



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue  
Seattle, Washington 98101

Reply To  
Attn Of: ECL-116

**ACTION MEMORANDUM**

**DATE:** March 12, 2001

**SUBJECT:** Request for a Removal Action at the Boomsnub/Airco NPL Superfund Site, Hazel Dell, Clark County, Washington; Site ID #106Y

**FROM:** Michael J. Szerlog  
On-Scene Coordinator

**TO:** Michael F. Gearheard, Director  
Office of Environmental Cleanup

**THRU:** Chris Field, Manager  
Emergency Response Unit  
Office of Environmental Cleanup

**I. PURPOSE**

The purpose of this Action Memorandum is to request and document approval for a Removal Action described herein for the Boomsnub/Airco National Priorities List (NPL) Superfund Site (Boomsnub), Hazel Dell, Clark County, Washington. The Removal is required for immediate reduction of the risk to the public and the environment from the uncontrolled hazardous substances at Boomsnub.

**II. SITE CONDITIONS AND BACKGROUND**

The U.S. Environmental Protection Agency (EPA) identification number for the Site is: WAD 009624453. This is a time critical removal action consistent with EPA's Record of Decision (ROD) dated February 3, 2000.

The Boomsnub/Airco NPL Superfund Site ("the Site") is located north of Vancouver in unincorporated Hazel Dell, Clarke County, Washington (Figure EPA-1). The Site is located at 7608 NE 47<sup>th</sup> Avenue, approximately two miles east of Interstate 5 and one mile west of Interstate 205,

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near NE 78th Street and NE 47th Avenue. The Site is bordered by a mixture of residential, commercial, and light industrial properties. The property is vacant except for a machine shop building unrelated to Site activities and the ground-water treatment system. The Boomsnub Corporation and its predecessor company, Pioneer Plating, conducted chrome plating operations at this location from 1967 until 1994, when Boomsnub moved its business to its current location at 3611 NE 68th Street (EPA 2000).

The BOC Gases facility (formerly known as Airco) is an 11-acre, active gas production facility (Figure EPA-1). It is located east of the Boomsnub property across the street from NE 47th Avenue at 4758 NE 78th Street. The company manufactures and distributes compressed and liquefied gas products including nitrogen, oxygen, and argon. The company also stores and distributes other gases such as hydrogen, acetylene, and helium. The BOC Gases plant has been in operation since 1964 (EPA 2000). The request for removal action is not associated with this property.

The Site also encompasses a plume of ground-water contamination that emanates from beneath the two facilities and extends in a west/northwest direction to NE 30th Avenue.

There are no known flood plains, endangered species, historical landmarks, or structures with historical significance identified at the Site. Seasonal wetlands have been identified along the south side of NE 78th Street just west of St. Johns Road, in the vicinity of extraction well MW-19D (EPA 2000).

#### Ownership History

The Boomsnub Corporation has been in business since 1952. Pacific Northwest Plating, formerly known as Pioneer Plating Company, is a division of the Boomsnub Corporation. Pacific Northwest Plating operated an industrial hard chrome facility on the Boomsnub property from 1978 to 1994. Prior to 1978, the Pioneer Plating Company operated on the Site between 1967 and 1978. The electroplating process used by Boomsnub involved the use of a chromic acid solution containing hexavalent chromium. Available information indicates that chrome plating operations at the facility did not generate any RCRA-listed wastes (EPA 2000).

#### State Enforcement Actions

In 1982, the Washington State Department of Ecology (Ecology) issued an Administrative Order to the Boomsnub Corporation. The Order required the corporation to line the vault underneath the plating tanks with an acid-proof coating to eliminate leaks and protect the concrete from corrosion. In response, the corporation installed a steel plate liner in the vault beneath the tanks (EPA 2000).

In 1987, Ecology required the Boomsnub Corporation to install monitoring wells to detect the presence of chromium in the ground water that might have resulted from leaks, spills, and other practices over the years. Sampling results indicated levels of chromium in the soils and ground water at the facility in the thousands of parts per billion (ppb). In March 1990, Boomsnub reported to

Ecology a significant (four orders of magnitude) increase in hexavalent chromium levels in one monitoring well at the Site. The company also stated that a break in its drinking water main released approximately 300,000 gallons of water to soil beneath the facility, which may have contributed to this increase. In May 1990, Ecology issued an enforcement order, pursuant to the State of Washington's Model Toxics Control Act (RCW 70.105D), to the Boomsnub Corporation. The order required the company to extract and treat chromium-contaminated ground water, monitor existing on-site wells, and conduct ground-water studies. Boomsnub installed pumping wells and began the extraction and treatment of ground water (EPA 2000).

