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March 5, 2010

Greg Weigel, On-Scene Coordinator
United States Environmental Protection Agency, Region 10
1435 North Orchard Street
Boise, Idaho 83706

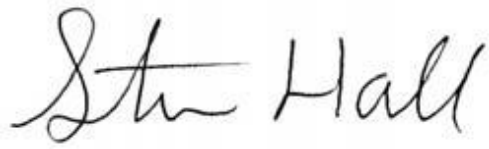
RE: Contract No. EP-S7-06-02; Technical Direction Document No. 09-09-0010
Revised Technical Memorandum: *Alternatives Evaluation for Stubblefield Salvage Yard in Walla Walla, Washington*

Dear Mr. Weigel:

Enclosed please find the revised technical memorandum with an evaluation of removal action alternatives for the Stubblefield Salvage Yard in Walla Walla, Washington. As requested, the technical memorandum has been revised to include unrestricted/residential cleanup and screening levels. If you have any questions or comments, please contact Josh Hancock at (206) 624-9537 or me at (206) 920-1739.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.



Steven G. Hall
START-3 Removal Project Leader

enclosure

cc: Joshua Hancock, E & E, START-3 Project Manager, Seattle, WA
Dale Thrush, E & E, Chief Engineer, Seattle, WA

Technical Memorandum

DATE: March 5, 2010

TO: Greg Weigel, On-Scene Coordinator, EPA Region 10, Boise, ID

FROM: Dale Thrush, Chief Engineer, E & E, Seattle, Washington

THRU: Steve Hall, START-3 Project Leader, E & E, Seattle, Washington

Josh Hancock, START-3 Project Manager, E & E, Seattle, Washington

SUBJ: Alternatives Evaluation (AE) for Stubblefield Salvage Yard, Walla Walla, Washington

Background

The United States Environmental Protection Agency (EPA) has tasked Ecology and Environment, Inc. (E & E), under Superfund Technical Assessment and Response Team (START)-3 contract number EP-S7-06-02, Technical Direction Document (TDD) 09-09-0010, to provide sampling and engineering support and to prepare this removal alternatives evaluation (AE) memorandum for the Stubblefield Salvage Yard site.

The subject site, which is located at 980 Myra Road in Walla Walla, Washington, is an active metal salvage yard. The site location is identified in Figure 1. Numerous on-site operations are conducted; however, customers generally deliver scrap metal and other waste products to the site where it is sorted, processed, and resold for recycling or disposal. A significant portion of the facility's operations involve the use of a hydraulic cutter and metal bailer. It has been reported by facility personnel that historical spills have occurred in association with this equipment. In addition, on-going leaks have been observed from the hydraulic equipment which continues to impact the site.

Surface and subsurface soils at the site are contaminated with total petroleum hydrocarbons (TPH), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), chlorinated pesticides, and metals. The highest known area of contamination at the site is located north of the retaining wall and the shop building, immediately adjacent to the hydraulic equipment (see Figure 2). This area has been identified on Figure 2 as the Source Decision Area. When determining the extent of the Source Decision Area, both the State of Washington Model Toxics Control Act (MTCA) soil cleanup levels for unrestricted properties (Methods A and C) and the EPA Regional Screening Levels (RSLs) for residential soil were consulted. Residential and unrestricted cleanup levels were selected because the site is zoned residential and planned land uses for adjacent properties are also residential. The current limits of the Source Decision Area which are known to exceed either of these cleanup levels based upon analytical testing are included within the boundary outlined on Figure 2.

For the purposes of this AE, the discussion included in this document will be limited to the Source Decision Area. START understands that EPA is working with the property

owner in conjunction with the Department of Ecology (Ecology) and Walla Walla County to address any contamination from the machinery so that ongoing spills can be eliminated.

Prior to tasking START with preparing this AE document, EPA mobilized START to the site on three separate occasions in the spring and fall of 2009. The first two mobilizations conducted in May and September were intended to assess the nature and extent of contamination at the site, and the third mobilization in October 2009 was to support an EPA removal action to address contamination identified during the assessment phases.

The scope of work for the October removal action included the consolidation and off-site disposal of the contents of drums and other waste containers identified at the site. Additionally, several areas of contaminated soil outside the Source Decision area were excavated for off-site disposal. During the removal action, it became apparent to the field team that the largest contiguous area of contamination at the site was located in the Source Decision Area identified in Figure 2. The contamination in this area extends beneath the shop building and the hydraulic cutter and bailer, and releases of hydraulic fluid from the hydraulic equipment are ongoing. As a result, it was determined by the EPA On-Scene Coordinator (OSC) that removal activities for the Source Decision Area should be postponed until the ongoing contamination could be addressed and alternatives for addressing the contamination could be more fully evaluated.

The conceptual site model for the Source Decision Area is that hydraulic fluid from the hydraulic equipment located adjacent to the shop building has been leaking more or less continually since constructed at least 30 years ago. Larger releases associated with the hydraulic oil storage tank utilized by this equipment have been reported by on-site personnel, but were never documented. It has also been reported that various used oils, including used motor oils and transformer oils (potentially containing PCBs), have been used in this equipment and subsequently spilled to the ground surface by leaks and possibly by larger releases. As a result, the soil in the area adjacent to the equipment and extending north towards Mill Creek is contaminated with TPH, PCBs, metals, and various SVOCs. The investigations conducted in May, September, and October 2009 identified these types of compounds in the Source Decision Area at concentrations that exceed Model Toxics Control Act (MTCA) limits for unrestricted properties. Exposure to these compounds by site workers and site visitors is possible through dermal contract, ingestion, and inhalation. The data associated with soil samples and borings collected in September and October 2009 from the area in and around the Source Decision Area is presented in Tables 1 – 5. Data from the May 2009 sampling effort was previously reported to EPA in a technical memorandum dated August 28, 2009. Where applicable, samples and results from all three sampling events are included in the figures presented with this memorandum.

It is also possible that contamination is impacting groundwater at the site. The direction of groundwater flow has not been confirmed at this time, but it is assumed to flow to the north and west based on site topography and the location of Mill Creek. A groundwater sample collected from an on-site groundwater well located upgradient of the Source

Decision Area did not contain high levels of these compounds; however, the screened interval of this well is believed to be well below the known contamination and shallow groundwater from the area downgradient of the Source Decision Area has not been sampled. In October 2009 four surface water samples were collected from Mill Creek, which forms the northern extent of the site and which is approximately 100 yards downgradient from the Source Decision Area. One sample was collected from the creek upgradient of the site, two samples were collected from locations adjacent to the site, and one sample was collected downstream of the site (see Figure 3). All four surface water samples were non-detect for SVOCs, PCBs, pesticides, and TPH. The results of these analyses are presented in Tables 6 – 11. Some metals (aluminum, calcium, iron, magnesium potassium and sodium) were detected at similar concentrations in the four samples (including the upstream sample), indicating no detectable impact to the surface water from the site.

