and the environment during the construction or implementation of the remedial action.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
S5 (soil excavation & off-site disposal) **S4 (soil flushing)**	S5 would immediately remove the most severe contamination remaining, and allow precipitation to flush the residual chromium to groundwater. S4 would achieve cleanup goals in 2 to 3 years of soil flushing. S4 & S5 both involve excavation of soils, generating dust, but routine health & safety measures (e.g., protective clothing for workers, and dust suppression) would protect remedial workers and nearby businesses. Truck traffic from transport of contaminated soils would also increase for a limited time, but routes would be coordinated with businesses in the area to minimize impacts.
S3 (asphalt capping)	Capping would immediately reduce infiltration and exposure to soils, but would rely on engineering controls in perpetuity to control the contamination.

Implementability

Considers the technical and administrative feasibility of implementing a remedial action, such as relative availability of goods and services. This criterion also considers whether the technology has been used successfully at other similar sites.

ALTERNATIVES (ranked from highest to lowest)	**DESCRIPTION**
S3 (asphalt cap)	S3 would be the easiest alternative to implement. An asphalt cap could be put in place very quickly, with minimal intrusion or inconvenience to neighboring properties.
S4 (soil flushing) **S5 (soil excavation & off-site disposal)**	S4 and S5 are considered routine remedial construction projects and are easily implemented. Increased traffic from excavation activities would be coordinated with adjacent business owners and tenants to minimize intrusion.

Cost

Includes estimated capital and operation and maintenance costs.

Cost of Boomsnub Soil Alternatives
All amounts adjusted to present value (thousands of dollars)

Alternative	Capital Cost	Operation and Maintenance	TOTAL
S3 (asphalt cap)	$108	$97	$205
S5 (soil excavation & off-site disposal)	$368	$ 0	$368
S4 (soil flushing)	$308	$77	$385

State & Community Acceptance
As noted in the groundwater section, EPA will consider all public comments received, as well as additional input from the State of Washington prior to selecting the final remedy. The Preferred Alternative may be modified based on new information received or additional factors.

RATIONALE FOR CHOOSING S5 AS THE PREFERRED SOILS ALTERNATIVE
S5 is EPA's preferred alternative because it immediately removes the highest concentrations of chromium in soils. Although soil flushing and soil excavation both rank high relative to the threshold and balancing criteria, S4 would require a longer period of time to flush contaminants from the septic tank area, where the most severe contamination remains. Soil excavation would also permanently remove surface contamination to prevent human health exposures. EPA also prefers S5 over soil flushing because under alternative S4 soil flushing would only be implemented in the septic tank area. Other low levels of contaminants at depth (e.g., on the eastern half of the property, or beneath the treatment plant building) would not be addressed by soil flushing and would still remain, just as in S5. Ultimately, the primary factor in EPA's preference for soil excavation is the ability to immediately remove the worst contamination.

SUMMARY OF EPA'S PREFERRED ALTERNATIVE

Scope of Action: This action addresses two of three Operable Units at the Site, the Boomsnub Soil OU and the Site-Wide Groundwater OU. The BOC Gases Soil OU will be addressed under a separate action for source control of groundwater within the BOC Gases property boundaries. The primary risks at this Site are chromium and VOCs in groundwater. Chromium in soils is a secondary risk and ongoing source of contamination to groundwater.

For Site-Wide Groundwater GW4. 200 gpm Pump-and-Treat System

EPA's preferred alternative requires $2.7 million to upgrade the existing groundwater treatment system, and an estimated $11 million over 30 years for continued operation of the groundwater pump and treat system. The treatment system would be increased from 100 gpm to 200 gpm capacity and treated water would be discharged to the City of Vancouver POTW. The treatment system would be evaluated after five-years to determine whether the extraction system is still effectively removing contaminants. At that time EPA may also reevaluate the permeable reactive barrier to see if it has proven to be a more reliable long-term technology at other sites. Finally, EPA proposes to extend the In-Well Stripping treatability testing for potential use as hot-spot treatment throughout the plume, either for VOCs alone, or for chromium, depending on additional testing. EPA anticipates that a 12-month evaluation may resolve some of the uncertainties identified in the Feasibility Study testing. In any event, use of the existing groundwater extraction system is expected to be a component of any remedy for the Site, and implementation of the PRB or In-Well Stripping technologies would be used as remedy enhancements, consistent with EPA's Presumptive Remedies Guidance for groundwater.

For Boomsnub Soils S5. Soil Excavation and Off-Site Disposal

The preferred alternative is to excavate and dispose of contaminated soil off-site at an approved hazardous waste landfill. Excavating contaminated soil with chromium above 400 ppm, and lead above 1000 ppm in two isolated areas, will allow the property to be reused for industrial activity. An estimated 878 cubic yards would be excavated at the proposed action levels at an estimated cost of $368,000. EPA prefers this alternative because it offers the best short-term effectiveness by immediately removing the most severe contamination remaining in the septic area, significantly reducing the source of chromium from soils to groundwater. EPA believes that it also provides similar treatment and long-term effectiveness compared to the soil flushing alternative. The lower levels of chromium remaining in soils would be expected to migrate to groundwater with precipitation events, similar to the soil flushing alternative. For these reasons, EPA believes this alternative offers the best balance of cost and effectiveness for addressing the ongoing source of contamination to groundwater.

These actions, together, address the primary risks at the Site of chromium and VOCs in groundwater by continuing to operate the groundwater extraction system. Based on information currently available, EPA believes the Preferred Alternative provides the best balance of tradeoffs among the other alternatives with respect to the evaluation criteria. EPA expects the Preferred Alternative to satisfy the statutory requirement in CERCLA Section 121(b) to: 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element.

For More Information

Copies of studies quoted in this document and other materials about the Boomsnub/BOC Gases Superfund Site are available at the Vancouver Community Library 1007 East Mill Plain Boulevard, Vancouver, Washington. 360 695-1566.

Or call EPA toll-free 1-800 424-4EPA

and ask to transfer to:

Robert Drake, Community Relations Coordinator . . . . **(206) 553-4803**
E-Mail Address: DRAKE.ROBERT@EPA.GOV

Peter Contreras, EPA Project Manager . . . . **(206) 553-6708**
E-Mail Address: CONTRERAS.PETER@EPA.GOV

Additional services can be made available on request to persons with disabilities by calling 1-800-424-4EPA.

Visit the EPA Region 10 Internet Home Page at: **www.epa.gov/r10earth**
For specific information on the Boomsnub/BOC Gases Superfund Site:
click on "Index", "B", Boomsnub-Airco", "Proposed Plan"

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