By August 1990, Boomsnub did not have the financial resources to meet the requirements of the Ecology order. Ecology assumed financial responsibility for operating the extraction/treatment system, expanding and upgrading the system installed by Boomsnub, and for monitoring ground water. These activities included upgrading the treatment system from reverse osmosis to ion exchange, and expanding the extraction network and treatment system to handle increased volumes of water. Ecology also constructed a pressure sewer line to the City of Vancouver's sanitary sewer system for the discharge of treated ground water. The Boomsnub Corporation provided some in-kind services, such as the treatment plant operator, however, Ecology paid for the majority of the Site work (EPA 2000).

In 1993, Ecology requested that the U.S. Environmental Protection Agency (EPA) list the Site on the National Priorities List (NPL) because Ecology did not have the financial resources to continue cleanup at the Site. EPA proposed the Site for inclusion on the NPL on January 18, 1994. The Site was listed on the NPL on April 25, 1995 (60 Fed. Reg. 20330).

#### Regulatory and Enforcement History

EPA conducted initial sampling of the Boomsnub property in conjunction with a criminal search warrant in April 1994. This sampling indicated that extremely high levels of chromium were present at the facility and in soil on the property. In 1995, a federal grand jury issued a criminal indictment against the Boomsnub Corporation and three of its principal officers for illegal disposal and storage of hazardous waste. In late 1995, the U.S. Attorney entered into a plea agreement with the Boomsnub Corporation in which the company pleaded guilty to knowingly storing and disposing of hazardous waste without a Resource Conservation and Recovery Act (RCRA) permit, and knowingly violating the Clean Water Act by discharging waste water to the City of Vancouver sanitary sewer system without authorization. Two officers of the company pleaded guilty to one count each. The company was sentenced to five years probation and payment of restitution in the amount of \$150,000, to be paid in equal amounts to EPA and Ecology. One officer of the company was sentenced to five years probation, home confinement, and payment of restitution in the amount of \$60,000, in equal amounts to EPA and Ecology. The second officer received one year probation, and a fine of \$1,000. Charges were not pursued against a third officer of the company due to his illness. The criminal settlement is independent of EPA's efforts to recover the Superfund money spent to investigate and clean up the chromium contamination at the Site from the Boomsnub Corporation and its officers (EPA 2000).

## EPA Enforcement Actions

In May 1994, EPA issued a Unilateral Administrative Order (UAO) to the Boomsnub Corporation and two officers of the company requiring the corporation to cease operations and provide EPA with access to perform response actions. The effective date of the UAO was temporarily extended for a short period during which the company attempted to abate the continuing release of chromium and to document that there were no continuing releases. This action was undertaken while the company was in the process of moving its operations to a new location. In June 1994, EPA's removal program took over lead-agency activities at the Site. The Boomsnub Corporation ceased operations at the Site shortly thereafter. The company reopened several months later at its current location at 3611 SE 68th Street (EPA 2000).

EPA's removal operation included the off-site disposal of more than 400 drums of waste, demolition and removal of buildings and plating tanks, and removal and off-site disposal of 6,051 tons of chromium-contaminated soil. The removal action also included converting two monitoring wells (MW-25 and MW-26) to extraction wells and connecting them to the extraction network (Figure 2-1); increasing the pumping rate to 100 gallons per minute (gpm); and upgrading the ion exchange system to improve treatment efficiency and accommodate the increased extraction rate. EPA's Superfund remedial program took over operation of the extraction/treatment system from Ecology in January 1995 (EPA 2000).

### **A. Site Description**

#### **1. Removal Site Evaluation**

The major response activities at this Site to date include the following:

In 1994, EPA conducted a removal action of 6,051 tons of chromium-contaminated soils at the Boomsnub Soil OU .

In September 1997, EPA signed an Interim Action Record of Decision for an interim action ground-water pump and treat system using air stripping to treat volatile organic compounds and ion exchange to treat hexavalent chromium for the Site-Wide Ground Water OU. The 1997 Record of Decision allowed EPA to continue operation of the ground-water pump and treat system installed by the Washington State Department of Ecology, and operated at a capacity of 100 gallons per minute (gpm) by EPA.

In 1997 and 1998, EPA's Superfund remedial program collected approximately 300 surface and subsurface soil samples during the remedial investigation (RI). As a result of that sampling investigation, EPA determined that significant chromium contamination remained in soil at the

Site above the water table. Most of that contamination was located to the west of the previous removal effort, where an old septic drain field was located. Contamination detected in this area had concentrations of chromium above 400 parts per million (ppm) at depths between two and twelve feet below ground surface (bgs) (URS 2001).

In 1999 and 2000 additional upgrades to the groundwater extraction/treatment system by EPA and BOC gases were completed to treat up to 140 gpm and control groundwater contamination.