Currently, neither the vertical nor the horizontal extents of contamination are well defined; however, contamination has been observed up to eight feet below ground surface within the Source Decision Area. The following engineering assumptions are being made for this AE based upon observations at the site and conversations with site personnel:

- The removal action objective for this project is to address existing on-site contamination and to minimize the potential for off-site migration.
- The removal alternatives evaluated in this memorandum are primarily intended to address the Source Decision Area in the vicinity of the shop building, cutter, and bailer (Figure 2). Additional isolated areas of contamination have been identified at other locations throughout the site, although most were addressed during the October 2009 Removal Action.
- START has observed the hydraulic equipment leaking while in operation, and site personnel stated that larger spills of an undetermined volume have occurred in the past.
- The retaining wall (Figure 2), site topography, and the assumed direction of groundwater flow (from south to north/northwest) are assumed to impede the migration of contamination from the north side of the retaining wall to the south side. As a result, contamination associated with the Source Decision Area is only expected to be found north of the retaining wall.
- The site elevation drops from the working area north of the bailer and cutter (generally around SA03, SA06 and SA07) toward SW02. Based upon site topography and the close proximity of Mill Creek, it is assumed that groundwater is generally flowing to the north or northwest.
- On October 17, 2009 a test pit was dug approximately 10 feet north of the bailer structure. The depth of the excavation was approximately 7 feet below ground surface. There was staining of the soil from 0-7 feet. A bulk sample was collected from this test pit and a grain size analysis was conducted. This analysis indicated that the soil is approximately 20% sand, 55% silt and 25% clay. The soil was classified as a Unified Soil Classification System soil type ML (silt with low plasticity). It is assumed that the silty soils will be of low permeability (approximate hydraulic conductivity of 10^{-5} to 10^{-6} centimeters per second

[cm/sec]). Due to the soil conditions, the excavation sidewall was vertical and there was no sloughing of soil into the excavation. No groundwater was noted at the maximum depth of 7 feet. No free product was observed in the excavation; however, groundwater was not encountered and therefore the presence or absence of light non-aqueous phase liquids (LNAPL) could not be evaluated.

- To determine the site cleanup goals, both MTCA unrestricted properties cleanup levels and the EPA RSLs for residential soil have been consulted. The goal of the removal alternatives is to address the Source Decision Area with respect to these standards. Besides the Source Decision Area, the site includes other smaller and disperse areas with contaminant levels that exceed the RSLs or MTCA standards. These contaminated areas can be addressed by limited "hot spot" excavation and off-site disposal, regardless of the alternative selected for the Source Decision Area.

Removal Alternatives

This memorandum identifies key aspects of several removal alternatives as they relate to the Stubblefield Salvage Yard site. Based on the information obtained during the removal assessment activities, four removal alternatives were identified for the site:

1. **Excavate Entire Source Decision Area**. The entire area of contaminated soil in the Source Decision Area (see Figure 2) would be excavated, including soil underneath the shop building and the hydraulic equipment. The excavation would then be backfilled with clay with a gravel cap. Excavated soil would be disposed of at an appropriate off-site landfill
2. **Partial Excavation and Product Collection Trench.** Contaminated soil would be excavated for off-site disposal without disturbing the shop building or the hydraulic equipment, followed by the installation of a collection trench and sand backfill with a gravel cap
3. **Partial Excavation and Reactive Core Mat.** Contaminated soil would be excavated for off-site disposal without disturbing the shop building or the hydraulic equipment, followed by vertical installation of a Reactive Core Mat (RCM) with organoclay or organoclay with activated carbon along the excavation sidewalls adjacent to the shop building and hydraulic equipment, and then sand backfill with a gravel cap
4. **In Situ Chemical Oxidation.** In situ chemical oxidation of the entire Source Decision Area, including soil underneath the shop building and hydraulic equipment

In addition to these alternatives, a combination of partial excavation (outside the shop and equipment areas, as outlined in alternatives 2 and 3) and in situ chemical oxidation of the contaminants under the equipment and shop building was considered. However, if chemical oxidation is proven as an effective removal technique for the site by a pilot study, it would be more cost effective to use it to treat the entire Source Decision Area, rather than combining two approaches.

The following sections of this memorandum discuss the alternatives, technical feasibility, advantages, disadvantages, and data gaps for each alternative. Rough cost estimates were developed for each alternative. The cost analysis is intended to provide an estimate of significant costs involved within a range of +50% to -30%. START also evaluated in-situ biodegradation and air sparging with soil vapor extraction, but determined that these alternatives were not technically feasible or cost effective relative to the alternatives presented below.

In all four removal alternatives it is expected that varying amounts of contaminated soil will likely remain in place throughout the site above MTCA unrestricted property cleanup levels and/or RSLs for residential soil. These removal alternatives are intended to address the Source Decision Area to minimize future effects on human health and the environment.

Data Gaps

After reviewing the analytical results and inspecting the site, the following are areas of concern:

- Neither the vertical nor horizontal extents of contamination are well characterized. Soil boring locations SA02, SA03, SA05, SA06, and SW01 all have various contaminants which exceed MTCA unrestricted properties soil cleanup levels and/or the EPA RSLs for residential soil (Figures 4-6). For the purpose of the following evaluations, the assumption was made that the contamination does not extend significantly past these soil boring locations. If the contamination at SW01 is connected to the contamination in the vicinity of SA02, SA03, SA05 and SA06 it will have a significant impact on the removal costs.
- Due to the extent of contamination at the site, it is expected that groundwater will be impacted to some extent, but at this time it is unknown which constituents may be impacting groundwater. Additionally, the groundwater gradient direction is unknown. It is assumed to flow from the southeast to the north or northwest due to site topography and influences from the creek, but the retaining wall and shop building may have an unexpected impact on the groundwater gradient direction in this location.
- Based upon the analytical data collected to date, it is unknown if the excavated soil to be sent to the landfill is hazardous or non-hazardous. For cost calculation purposes, it is assumed that all soil will be disposed of at a Subtitle D municipal solid waste landfill (non-hazardous).
- The chromium contamination noted at SA01 is at the MTCA Method A cleanup level of 19 milligrams per kilogram (mg/kg) for hexavalent chromium. This detection of 19 mg/kg was for total chromium, and it is unknown what the actual concentration of hexavalent chromium is at this location. The MTCA Method A cleanup level for trivalent chromium is 2,000 mg/kg. Although it is unlikely that 100% of the total chromium at this location is hexavalent, this is included as a

potential data gap, and analysis of some site samples for hexavalent chromium may be warranted.

- The kiln located within the Source Decision Area was apparently used to melt metal and overlies potentially contaminated soil. Because the kiln is no longer in use, likely contains hazardous residual materials, and is also likely constructed of asbestos-containing materials, it is assumed for the purposes of this AE that it will be removed from the site and disposed of properly as a part of the removal action.

If further refinement of the costs associated with the following alternatives is required, additional soil sampling and/or installation of monitoring wells would be required. Additional soil sampling would allow for more accurate volume calculations to be completed, thus resulting in more accurate cost estimating. Installation of monitoring wells would provide information about site hydrogeology (e.g., depth to water, the approximate direction of groundwater flow) and would allow START to collect groundwater samples to determine if the known soil contamination is impacting groundwater. The estimate for additional soil borings and temporary monitoring wells for free product determination and soil and groundwater assessment can range from $50,000 to $100,000, depending on the scope of work. If EPA determines that further refinement is not necessary for budgetary purposes, the estimated costs for the four alternatives would likely be equally impacted by changes in the estimated extent of contamination.

Alternative 1: Excavate Entire Source Decision Area.

This alternative would include demolition of the shop and bailer buildings in addition to removal of the known contaminated soil. The contaminated soil would be transported off site and disposed at an appropriate disposal facility, and the excavated area would be backfilled with clay. Backfilling with clay or clayey soils (similar or lower permeability than the native silt) will limit the migration of residual, low level contaminants. Additionally, this alternative would remove the bulk of the contaminated soil, resulting in the lowest potential for dermal, inhalation and ingestion exposure to humans and wildlife.

Under this scenario, the kiln would be disposed of at an off-site facility. For this cost estimate, it is assumed that the salvage yard would move the engine, oil tank, cutter and bailer for future use. Figure 7 denotes the proposed area to be excavated under this alternative. This area is roughly 14,000 square feet which would be excavated to a depth of approximately 8 feet. Additionally, there are two smaller areas of contamination outside the area noted on Figure 8 which may also require limited excavation: benzo(a)pyrene and benzo(a)anthracene are present in the vicinity of SW01 to a depth of approximately 8 feet, and cadmium and chromium were detected at or above the cleanup criteria at SA01 (assuming all chromium present is hexavalent chromium). The total excavated volume for all three of these locations is estimated at 5,500 expanded cubic yards. An expansion factor of 30% was used for these calculations. The estimated cost for this removal is approximately $785,000.

Advantages:

- Provides immediate source removal
- No ongoing operation and maintenance required
- Effective treatment technique for TPH, SVOCs, PCBs, pesticides, and metals

Disadvantages:

- Results in shutdown of on-going site operations
- Does not address potential contamination of the groundwater
- Most expensive alternative

Alternative 2: Partial Excavation and Product Collection Trench

Alternative 2 would consist of excavating the known contaminated soil where practical without removing any structures or permanently impacting the operation of the facility (see Figure 8). This alternative would leave the suspected contaminated soil beneath the operating equipment (engine, oil tank, cutter and bailer) and shop building in place, but would still remove visibly contaminated soil from around these sources to minimize exposure. The remaining saturated soil near the operating equipment would be removed to a depth of six to twelve inches (where possible) to minimize the dermal, inhalation and ingestion potential. The six to twelve inch lift would be replaced with sand to allow rainwater to infiltrate. Unlike Alternative 1, limited migration of the contaminants is a desired effect to allow the contaminants to flow to the trench so they can be collected and proper disposal can take place.

Under this scenario, the kiln would still be disposed of at an off-site facility. In this case, the estimated area of excavation is shown on Figure 8. The surface area is 9,000 square feet and would be excavated to an estimated depth of 8 feet below current grade. Additionally, the soil in the vicinity of SW01 and SA01 would be removed in this alternative as outlined in Alternative 1. This would result in approximately 3,600 expanded cubic yards of soil for disposal. Once the soil north of the equipment and shop building is removed, a collection trench would be installed along the south wall of the excavation. This collection trench would consist of fabric wrapped drain tile (to minimize sediment infiltration into the pipe) backfilled with gravel due to its high permeability. The tile would be installed to intersect the existing groundwater table. The collection trench would have two access points to allow for manual removal of oil contaminants which may leach from the remaining contaminated soil. The estimated cost for this alternative is approximately $535,000 (not including ongoing operation and maintenance).

Advantages:

- Provides immediate source removal of the soils closest to Mill Creek
- Provides for recovery of LNAPL that leaches from the contaminated soil
- Minimizes impact to clean backfill
- No permanent impact to operation of the facility

Disadvantages:

- Ongoing operation and maintenance required
- This alternative could be adversely impacted with variations in groundwater levels. If the groundwater level rises above the collection tile, it would no longer intersect the water table and product collection would not be possible.
- Will not address dissolved phase contaminants which leach from the contaminated soil. If the metals that are present in the soil are mobile, this technology will not recover them unless they are transferred in the LNAPL phase.

Alternative 3: Partial Excavation and Reactive Core Mat

In this alternative the removal of the contaminated soil and backfill with sand would be identical to Alternative 2. However, the drain tile would be replaced with RCM filled with either organoclay or an organoclay/activated carbon mixture. The mats would be placed vertically between the contaminated soils left in place beneath the building/equipment and the backfill used to restore the excavated area. The RCMs would allow water to flow through them, but would collect dissolved organic contaminants which would then minimize their impact on the clean backfill material. In this alternative, the RCM would be installed along the southern wall of the excavation from the ground surface to below the groundwater table. By installing the mats in this manner, fluctuations in groundwater level would have minimal impact on contaminant mobility. The estimated cost of this alternative is approximately $545,000 (costs for replacement/disposal of spent mats are not included).

Advantages:

- Provides immediate source removal of the soils closest to the creek
- Provides collection of LNAPL and dissolved organic contaminants which may leach from the contaminated soil left in place
- Minimizes impact to clean backfill
- No permanent impact to operation of the facility
- No ongoing operation and maintenance required
- Minimizes the concern with groundwater elevation fluctuations

Disadvantages:

- Change out of spent mats may be required, but the timing is unknown due to data gaps
- Four to six week lead time required for delivery of the mats
- Unknown effectiveness versus dissolved phase metals

Alternative 4: In Situ Chemical Oxidation

Following limited vendor queries, Alternative 4 may be a technically feasible treatment of the entire Source Decision Area. This alternative would consist of injecting a chemical oxidant emulsified in a surfactant to reduce the organic contaminants to carbon dioxide and water. The surfactant is used to assist in oxidant distribution and removal of adhered contaminants from the soil to allow the oxidation process to take place. With

this technology, the oxidant can be delivered under the buildings and equipment allowing for treatment of the most heavily impacted areas while having a minimal impact upon the operation of the facility. One advantage of this technology is its potential to not only remediate the soils but also effectively treat potentially contaminated groundwater. Unfortunately, this alternative requires significantly more site-specific knowledge than any of the other alternatives to fully evaluate. Based upon conversations with two vendors, a pilot scale study is highly advisable prior to full scale implementation. The pilot scale study is expected to range from $55,000 to $75,000 to obtain information such as chemical application requirements, spacing of injection points, and destruction efficiencies. The pilot study will also provide data to determine if in situ chemical oxidation will be suitable to achieve site cleanup objectives.

If the pilot test indicates that in situ oxidation is feasible for the site, the full-scale treatment cost range is expected to be $100-150 per cubic yard of soil. In addition to the treatment costs, confirmation samples would be required to show the effectiveness of the treatment. The estimated cost of this alternative, including treatment, sampling, project administration, and other activities is estimated to range from $522,000 to $729,500 (in addition to the pilot study) based upon site-specific conditions.

Advantages:

- Proven technology which provides in situ destruction of SVOCs and TPH contaminants
- This technology can also remediate contaminated groundwater (at an increased cost due to additional chemical use)
- No permanent impact to operation of the facility
- No ongoing operation and maintenance required

Disadvantages:

- Requires the most site-specific information
- Residual surfactant could mobilize residual contaminants outside the treatment area
- Chemical oxidation will not treat the metals present in the soil and its treatment effectiveness is not well documented for PCBs

Conclusions

The four removal alternatives evaluated in this memorandum are intended to address the primary Source Decision Area located in the vicinity of the shop building, bailer, and cutter. Additional isolated areas of contamination can also be addressed through limited ‘hot spot” excavations. The alternatives were designed to address the Source Decision Area with respect to MTCA unrestricted property cleanup levels and the EPA Regional Screening Levels for residential properties. However, due to the nature and extent of contamination at the site, it is not considered practical to design the removal action to strictly achieve these cleanup goals for the entire site. Rather, the alternatives outlined above are intended to address the known source area and the majority of the

contamination to reduce the risk of exposure for site visitors and site workers and to reduce the potential for the contamination to migrate off site.

If additional refinement of the costs associated with these alternatives is required, additional soil borings and/or groundwater investigation would be advisable. If this is not a concern due to the fact that the estimated cost for each alternative would be equally impacted by better delineation of the extent of contamination, then implementation of Alternatives 1-3 could proceed based on the available data, with adjustments made in the field as necessary. Implementation of Alternative 4 is not recommended without conducting a pilot study to determine site-specific factors such as the effectiveness of the injections on contaminant concentrations, cost per cubic yard and the area of influence around injection points.