In 2000, the selected remedy was identified in a ROD for the Boomsnub Soil Operable Unit and consisted of soil excavation and off-site disposal of contaminated soils. The selected remedy's description is as follows:

The Boomsnub/Airco Superfund Site consists of two industrial facilities and a ground-water contaminant plume. Boomsnub operated a chrome plating facility resulting in historical spills of chromic acid that entered soils on its property and migrated to ground water. BOC Gases, located adjacent to the Boomsnub property, is an active compressed gases facility. Historical practices at the BOC Gases property have resulted in the presence of volatile organic compounds (VOCs) in soils and ground water. Releases of chromium and VOCs from the Boomsnub and BOC Gases properties, respectively, have resulted in a commingled plume extending approximately 4,400 feet. EPA has divided this Site into three operable units (OUs) to manage these cleanup activities:

- ! Boomsnub Soil OU
- ! BOC Gases Soil OU
- ! Site-Wide Ground Water OU

The Record of Decision addresses two of three OUs at the Site, the Boomsnub Soil OU and the Site-Wide Ground Water OU. The BOC Gases Soil OU is being addressed under a removal action for source control of ground water within the BOC Gases property boundaries to prevent continued migration of volatile organic compounds to the Site-Wide ground-water plume (EPA 2000).

The major components of the remedy for the Boomsnub Soil OU are the following:

- ! Excavation and off-site disposal of an estimated 1,200 cubic yards of soil exceeding a remediation level of 400 ppm for total chromium and the MTCA Method A industrial soil cleanup standard of 1,000 ppm

for lead

- ! Other co-located contaminants including arsenic and five semi-volatile organic compounds (SVOCs) will also be addressed by this action, allowing future industrial use of the property.
- ! Institutional controls in the form of deed restrictions and controlled site access for the Boomsnub property to prevent contaminated soil below 15 feet in depth from being disturbed without appropriate precautions and to preclude residential use of the Boomsnub property (EPA 2000).

The principal threat waste, hexavalent chromium in soils, was mostly addressed in a 1994 soil removal action by EPA, however, significant contamination still exists. Removal of the highest contaminant concentrations, and treatment if necessary, prior to disposal at a RCRA-approved landfill is warranted. Lead contamination in soil will also be addressed by excavation of soils to eliminate potential exposures to future workers. The remaining chromium and VOC contamination in Site-Wide ground water will be addressed by the Remedial Program's continued operation of the ground-water pump and treat system, and other actions which may be implemented as part of the contingency remedy provisions in the ROD (EPA 2000).

Cleanup of this Site has been designated as Washington's highest priority. The site was included on the NPL using the State's one designation allowed under §300.425(c)(2) of the National Contingency Plan. To keep the cleanup schedule moving, EPA Region 10 has decided to use Removal funding to complete the soil removal at the Site.

### 3. Physical Location

The Soil Conservation Service identifies the surface soil in the central part of Clark County, including the Site, as a well-drained and medium-textured loam developed from Columbia River alluvium. A portion of the Site (west of NE St. Johns Road and south of NE 78th Street) is covered by poorly draining silt loam where standing water tends to accumulate in the winter months, creating a seasonal wetland. There are no wetlands on the Boomsnub or BOC Gases properties (EPA 2000).

Although there are several surface water features in this area of Clark County, none of them is close enough to be impacted by the current extent of contamination. Vancouver Lake is a large lake that lies 3.5 miles west of the Site. Salmon Creek, the largest nearby creek, drains portions of Clark County flowing generally west approximately 2.5 miles north of the Site. Tributary streams to Salmon Creek that drain the area near the Site include Cougar Creek, Tenny Creek, and an unnamed

intermittent stream, all of whose headwaters are located 1 to 1.5 miles north or northwest of the Boomsnub property, generally flowing away from the Site to the northwest. The Burnt Bridge/Salmon Creek drainage divide runs northeast across the Site, approximately 0.5 miles west of the BOC Gases property. Surface water to the north and west of the divide flows into Salmon Creek; water to the south and east of the divide flows into Burnt Bridge Creek via Cold Canyon. Both the BOC Gases and Boomsnub properties are located to the east of this surface water divide (EPA 2000).

In the Hazel Dell area where the Site is located, unconsolidated sediment forms four principal hydrogeologic units: recent flood plain alluvium, Pleistocene Alluvial deposits (or "Alluvial aquifer"), the Upper Troutdale formation, and the Lower Troutdale formation. The two hydrogeologic units of concern at the Site are the Alluvial and Upper Troutdale aquifers. Pleistocene Alluvial deposits form the Alluvial aquifer from ground surface (approximately 280 feet amsl) to a depth varying from approximately 210 to 140 feet amsl at the Site. The Alluvial aquifer consists of highly permeable sandy sediments with interspersed silts and silt lenses. Because of its fluvial and alluvial origins, the formation has a great deal of natural heterogeneity. Regionally, the formation has low permeability and is, therefore, used only as a local supply aquifer. The water table in the Alluvial aquifer near the Site ranges from 10 to 30 feet below ground surface (bgs), with ground water flowing in a west/northwest direction (EPA 2000).