In evaluating the four removal alternatives for the site, Alternative 1 would remove all of the source material, but would result in a permanent impact to the facility and is the most costly. Alternative 2 would not have a long term impact on facility operation, but fluctuations in water table elevations could impact the amount of product recovered from the collection trench and could result in recontamination of the fill material. Additionally, this alternative would not address potential dissolved phase contaminants. Alternative 3 would not be impacted by changes in water table elevation, can remove dissolved phase contaminants, and there would be no expected ongoing operation and maintenance. Alternative 4 may potentially be able to treat the organic contaminants, will have a minimal impact on the site operation, and can effectively treat potential groundwater contamination, but this alternative requires a pilot test to confirm the effectiveness of treatment and to gather additional site-specific information, and the total cost is relatively uncertain. For all four alternatives, the cost will increase incrementally if the removal area is expanded, and the costs will also increase incrementally for Alternatives 1-3 if some of the soil must be disposed of at a hazardous waste landfill. Based upon these issues, Alternative 3 (limited excavation with installation of a Reactive Core Mat) appears to be the most immediately technically feasible while allowing the facility to remain in operation.

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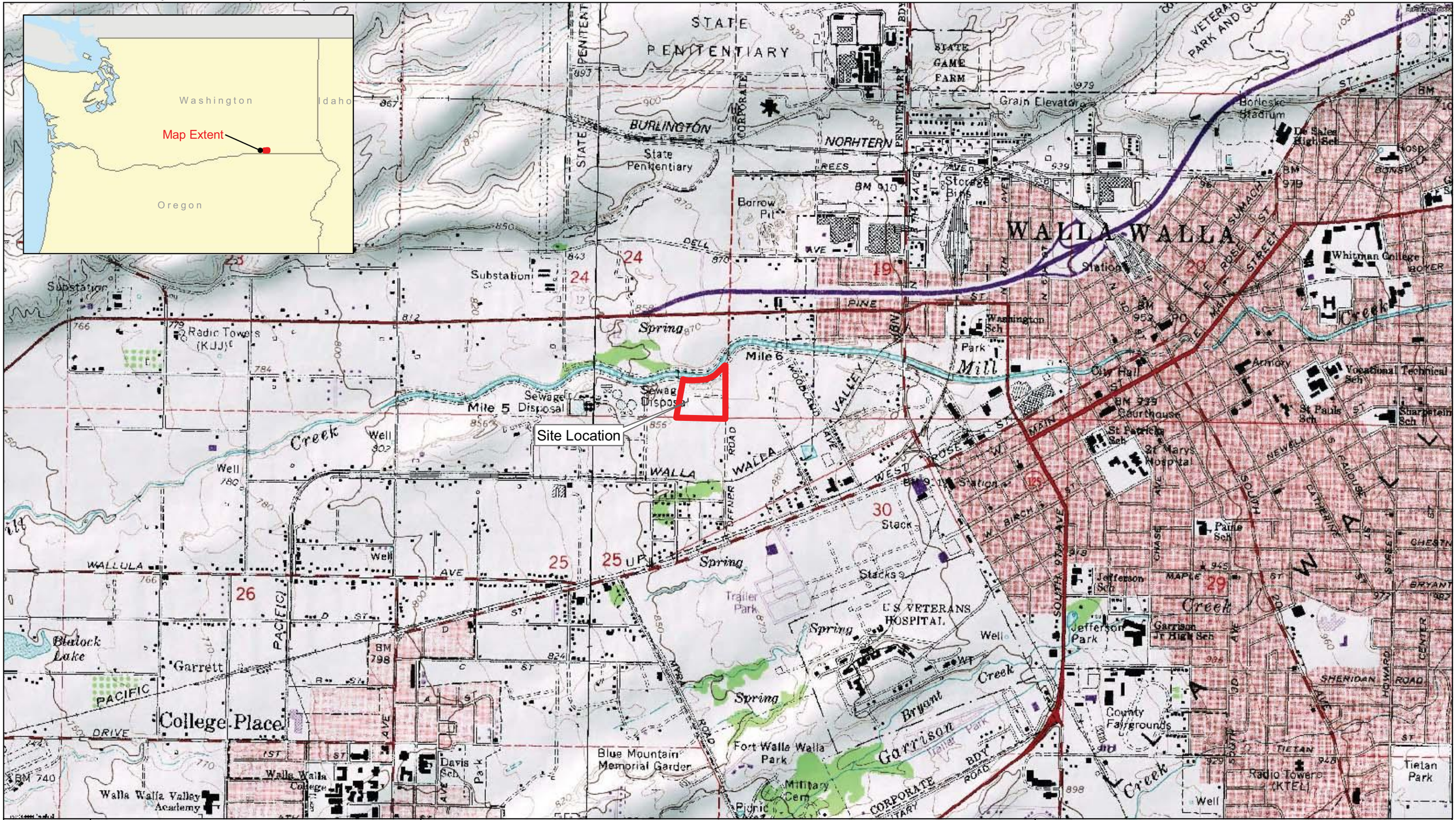

Legend

Site Boundary

0 0.125 0.25 0.5 0.75 1 Miles

Figure 1: Site Location

Stubblefield Salvage Yard Site

Walla Walla, Washington

Time Critical/Removal Assessment

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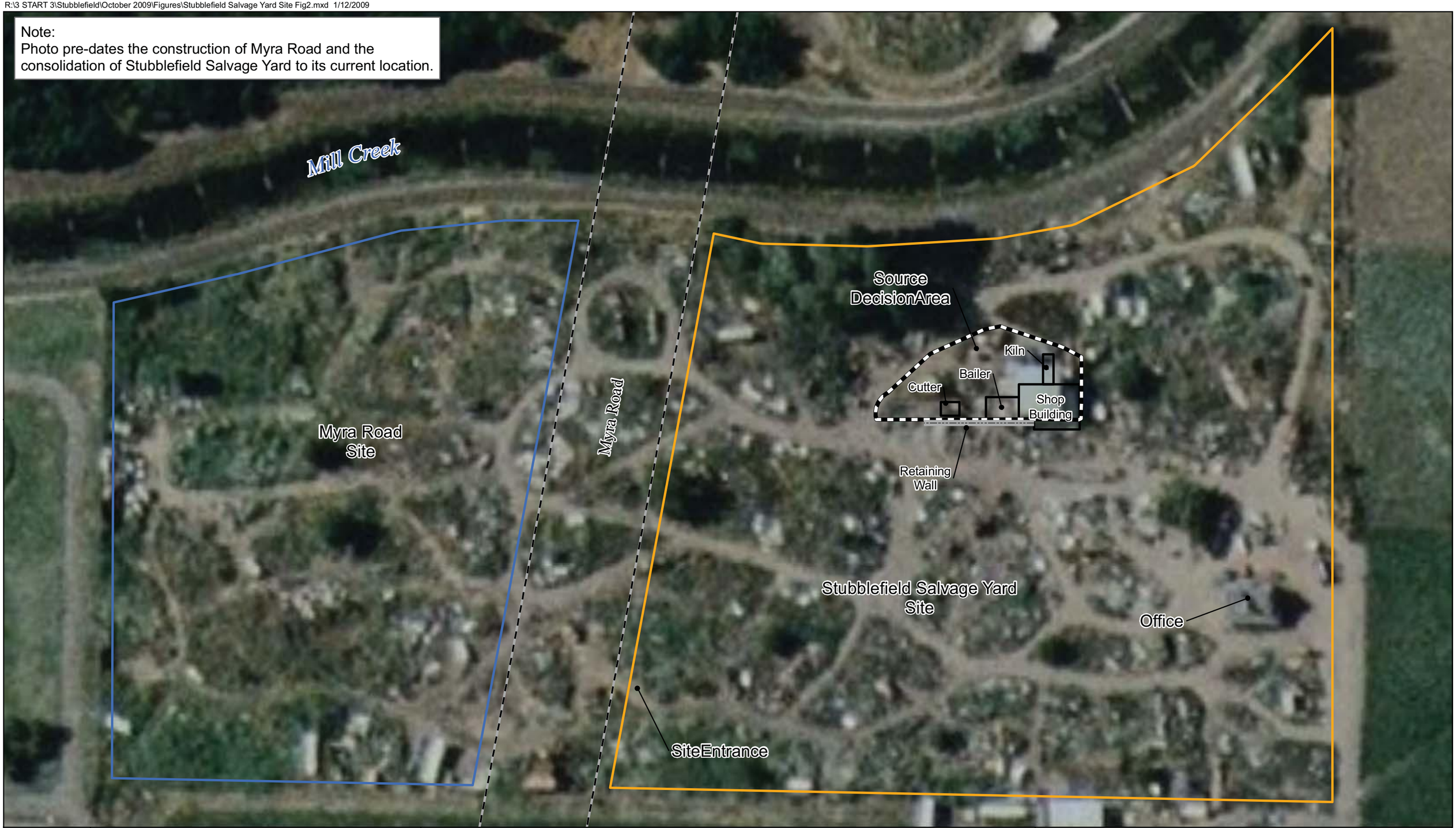
International Specialists in the Environment

Seattle, Washington

R:\3 START 3\Stubblefield\October 2009\Figures\Stubblefield Salvage Yard Site Fig2.mxd 1/12/2009

Note:
Photo pre-dates the construction of Myra Road and the consolidation of Stubblefield Salvage Yard to its current location.



Legend
Site Boundary
Myra Road
Stubblefield Salvage Yard
Myra Road ROW

250 125 0 Feet

Figure 2: Site Layout
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical/Removal Assessment

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Seattle, Washington

R:\3 START 3\Stubblefield\October 2009\Figures\GIS\Stubblefield Salvage Yard Site Fig3.mxd 1/12/2009

Note:
Photo pre-dates the construction of Myra Road and the consolidation of Stubblefield Salvage Yard to its current location.

Nomenclature:

Locations:

MC - Mill Creek SA - Source Area
SH - Shop SS - Soil Sample
SW - Swale TP - Test Pit

Location Matrix Depth (ft)
SA01SB04

Matrix:

SB - Sub-surface Soil SS - Surface Soil
SW - Surface Water

MC01SW
MC02SW
MC03SW
MC04SW
Mill Creek
Myra Road
SW01SB04, SW01SB08
SA01SS, SA01SB04, SA01SB08
SA03SB04, SA03SB08
SW02SS, SW02SB02
SS02
SA02SB04, SA02SB08
SA06SS, SA06SB04, SA06SB08
TP01
SA05SB04, SA05SB08
SA07SB04, SA07SB08
SH01SS, SH01SB04, SH01SB08

Legend

Sample Locations: May, September, October
Site Boundary: Myra Road, Stubblefield
Myra Road ROW, Decision Area

250 125 0 Feet

Figure 3: Source Area Sample Locations
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical/Removal Assessment

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Seattle, Washington

R:\3 START 3\Stubblefield\October 2009\Figures\Stubblefield Salvage Yard Site Fig 4 SS Data.mxd 1/14/2010

SA04SS
Aroclor 1242 - 0.71 mg/Kg (0.22*)
Aroclor 1254 - 4.1 mg/Kg (1)
Benzo(a)anthracene - 0.64 mg/Kg (0.15*)
Benzo(b)fluoranthene - 0.85 mg/Kg (0.15*)
Benzo(a)pyrene - 0.74 mg/Kg (0.015*)
Cadmium - 14 mg/Kg (2)
Chromium - 37 mg/Kg (19**)
Dibenzo(a,h)anthracene - 0.19 mg/Kg (0.015*)
Dieldrin - 51 µg/Kg (30*)
Indeno(1,2,3-cd)pyrene - 0.54 mg/Kg (0.15*)
Iron - 76000 mg/Kg (55000*)
Lead - 830 J mg/Kg (250)
Vanadium - 120 mg/kg (5.5*)

Mill Creek

Levee

SW02SS
benzo(a)pyrene - 0.088 mg/kg (0.015*)
Chromium - 12 mg/Kg (0.29***)
Vanadium - 140 mg/Kg (5.5*)

SA01SS
Aroclor 1242 - 0.3 mg/Kg (0.22*)
Aroclor 1254 - 0.84 mg/Kg (0.22*)
Aroclor 1260 - 0.45 mg/Kg (0.22*)
Cadmium - 5.6 mg/Kg (2)
Chromium - 33 mg/Kg (19**)
Iron - 63000 mg/Kg (55000*)
Lead - 660 J mg/Kg (250)
Vanadium - 140 mg/Kg (5.5*)

SS02SS
Aroclor 1248 - 16 J mg/kg (1)
Aroclor 1254 - 5.7 J mg/kg (1)
Aroclor 1260 - 2.3 J mg/kg (1)
Benzo(a)anthracene - 7.1 J mg/kg (0.15*)
Benzo(a)pyrene - 3.9 J mg/kg (0.1)
Benzo(b)fluoranthene - 4.7 J mg/kg (0.15*)
Benzo(k)fluoranthene 4.7 J mg/kg (1.5*)
Cadmium - 10.7 J mg/kg (2)
Chromium - 41.6 mg/kg (19**)
Diesel Range - 20000 mg/kg (2000)
Indeno(1,2,3-cd)pyrene - 2.4 J mg/kg (0.15*)
Lead - 1140 mg/kg (250)
Oil Range - 110000 J mg/kg (2000)
Vanadium - 80.6 mg/kg (5.5*)

Kiln
Cutter
Bailer
Shop Building

SA06SS
Antimony - 54 mg/Kg (32)
Aroclor 1242 - 10 mg/Kg (1)
Aroclor 1254 - 41 mg/Kg (1)
Benzo[a]anthracene - 130 J mg/Kg (0.15*)
Benzo[a]pyrene - 84 J mg/Kg (0.015*)
Benzo[b]fluoranthene - 90 J mg/Kg (0.15*)
Benzo[k]fluoranthene - 66 J mg/Kg (1.5*)
Cadmium - 18 mg/Kg (2)
Chromium - 77 mg/Kg (19**)
Chrysene - 130 J mg/Kg (0.15*)
Dibenz[a,h]anthracene - 18 J mg/Kg (0.015*)
Indeno[1,2,3-cd]pyrene - 52 J mg/Kg (0.15*)
Iron - 76000 mg/Kg (55000*)
Lead - 1400 J mg/Kg (250)
Mercury - 2.1 mg/Kg (2)
Oil Range - 100000 mg/Kg (2000)
Vanadium - 110 mg/Kg (5.5*)

SS03SS
Aroclor 1248 - 19 J mg/kg (1)
Aroclor 1254 - 6.1 J mg/kg (1)
Benzo(a)anthracene - 10 mg/kg (0.15*)
Benzo(a)pyrene - 8.1 mg/kg (0.1)
Benzo(b)fluoranthene - 10 mg/kg (0.15*)
Benzo(k)fluoranthene - 9.4 mg/kg (1.5*)
Cadmium - 16.5 J mg/kg (2)
Chromium - 71.6 mg/kg (19**)
Dibenzo(a,h)anthracene - 1.3 J mg/kg (0.015*)
Diesel Range - 43000 J mg/kg (2000)
gamma-BHC - 16 J µg/kg (10)
Indeno(1,2,3-cd)pyrene - 7.1 J mg/kg (0.15*)
Lead - 1250 mg/kg (250)
Mercury - 3.11 J mg/kg (2)
Oil Range - 99000 J mg/kg (2000)
Vanadium - 74 mg/kg (5.5*)

Note:
Photo pre-dates the construction of Myra Road and the consolidation of Stubblefield Salvage Yard to its current location.