A lower-permeability aquitard forms the bottom of the Alluvial aquifer, separating ground-water flow from the Alluvial and Upper Troutdale aquifers. Based on Site monitoring well data and soil borings, the aquitard consists of silts grading to clay and varies from 5 to 20 feet thick. The Upper Troutdale is a very prolific aquifer that is used for a regional drinking water supply. Ground water in the Upper Troutdale flows west/southwest, roughly parallel to St. Johns Road.

Several private wells associated with individual residences have been identified in both the Alluvial and Upper Troutdale aquifers in the vicinity of the Site. None of the private wells within the area of ground-water contamination is currently being used for drinking water, although some private wells may be used for garden or lawn irrigation and other domestic uses. The majority of residents are currently connected to Clark County municipal water system. All new residential developments would also likely be connected to a municipal water supply, but individuals with water rights may want to use ground water for domestic purposes in the future.

Clark Public Utilities (CPU) owns drinking water supply wells located in the Upper Troutdale aquifer; these wells serve approximately 65,000 residents. The nearest CPU well to the site is CPU-7, located approximately one mile west of the Boomsnub property, and 2,000 feet southwest of contamination in the Alluvial aquifer. CPU-7 is currently used only to meet peak summer demands because of

concern that ground-water contamination from the Alluvial aquifer at the Site could migrate to the Upper Troutdale aquifer below where the municipal wells are located (EPA 2000).

### **3. Site Characteristics**

The Boomsnub property is currently managed by EPA as part of the Boomsnub/Airco NPL Superfund Site. It is approximately 0.75 acres and is located at 7608 NE 47th Avenue. The property is vacant including a former machine shop building unrelated to Site activities and the ground-water treatment system. The Boomsnub Corporation and its predecessor company, Pioneer Plating, conducted chrome plating operations at this location from 1967 until 1994, when Boomsnub moved its business to its current location at 3611 NE 68th Street.

### **4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant**

The primary concern at this Site is chromium migrating from the soil OUs to ground water, which has created a three-quarter-mile long (4,400 foot) ground-water plume in the Alluvial aquifer, 900 feet in width. Contamination in the Alluvial aquifer further threatens the CPU public drinking water supply wells located in the Upper Troutdale aquifer below. Without continued response actions the chromium will continue to act as a source to the site-wide groundwater contamination, impairing ground-water quality in both aquifers to a greater extent. A secondary concern is surface exposure to chromium and lead at the soil OUs. The Boomsnub Soil OU and contiguous properties are zoned for industrial use, so the nature and extent of contamination were evaluated to allow for continued industrial uses of the property in the future.

A number of mechanisms exist by which chromium and lead at the Site can migrate from contaminated soil at source areas to other areas and other media at the Site. Dissolved metals in soil generally migrate vertically in recharge and then migrate laterally within ground water under regional flow conditions. The primary release mechanism of concern at the Boomsnub Soil OU is from hexavalent chromium and lead in soil leaching by infiltrating water during precipitation events. Soluble chemicals can then migrate vertically from soil to ground water. A secondary concern at the Boomsnub Soil OU is hexavalent chromium and lead in surface soil that could be released via wind-blown dust or other mechanical disturbances such as trenching (EPA 2000).

Approximately 300 surface and subsurface soil samples were collected and analyzed for total chromium during EPA's remedial investigation in 1997 and 1998. Thirty-two samples were analyzed for a full suite of contaminants (metals, cyanide, VOCs,

SVOCs, pesticides, PCBs, and hexavalent chromium). The thirty-two samples were also analyzed to determine the percent of hexavalent chromium relative to total chromium in soils. Significant total chromium and lead contamination remains at the Boomsnub property above the water table. Most of that contamination is located to the west of the previous removal effort, where an old septic drain field was located. Contamination in this area exists mostly between two and twelve feet deep at concentrations above 400 ppm. In addition, surface chromium contamination exists on properties immediately north (Voorhies property) and south (GL & V Celleco property line) of the Boomsnub property and lead contamination exists in two locations at the Site (URS 2001).

**5. NPL Status**

The Boomsnub site property is located within the Boomsnub/AIRCO Superfund NPL Site. The proposed Removal Action is consistent with the Record of Decision (ROD) for the site signed February 3, 2000.