Nomenclature:
Locations:
SA - Source Area

Location — Matrix
SA01SS

Matrix:
SS - Surface Soil

Only results above applicable action levels are indicated.
Values in ( ) are WA State MTCA cleanup levels for residential properties.
Sample location SA04 is not displayed on this figure because this area was excavated by ERRS in October 2009.
** denotes EPA RSL Residential level.*
*** Screening level is MTCA Residental for Hexavalent Chromium.*
**** Screening level is EPA RSL Residential for Hexavalent Chromium.*

Legend
Sample Locations
Site Features
Retaining Wall

25 12.5 0 25 50 75 100 125 150 175 200 Feet

Figure 4: Surface Sample Data
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical Removal Assessment

ecology and environment, inc.
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Seattle, Washington

R:\3 START 3\Stubblefield\October 2009\Figures\Stubblefield Salvage Yard Site Fig 5 SB04 Data.mxd 1/14/2010

Note:
Photo pre-dates the construction of Myra Road and the consolidation of Stubblefield Salvage Yard to its current location.

Nomenclature:
Locations:
SA - Source Area SH - Shop
SW - Swale

Location Matrix Depth (ft)
SA01SB04

Matrix:
SB - Sub-Surface Soil

Only results above applicable action levels are indicated.
Values in ( ) are WA State MTCA cleanup levels for residential properties.
** denotes EPA RSL Residential level.*
*** Screening level is MTCA Residential for Hexavalent Chromium.*
**** Screening level is EPA RSL Residential for Hexavalent Chromium.*

Mill Creek

Levee

SW01SB04
Benzo[a]anthracene - 2.5 mg/Kg (0.15*)
Benzo(b)fluoranthene - 1.7 mg/Kg (0.15*)
Benzo(k)fluoranthene - 2.4 mg/Kg (1.5*)
Benzo[a]pyrene - 2.8 mg/Kg (0.1)
Chromium - 9.9 mg/Kg (0.29***)
Dibenz[a,h]anthracene - 0.29 mg/Kg (0.015*)
Indeno(1,2,3-cd)pyrene - 1.1 mg/Kg (0.15*)
Vanadium - 140 mg/Kg (5.5*)

SA04SB04
Benzo(a)pyrene - 0.13 mg/Kg (0.1)
Chromium - 13 mg/Kg (0.29***)
Dibenzo(a,h)anthracene - 0.018 mg/Kg (0.015*)
Vanadium - 140 mg/Kg (5.5*)

SA01SB04
Benzo(a)pyrene - 0.14 mg/Kg (0.1)
Dibenzo(a,h)anthracene - 0.021 mg/Kg (0.015*)
Chromium - 19 mg/Kg (19**)
Vanadium - 140 mg/Kg (5.5*)

SA03SB04
Aroclor 1242 - 0.28 mg/Kg (0.22*)
Aroclor 1254 - 0.78 mg/Kg (0.22*)
Aroclor 1260 - 0.74 mg/Kg (0.22*)
Benzo(a)anthracene - 0.55 mg/Kg (0.15*)
Benzo(b)fluoranthene - 0.64 mg/Kg (0.15*)
Benzo(a)pyrene - 0.43 mg/Kg (0.1)
Dibenzo(a,h)anthracene - 0.091 mg/Kg (0.015*)
Indeno(1,2,3-cd)pyrene - 0.22 mg/Kg (0.15*)

SW02SB02 - 2 feet below surface
Benzo[a]pyrene - 0.17 mg/Kg (0.1)
Chromium - 15 mg/Kg (0.29***)
Dibenz[a,h]anthracene - 0.02 mg/Kg (0.015*)
Vanadium - 170 mg/Kg (5.5*)

SA02SB04
Benzo(a)anthracene - 0.37 mg/Kg (0.15*)
Benzo(b)fluoranthene - 0.32 mg/Kg (0.15*)
Benzo(a)pyrene - 0.41 mg/Kg (0.1)
Dibenzo(a,h)anthracene - 0.058 mg/Kg (0.015*)
Indeno(1,2,3-cd)pyrene - 0.36 mg/Kg (0.15*)

SA06SB04
Aroclor 1242 - 0.27 mg/Kg (0.22*)
Aroclor 1254 - 0.7 mg/Kg (0.22*)
Benzo[a]anthracene - 5.3 mg/Kg (0.15*)
Benzo[a]pyrene - 3.5 mg/Kg (0.1)
Benzo[b]fluoranthene - 3.7 mg/Kg (0.15*)
Benzo(k)fluoranthene - 2.9 mg/Kg (1.5*)
Chromium - 13 mg/Kg (0.29***)
Dibenz[a,h]anthracene - 0.7 mg/Kg (0.015*)
Indeno(1,2,3-cd)pyrene - 1.9 mg/Kg (0.15*)
Lead - 600 mg/Kg (250)
Vanadium - 160 mg/Kg (5.5*)

Kiln
Shop Building
Cutter
Bailer

SA05SB04
Benzo(a)pyrene - 0.12 mg/Kg (0.1)
Chromium - 44 mg/Kg (19**)
Oil Range - 35000 mg/Kg (2000)
Vanadium - 160 mg/Kg (5.5*)

SA07SB04
Aroclor 1242 - 35 mg/Kg (1)
Benzo[a]anthracene - 17 mg/Kg (0.15*)
Benzo[a]pyrene - 12 mg/Kg (0.1)
Benzo[b]fluoranthene - 13 mg/Kg (0.15*)
Benzo(k)fluoranthene - 9.1 mg/Kg (1.5*)
Beta-BHC - 280 J µg/kg (270*)
Chrysene - 18 mg/Kg (15*)
Dibenz[a,h]anthracene - 1.8 mg/Kg (0.015*)
Dieldrin - 100 J µg/kg (63)
gamma-BHC - 110 J µg/kg (10)
Indeno[1,2,3-cd]pyrene - 5 mg/Kg (0.15*)

SH01SB04
Aroclor 1248 - 4.5 mg/Kg (1)
Benzo(b)fluoranthene - 0.19 mg/Kg (0.15*)
Chromium - 13 mg/Kg (0.29***)
Diesel Range - 27000 mg/Kg (2000)
Oil Range - 46000 mg/Kg (2000)
Vanadium - 90 mg/Kg (5.5*)

Legend
Sample Locations
Site Features
Retaining Wall

25 12.5 0 25 50 75 100 125 150 175 200
Feet

Figure 5: 4 Feet Sub-Surface Sample Data
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical Removal Assessment

ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

Note:
Photo pre-dates the construction of Myra Road and the consolidation of Stubblefield Salvage Yard to its current location.

Nomenclature:
Locations:
SA - Source Area SH - Shop

Matrix:
SB - Sub-Surface Soil

Location Matrix Depth (ft)
SA01SB08

Only results above applicable action levels are indicated.
Values in ( ) are WA State MTCA cleanup levels for residential properties.
** denotes EPA RSL Residential level.*
*** Screening level is MTCA Residential for Hexavalent Chromium.*
**** Screening level is EPA RSL Residential for Hexavalent Chromium.*

Mill Creek

Levee

SW01SB08
Benzo(a)anthracene - 0.24 mg/Kg (0.15*)
Benzo(a)pyrene - 0.26 mg/Kg (0.1)
Chromium - 9.7 mg/Kg (0.29***)
Dibenzo(a,h)anthracene - 0.037 mg/Kg (0.015*)
Vanadium - 130 mg/Kg (5.5*)

SA04SB08
Chromium - 6.7 mg/Kg (0.29***)
Vanadium - 140 mg/Kg (5.5*)