**6. Maps, Pictures, and other Graphic Representations**

See attached EPA Figure G-1 (Title sheet: drawing index and vicinity and site location maps), EPA Figure G-2 through G-5 (General Notes), and EPA Figure C-1 (Site plan of the Boomsnub soil operable unit and plate index), EPA Figure C-2 (Eastern Boomsnub areas of excavation), EPA Figure C-3 (Western and central Boomsnub areas of excavation), EPA Figure C-4 (Voorhies and Lewis & Clark Railroad site plan and areas of excavation), EPA Figure C-5 (GL & V Celleco site plan and areas of excavation). In addition see attached EPA Table 1 (EPA soil sample results)

**B. Other Actions To Date**

**1. Previous Actions**

As part of EPA's soil removal in 1994, a 70-foot diameter area was excavated to a depth of 28 feet, where the water table was encountered. Although this action removed the majority of contaminated soil, post-removal sampling indicates some chromium- and lead-contaminated soil remains on the property above the water table. Despite the 1994 removal, concentrations remain above the 80 ppb ground-water cleanup standard for hexavalent chromium (1,040 ppb at MW4A, 1,320 ppb at MW2A, and 492 ppb at PW-1B). EPA continues to extract ground water from a nearby extraction well (PW1B) in the northwest corner of the Boomsnub property to control the migration of hexavalent chromium from the Boomsnub property to the down gradient ground-water plume. Additional sampling was conducted during the Remedial Investigation/Feasibility Study to determine the volume and areas of

remaining chromium contamination in soil.

## 2. **Current Actions**

The following government actions are currently being conducted:

- Under the February 2000 ROD, the existing ground-water extraction/treatment system, located on this OU and still operating, will be upgraded to treat 200 gpm of groundwater for the next 20 to 30 years.
- A non-time-critical removal action will be undertaken in 2001 at the BOC Gases OU to control off-site migration of volatile organic compounds (EPA 2000).

## C. **State and Local Authorities' Roles:**

### 1. **State and Local Actions to Date:**

In August 1990, Boomsnub did not have the financial resources to meet the requirements of an Ecology order requiring them to install a groundwater extraction/treatment system. Ecology assumed financial responsibility for operating the extraction/treatment system, expanding and upgrading the system installed by Boomsnub, and for monitoring ground water. These activities included upgrading the treatment system from reverse osmosis to ion exchange, and expanding the extraction network and treatment system to handle increased volumes of water. Ecology also constructed a pressure sewer line to the City of Vancouver's sanitary sewer system for the discharge of treated ground water. The Boomsnub Corporation provided some in-kind services, such as the treatment plant operator, however, Ecology paid for the majority of the Site work.

In 1993, Ecology requested that the U.S. Environmental Protection Agency (EPA) list the Site on the National Priorities List (NPL) because Ecology did not have the financial resources to continue cleanup at the Site. EPA proposed the Site for inclusion on the NPL on January 18, 1994. The Site was listed on the NPL on April 25, 1995 (60 Fed. Reg. 20330).

A Record of Decision dated September 29, 1997, for an interim action ground-water pump and treat system using air stripping to treat volatile organic compounds and ion exchange to treat hexavalent chromium for the Site-Wide Ground Water OU. The 1997 Record of Decision allowed EPA to continue operation of the ground-water pump and treat system installed by the Washington State Department of Ecology, and operated at a capacity of 100 gallons per minute by EPA since 1994 (EPA 2000).

In 1999 and 2000, EPA and BOC Gases upgraded the groundwater extraction/treatment system to increase system extraction capacity and control the migration of contaminated ground water.

In the February 2000, ROD, the State of Washington concurred with EPA's remedy to excavate and dispose of total chromium and lead in soils above a Site-specific remediation level of 400 ppm for chromium and 1000 ppm for lead at the Boomsnub Soil OU.

**2. Potential for Continued State and Local Response:**

At this time, the WDOE has deferred to the EPA for remedial or time-critical actions required at this site. However, Dan Alexanian, a senior hydrogeologist, with the Toxics Cleanup Program of Washington State Department of Ecology has been designated the point of contact for the State. The Removal Program will provide updates, as necessary, to the State regarding the progress of the proposed removal action.

**III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES:**

Conditions presently exist at the site which may present an imminent and substantial endangerment to public health or welfare or the environment. Conditions at the site meet the criteria for a removal action as stated in the National Contingency Plan (NCP), 40 CFR, Section 300.415 as follows:

**A. Threats to Public Health or Welfare**

*Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby human populations or the food chain.* An estimated 1,200 cubic yards of chromium- and lead-contaminated soil was identified during the RI/FS conducted by EPA in 1997 and 1998. Contamination was found in various locations on Site, including an area where an old septic drain field was located, along the borders of Boomsnub and the GL & V Celleco property line (south of site), and along the borders of the Voorhies property (north of site) (URS 2001). The contamination detected at the surface to 15 feet bgs threatens nearby workers and trespassers by incidental ingestion and dermal absorption of chemicals in on-site surface soil. Inhalation of fugitive dust from on-site surface soil by future residents and industrial/commercial workers is also a threat to human populations. The Boomsnub Soil OU is zoned for 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 ( $2 \times 10^{-5}$ ) 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 1,000 ppm (EPA 2000).

*Actual or potential contamination of drinking water supplies.* There are both municipal and domestic wells located within a half mile radius of the site. Health risks were based upon health effects for both children and adults who might drink contaminated ground water used as a domestic water supply. Because of previous efforts to provide municipal water supply connections to residents in the immediate vicinity of the ground-water plume no one is currently being exposed to contaminated ground water at levels above health concerns. However, EPA evaluated the potential risk to future residents if EPA did not continue cleanup of the Site. While site risks at the Boomsnub Soil OU 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, removal remedies, discussed in the 2000 ROD, were evaluated based on eliminating or significantly reducing this ongoing source of contamination to ground water. By removing contaminated soil, potential exposure concerns to future workers at the Site will be reduced (EPA 2000).

*Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of a release.* No threat from hazardous substances in containers exist at the Site.

*High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.* An estimated 1,200 cubic yards of chromium- and lead-contaminated soil was identified during the RI/FS conducted by EPA in 1997 and 1998. This contamination was found in various locations on Site, including an area where an old septic drain field was located, along the borders of Boomsnub and the GL & V Celleco property line (south of site), and along the borders of the Voorhies property (north of site). The contamination detected at or near the surface to a depth of 15 feet bgs. The potential for migration is high.

*Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.* A number of mechanisms exist by which chromium and lead at the Site can migrate from contaminated soil at source areas to other areas and other media at the Site. Dissolved metals in soil generally migrate vertically in recharge and then migrate laterally within groundwater under regional flow conditions. The primary release mechanism of concern at the Boomsnub Soil OU is from hexavalent chromium and lead in soil leaching by infiltrating water during precipitation events. Soluble chemicals can then migrate vertically from soil to groundwater. Only part of the Site is paved; because of this, precipitation events increase the threat of contamination migration.

*Threat of fire or explosion.* No fire or explosion hazards are present at the Site.

**B. Threats to the Environment**

The contamination at the Site creates an imminent and substantial endangerment to the environment in part through the actual or potential exposure of the regional ground water to hazardous substances and pollutants or contaminants.

*Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby animals or the food chain.* Contaminants present within the aquifer are not known to be released to any surface water bodies or to contact any potential receptors. The contaminants detected in the aquifer are not stressors to ecological receptors because no known complete exposure pathways exist. Therefore, only potential stressors at the Boomsnub Soil OU were evaluated in this ecological risk assessment. The species associated with the habitats at the Site have the potential to be exposed to contaminants if exposure pathways are complete, and may, therefore, be considered potential receptors. The representative species are selected based on the species' likelihood of exposure considering their preferred habitat, their feeding habits, and their abundance at the Site. The representative species selected for the Site include juniper, American robin, eastern cottontail, vagrant shrew, and earthworm. Plants, such as the juniper, can be exposed primarily through uptake of dissolved contaminants and also through contaminants in the air. Wildlife, such as birds and mammals, may be exposed to contaminants through a variety of pathways, including ingestion of plant and animal diet items; incidental ingestion of surface soil and sediments while foraging; ingestion of surface water used for drinking; dermal contact with contaminated soil, sediment, or surface water; and inhalation. Earthworm exposure to contaminants may result from ingestion of and/or dermal contact with contaminated soil. Exposure estimates for the representative species of mammals and birds (expressed as a unit of chemical ingested per unit of body weight) are based on their total exposure to contaminants from diet, soils, and surface water. Exposure estimates for the representative species are based on the average concentration of the individual contaminants in soil (EPA 2000).

*Actual or potential contamination of sensitive ecosystems.* No sensitive ecosystems are known to be surrounding the Site.

*Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of a release.* No hazardous substances are located in containers..

*High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.* Based on the Remedial Program's RI/FS sampling information, there is approximately 1,200 cubic yards of soils contaminated with hazardous substances located at or near the surface. The potential for migration off site is high.

*Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.* Most of the chemicals on-site are located in on-site soils. Precipitation may increase the migration of the chromium- and lead-contamination to the aquifer.

*Threat of fire or explosion.* There is no fire or explosion hazard at the Site.

#### **IV. ENDANGERMENT DETERMINATION**

Actual and threatened releases of hazardous substances, pollutants and contaminants from this site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

The Director of the Office of Environmental Cleanup has determined that the site conditions: 1) present an immediate risk to public health or welfare or the environment; and 2) present a situation where assistance from other government agencies or responsible parties will not otherwise be provided on a timely basis. In addition, the Director of the Office of Environmental Cleanup has determined that all removal actions taken under this Action Memorandum will be otherwise appropriate and consistent with any remedial actions that might be taken at the site in the future.

#### **V. PROPOSED ACTIONS AND ESTIMATED COSTS**

##### **A. Proposed Actions**

The objective of the actions outlined below is to achieve reductions in potential exposures to human health and the environment in the areas with the potentially most mobile and highest levels of contamination. These proposed actions are based on the information known to date regarding the conditions at the site. As additional information is gathered, further actions may be necessary.