SA06SB08
Aroclor 1254 - 2.3 mg/Kg (1)
Aroclor 1260 - 0.71 mg/Kg (0.22*)
Benzo[a]anthracene - 33 mg/Kg (0.15*)
Benzo[a]pyrene - 22 mg/Kg (0.1)
Benzo[b]fluoranthene - 20 mg/Kg (0.15*)
Benzo[k]fluoranthene - 21 mg/Kg (1.5*)
Cadmium - 2.3 mg/Kg (2)
Chromium - 22 mg/Kg (19**)
Chrysene - 34 mg/Kg (15*)
Dibenz[a,h]anthracene - 2.9 mg/Kg (0.015*)
Indeno[1,2,3-cd]pyrene - 11 mg/Kg (0.15*)
Oil Range - 3400 mg/Kg (2000)
Vanadium - 140 mg/Kg (5.5*)

SA03SB08
Aroclor 1242 - 0.42 mg/Kg (0.22*)
Aroclor 1254 - 0.49 mg/Kg (0.22*)
Benzo(a)anthracene - 1.9 mg/Kg (0.15*)
Benzo(b)fluoranthene - 1.4 mg/Kg (0.15*)
Benzo(a)pyrene - 1.3 mg/Kg (0.1)
Dibenzo(a,h)anthracene - 0.15 mg/Kg (0.015*)
Indeno(1,2,3-cd)pyrene - 0.47 mg/Kg (0.15*)

SA01SB08
Benzo(a)pyrene - 0.05 mg/Kg (0.015*)
Chromium - 11 mg/Kg (0.29***)
Vanadium - 140 mg/Kg (5.5*)

SA02SB08
Benzo(a)anthracene - 0.37 mg/Kg (0.15*)
Benzo(b)fluoranthene - 0.22 mg/Kg (0.15*)
Benzo(a)pyrene - 0.35 mg/Kg (0.1)
Dibenzo(a,h)anthracene - 0.05 mg/Kg (0.015*)

Kiln
Cutter
Bailer
Shop Building

SA05SB08
Benzo(a)pyrene - 0.2 mg/Kg (0.1)
Chromium - 18 mg/Kg (0.29***)
Iron - 57000 mg/Kg (55000)
Oil Range - 29000 mg/Kg (2000)
Vanadium - 200 mg/Kg (5.5*)

SA07SB08
Aroclor 1242 - 18 mg/Kg (1)
Benzo[a]anthracene - 8 mg/Kg (0.15*)
Benzo[a]pyrene - 5.3 mg/Kg (0.1)
Benzo[b]fluoranthene - 6.5 mg/Kg (0.15*)
Benzo(k)fluoranthene - 3.6 mg/Kg (1.5*)
Dibenz[a,h]anthracene - 0.78 mg/Kg (0.015*)
Indeno[1,2,3-cd]pyrene - 2.2 mg/Kg (0.15*)

SH01SB08
Aroclor 1242 - 0.54 mg/Kg (0.22*)
Chromium - 4.8 mg/Kg (0.29***)
Diesel Range - 2600 mg/Kg (2000)
Oil Range - 4400 mg/Kg (2000)
Vanadium - 31 mg/Kg (5.5*)

TP01 (7 feet below ground surface)
Aroclor 1242 - 4 mg/Kg (1)
Aroclor 1254 - 2.6 mg/Kg (1)
Benzo[a]anthracene - 2.5 J (0.15*)
Benzo(b)fluoranthene - 2.6 J mg/kg (0.15*)
Benzo(a)pyrene - 1.2 J mg/kg (0.1)
Cadmium - 10 mg/kg (2)
Chromium - 46 mg/kg (19**)
Dibenzo(a,h)anthracene - 0.18 J mg/kg (0.015*)
Diesel Range - 12000 J mg/kg (2000)
Lead - 840 J mg/Kg (250)
Oil Range - 18000 J mg/kg (2000)
Vanadium - 130 mg/Kg (5.5*)

N

Legend
Sample Locations
Site Features
Retaining Wall

25 12.5 0 25 50 75 100 125 150 175 200
Feet

Figure 6: 8 Feet Sub-Surface Sample Data
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical Removal Assessment

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Seattle, Washington

R:\3 START 3\Stubblefield\October 2009\Figures\Stubblefield Salvage Yard Site Fig 7 Excavation with disruption.mxd 1/14/2010

Figure 7: Proposed Excavation with Building Disruption
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical/Removal Assessment

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Seattle, Washington

R:\3 START 3\Stubblefield\October 2009\Figures\Stubblefield Salvage Yard Site Fig 7 Excavation w_o disruption.mxd 1/14/2010

25 12.5 0 25 50 75 100 125 150 175 200 Feet

Figure 8: Proposed Excavation w/o Building Disruption
Stubblefield Salvage Yard Site
Walla Walla, Washington
Time Critical/Removal Assessment

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Seattle, Washington

Table 1
Metals in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090912 SA04SB04 Sept. 2009		9090913 SA04SB08 Sept. 2009		9090915 SA04SS Sept. 2009		9090916 SA01SB04 Sept. 2009		9090917 SA01SB08 Sept. 2009		9090919 SA01SS Sept. 2009		9090924 SA06SB04 Sept. 2009		9090925 SA06SB08 Sept. 2009		9090927 SA06SS Sept. 2009		9090932 SA05SB04 Sept. 2009		9090933 SA05SB08 Sept. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals	Aluminum	7429-90-5	mg/kg	77000	NA	**17000**		**7700**		**16000**		**16000**		**10000**		**15000**		**13000**		**20000**		**27000**		**32000**		**16000**	
Metals	Antimony	7440-36-0	mg/kg	31	32	**6.6**		5.6	U	**21**		6.1	U	5.6	U	**16**		6.4	U	7.2	U	**54**		**8.8**		6.8	U
Metals	Arsenic	7440-38-2	mg/kg	0.39	20	11	U	11	U	10	U	12	U	11	U	10	U	13	U	14	U	10	U	13	U	14	U
Metals	Barium	7440-39-3	mg/kg	15000	16000	**140**		**87**		**540**		**150**		**100**		**270**		**140**		**160**		**490**		**140**		**120**	
Metals	Beryllium	7440-41-7	mg/kg	160	160	0.55	U	0.56	U	0.51	U	0.61	U	0.56	U	0.52	U	0.64	U	0.72	U	0.52	U	0.66	U	0.68	U
Metals	Cadmium	7440-43-9	mg/kg	70	2	**0.59**		0.56	U	**14**		**1.9**		**0.62**		**5.6**		**0.98**		**2.3**		**18**		**1.2**		0.68	U
Metals	Calcium	7440-70-2	mg/kg	NA	NA	**7500**		**4700**		**9700**		**8200**		**7100**		**11000**		**8600**		**5900**		**13000**		**7600**		**5900**	
Metals	Chromium (1)	7440-47-3	mg/kg	0.29	19	**13**		**6.7**		**37**		**19**		**11**		**33**		**13**		**22**		**77**		**44**		**18**	
Metals	Cobalt	7440-48-4	mg/kg	23	NA	**16**		**14**		**16**		**16**		**14**		**18**		**12**		**16**		**21**		**13**		**19**	
Metals	Copper	7440-50-8	mg/kg	3100	2960	**36**		**17**		**490**		**320**		**110**		**620**		**47**		**120**		**1600**		**780**		**41**	
Metals	Iron	7439-89-6	mg/kg	55000	NA	**45000**		**42000**		**76000**		**43000**		**43000**		**63000**		**39000**		**43000**		**76000**		**40000**		**57000**	
Metals	Lead	7439-92-1	mg/kg	400	250	**52**	**J**	5.6	UJ	**830**	**J**	**140**	**J**	**63**	**J**	**660**	**J**	**600**		**180**		**1400**	**J**	**120**		**40**	
Metals	Magnesium	7439-95-4	mg/kg	NA	NA	**2900**		**1900**		**3200**		**2800**		**2500**		**4700**		**4000**		**3200**		**4300**		**4100**		**3800**	
Metals	Manganese	7439-96-5	mg/kg	1800	11200	**540**		**700**		**680**		**470**		**440**		**810**		**450**		**440**		**710**		**420**		**490**	
Metals	Mercury	7439-97-6	mg/kg	5.6	2	0.27	U	0.28	U	**0.58**		0.3	U	0.28	U	0.26	U	0.32	U	0.36	U	**2.1**		0.33	U	0.34	U
Metals	Nickel	7440-02-0	mg/kg	1500	1600	**11**	**J**	**6.2**	**J**	**64**	**J**	**17**	**J**	**25**	**J**	**54**	**J**	**16**		**20**		**120**	**J**	**22**		**11**	
Metals	Potassium	7440-09-7	mg/kg	NA	NA	**1800**		**750**		**2500**		**2000**		**1200**		**2100**		**2800**		**1900**		**2300**		**2100**		**1600**	
Metals	Selenium	7782-49-2	mg/kg	390	400	11	U	11	U	10	U	12	U	11	U	10	U	13	U	14	U	10	U	13	U	14	U
Metals	Silver	7440-22-4	mg/kg	390	400	0.55	U	0.56	U	0.51	U	0.61	U	0.56	U	0.52	U	0.64	U	0.72	U	**1.1**		0.66	U	0.68	U
Metals	Sodium	7440-23-5	mg/kg	NA	NA	**730**	**J**	**490**	**J**	**590**	**J**	**730**	**J**	**720**	**J**	**700**	**J**	**720**		**680**		**890**	**J**	**640**		**620**	
Metals	Thallium	7440-28-0	mg/kg	NA	5.6	5.5	U	5.6	U	5.1	U	6.1	U	5.6	U	5.2	U	6.4	U	7.2	U	5.2	U	6.6	U	6.8	U
Metals	Vanadium	7440-62-2	mg/kg	5.5	560	**140**		**140**		**120**		**140**		**140**		**140**		**160**		**140**		**110**		**160**		**200**	
Metals	Zinc	7440-66-6	mg/kg	23000	24000	**950**		**69**		**3100**		**380**	**J**	**180**	**J**	**1300**		**350**		**930**		**4800**		**400**		**120**	