##### **1. Proposed Action Description**

The following Removal options were evaluated:

1. Construction of an asphalt cap reducing downward migration of contamination allowing current ground-water extraction/treatment system to treat the chromium- and lead-contamination.
2. Excavation and off-site disposal of approximately 1,200 cubic yards of chromium- and lead-contaminated surface and subsurface soils on the Boomsnub, GL & V Celleco, Voorhies, and Lewis and Clark Railroad properties, with backfilling of excavated areas using clean fill; Removal and

off-site disposal of contaminated debris; Evaluate the need for further sampling to determine extent of contamination; and Installation of an asphalt cap for excavated areas and/or other areas.

3. No action.

Alternative #2 was selected, as this was determined to be the most protective, while still being cost effective in addressing the threat of a release from the approximate 1,200 cubic yards of waste on site. Alternative #1 and #3 do not fully meet the objectives of the NCP or CERCLA. Alternative #1 would be protective of human health and the environment by limiting contamination from entering ground water, however, would leave soil conditions relatively unchanged, and would rely on the cap in perpetuity to limit exposure and contaminant migration.. This alternative is not consistent with the remedy selected in the 2000 ROD. Alternative #3 was not selected as this did not address the threats to human health and the environment whatsoever, and left hazardous substances in place. This alternative was not protective because it did not provide for protection of groundwater from the leaching of contaminants in on-site soils due to infiltration.

## **2. Contribution to Remedial Performance**

The major components of the remedy for the Boomsnub Soil OU as outlined in the February 2000 ROD are the following:

- Excavation and off-site disposal of an estimated 1,200 cubic yards of soil exceeding a remediation level of 400 ppm for total chromium and the MTCA Method A industrial soil cleanup standard of 1,000 ppm for lead
- Other co-located contaminants including arsenic and five semi-volatile organic compounds (SVOCs) will also be addressed by this action, allowing future industrial use of the property.
- Institutional controls in the form of deed restrictions and controlled site access for the Boomsnub property to prevent soil contamination below 15 feet in depth from being disturbed without appropriate precautions and to preclude residential use of the Boomsnub property (EPA 2000).

The State of Washington concurs with the Remedy selected in the 2000 ROD - to excavate and dispose of total chromium and lead in soils above a Site-specific remediation level of 400 ppm for chromium and 1000 ppm for lead in the Boomsnub Soil OU.

## **3. Description of Alternative Technologies**

Use of a high-power vacuum truck to remove surface contamination around trees and telephone utility poles was identified as an alternative method to hand excavation saving time and labor costs. Use of recycled and/or reuse of non-contaminated soils as backfill was identified as alternative methods to reduce cost. The use of field support laboratories and field analytical equipment was identified as an alternative to commercial laboratory analysis to help reduce costs.

**4. EE/CA**

This applies only to non-time critical responses. This is a time critical removal action.

**5. Applicable or Relevant and Appropriate Requirements (ARARs)**

The proposed removal action will attain or exceed all ARARs to the extent practicable. Two factors will be applied to determine whether the identification and attainment of ARARs is practicable: (1) the exigencies of the situation; and (2) the scope of the removal action to be taken.

Federal ARARs

The following is a summary of federal ARARs identified to date that may be applicable to the proposed removal action:

*Resource Conservation and Recovery Act*, as amended (RCRA), 42 U.S.C. §§ 6901 et seq., and its implementing regulations codified in Chapter 260 through 265, and 268 of the Code of Federal Regulations (CFR), including but not limited to the following specific requirements identified at this time:

40 CFR §§ 261.10 and 261.24, relating to characteristics of hazardous wastes including the toxicity characteristic.

40 CFR §§ 262.20, 262.21, 262.22, 262.23, 262.30, 262.31, and 262.32, relating to hazardous waste manifesting and labeling requirements prior to transportation of hazardous waste containers off-site;

40 CFR §§ 263.20 and 263.21, relating to off-site transport of hazardous waste (handling and manifesting requirements);

40 CFR §§ 265.117(a)(1) and (c), 40 CFR

§ 265.310(a) and (b), relating to capping contaminated soils;

40 CFR § 265.272(a-e), relating to prevention of surface water run-on and collection and control of surface water run-off at a land treatment unit;

40 CFR Part 268, relating to off-site and on-site land disposal restrictions for hazardous wastes;

40 CFR § 300.440, relating to the CERCLA “Off-Site Rule.”

*Migratory Bird Treaty Act*, 16 U.S.C. §§ 703-712 et seq., relating to the protection of migratory birds and their feathers, nests, and eggs.

*U.S. Department of Transportation*, 49 CFR Parts 171-180, relating to transportation of hazardous materials to off-site disposal facilities.

#### State ARARs

The following is a summary of state ARARs identified to date that may be applicable, or relevant and appropriate, to the proposed removal action:

*Model Toxic Substances Control Act*, as amended (MTCA), and its implementing regulations codified at Chapter 173-340 of the Washington Administrative Code (WAC) (determined to be relevant and appropriate). The relevant and appropriate requirements under MTCA identified to date include the following:

Chapter 173-340-745 WAC, relating to MTCA soil cleanup standards for industrial sites.

*Solid Waste Management-Reduction & Recycling Act*, RCW 70.95, relating to the disposal of non-hazardous wastes.

*Washington State Hazardous Waste Management Act* (HWMA), and its implementing regulations codified at Chapter 173-303 of the WAC (determined to be applicable). Since the state of Washington has been authorized by EPA to implement the HWMA regulations in lieu of the federal RCRA regulations, the applicable RCRA regulations for this removal action shall be those EPA-authorized state regulations which are the counterparts to the federal RCRA regulations which were listed above. If no state regulatory counterpart exists under Chapter 173-303 WAC, then the federal RCRA

regulations listed above shall apply.

*Transportation of Hazardous Waste Materials*, WAC 446-50, relating to the transportation of hazardous wastes to an off-site disposal facility.

*Minimum Functional Standards for Solid Waste Handling*, WAC 173-304, relating to the disposal of non-hazardous waste.

**6. Project Schedule**

The selected removal action is estimated to require approximately one month time to complete on-site removal and three months time to complete transportation and disposal. Removal may commence upon signature of this Action Memorandum.

**B. Estimated Costs**

<b>1. Extramural Costs</b>	
ERRS	\$365,000
<u>START</u>	<u>\$126,000</u>
Subtotal	\$491,000
<u>15% Contingency</u>	<u>\$ 73,650</u>
Subtotal of Extramural	<b>\$564,650</b>
<b>2. Intramural Costs</b>	
EPA Direct	\$ 25,000
<u>USCG Strike Team</u>	<u>\$ 25,000</u>
Subtotal	\$ 50,000
Subtotal of Extra/Intramural	<b>\$614,650</b>
<u>10% Project Contingency</u>	<u>\$ 61,465</u>
Subtotal Estimated Project Ceiling	<b>\$676,115</b>

**IV. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

**Estimated Ceiling (Rounded)**

Delay or disapproval of the proposed action will allow the potential for migration of chromium and lead

contamination to the groundwater to continue. The proposed removal action is consistent with the February 2000 ROD for the site. Failure to act will increase/prolong the threats to human health and the environment described above.

**VII. OUTSTANDING POLICY ISSUES - NONE**

**VIII. ENFORCEMENT**

EPA has completed a PRP search at the Site. EPA has identified Boomsnub/Pacific Northwest Plating and BOC Gases as PRPs at the Site. Although EPA has not identified PRPs associated with specific operable units, the data collected during investigations at the Site clearly shows that chromium is associated with the Boomsnub facility and not with the BOC Gases facility.

In 2000 EPA entered into a consent decree with the Boomsnub Corporation (now out of business), Edward Takitch (the company president), and the estate of Jason Niblett (the former president) resolving their liability at the Boomsnub/Airco Site. EPA and the Department of Justice conducted an extensive analysis of the defendants' ability to pay, and concluded that all defendants had very limited resources. What few assets are available will be put into a special account for this operable unit. EPA is not ordering the PRP to conduct this removal because to do so would be contrary to the settlement that is embodied in the Consent Decree and because EPA is convinced that none of the three Boomsnub defendants has resources sufficient to undertake this work.

**IX. RECOMMENDATION**

Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. The total project ceiling if approved will be \$676,000. Approximately \$565,000 will be for Extramural cleanup contractor funding, all of which will be from the regional removal funds.

APPROVED

DISAPPROVED

\_\_\_\_\_  
Michael F. Gearheard, Director  
Office of Environmental Cleanup

\_\_\_\_\_  
Michael F. Gearheard, Director  
Office of Environmental Cleanup

Date: \_\_\_\_\_

Date: \_\_\_\_\_

CONCURRENCE				
SIGNATURE				
SURNAME	Michael Szerlog On-Scene Coordinator	Deb Yamamoto Remedial Project Manager	Chris Field Unit Manager	Michelle Pirzadeh Associate Director
DATE				

## REFERENCES

EPA Record of Decision, February 2000, Boomsnub/AIRCO Superfund Site, Hazel Dell, Washington.

URS Greiner, Inc. January 2001, Quality Assurance and Sampling Plan, Boomsnub, AIRCO Superfund Site, prepared for the U.S. Environmental Protection Agency, Region 10, under Contract No. 68-W-98-228, Work Assignment Number 067-RD-RD-106Y

\_\_\_\_\_, February 2001, Basis of Design Remedial Action Soil Excavation and Off-site Disposal, Boomsnub/AIRCO Superfund Site, prepared for the U.S. Environmental Protection Agency, Region 10, under Contract No. 68-W-98-228, Work Assignment Number 067-RD-RD-106Y