Notes: (1) - Cleanup levels for chromium are for hexavalent chromium, while sample results are total chromium.
A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.

Key:
CAS =Chemical Abstracts Service
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
RSL = Regional Screening Level
U = not detected at indicated reporting limit
J = estimated value
UJ = not detected, reporting limit is estimated

Table 1
Metals in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090936 SH01SB04 Sept. 2009		9090937 SH01SB08 Sept. 2009		9090953 SW01SB08 Sept. 2009		9090954 SW01SB04 Sept. 2009		9090956 SW02SS Sept. 2009		9090957 SW02SB02 Sept. 2009		9101047 TP01SB07 Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals	Aluminum	7429-90-5	mg/kg	77000	NA	**12000**		**11000**		**10000**		**9000**		**13000**	**J**	**19000**	**J**	**12000**	
Metals	Antimony	7440-36-0	mg/kg	31	32	**8.8**		7.8	U	5.8	U	**11**		7.8	U	8.1	U	7.5	
Metals	Arsenic	7440-38-2	mg/kg	0.39	20	14	U	16	U	12	U	11	U	16	U	16	U	13	U
Metals	Barium	7440-39-3	mg/kg	15000	16000	**120**		**92**		**91**		**120**		**100**		**130**		**300**	**J**
Metals	Beryllium	7440-41-7	mg/kg	160	160	0.71	U	0.78	U	0.58	U	0.56	U	0.78	U	0.81	U	0.66	U
Metals	Cadmium	7440-43-9	mg/kg	70	2	0.71	U	0.78	U	0.58	U	**0.7**		0.78	U	0.81	U	**10**	
Metals	Calcium	7440-70-2	mg/kg	NA	NA	**5000**		**2700**		**4000**		**4600**		**4700**		**5400**		**7800**	
Metals	Chromium (1)	7440-47-3	mg/kg	0.29	19	**13**		**4.8**		**9.7**		**9.9**		**12**		**15**		**46**	
Metals	Cobalt	7440-48-4	mg/kg	23	NA	**7.2**		**3.4**		**12**		**13**		**8**		**14**		**22**	
Metals	Copper	7440-50-8	mg/kg	3100	2960	**260**		**20**		**18**		**28**		**33**		**28**		**300**	
Metals	Iron	7439-89-6	mg/kg	55000	NA	**23000**		**9200**		**35000**		**42000**		**29000**	**J**	**41000**	**J**	**48000**	
Metals	Lead	7439-92-1	mg/kg	400	250	**21**		7.8	U	**32**	**J**	**51**	**J**	**100**		**18**		**840**	**J**
Metals	Magnesium	7439-95-4	mg/kg	NA	NA	**2900**		**870**		**2300**		**2200**		**2800**		**3500**		**3300**	
Metals	Manganese	7439-96-5	mg/kg	1800	11200	**340**		**78**		**260**		**300**		**180**		**230**		**440**	
Metals	Mercury	7439-97-6	mg/kg	5.6	2	0.36	U	0.39	U	0.29	U	0.28	U	0.39	U	0.4	U	0.33	U
Metals	Nickel	7440-02-0	mg/kg	1500	1600	**7.8**		**3.9**		**7.5**	**J**	**8.1**		**9.6**		**11**		**42**	
Metals	Potassium	7440-09-7	mg/kg	NA	NA	**2000**		**640**		**1100**		**1100**		**1600**	**J**	**2300**	**J**	**2600**	
Metals	Selenium	7782-49-2	mg/kg	390	400	14	U	16	U	12	U	11	U	16	U	16	U	13	U
Metals	Silver	7440-22-4	mg/kg	390	400	0.71	U	0.78	U	0.58	U	**1.2**		0.78	U	0.81	U	0.66	U
Metals	Sodium	7440-23-5	mg/kg	NA	NA	**690**		**1100**		**570**	**J**	**460**		**530**		**480**		**590**	
Metals	Thallium	7440-28-0	mg/kg	NA	5.6	7.1	U	7.8	U	5.8	U	5.6	U	7.8	U	8.1	U	6.6	U
Metals	Vanadium	7440-62-2	mg/kg	5.5	560	**90**		**31**		**130**		**140**		**150**		**170**		**130**	
Metals	Zinc	7440-66-6	mg/kg	23000	24000	**140**		**16**		**96**		**270**		**170**		**95**		**1500**	

Notes: (1) - Cleanup levels for chromium are for hexavalent chromium, v
A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.

Key:
CAS =Chemical Abstracts Service
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
RSL = Regional Screening Level
U = not detected at indicated reporting limit
J = estimated value
UJ = not detected, reporting limit is estimated

Table 2
PCBs in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties (1)	9090908 SA07SB04 Sept. 2009		9090909 SA07SB08 Sept. 2009		9090912 SA04SB04 Sept. 2009		9090913 SA04SB08 Sept. 2009		9090915 SA04SS Sept. 2009		9090916 SA01SB04 Sept. 2009		9090917 SA01SB08 Sept. 2009		9090919 SA01SS Sept. 2009		9090920 SA03SB04 Sept. 2009		9090921 SA03SB08 Sept. 2009		9090924 SA06SB04 Sept. 2009		9090925 SA06SB08 Sept. 2009		9090927 SA06SS Sept. 2009		9090928 SA02SB04 Sept. 2009		9090929 SA02SB08 Sept. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
PCB	Aroclor-1016	12674-11-2	mg/kg	3.9	1	6.7	U	1.4	U	0.055	U	0.056	U	0.51	U	0.061	U	0.056	U	0.052	U	0.063	U	0.059	U	0.064	U	0.36	U	5.2	U	0.061	U	0.065	U
PCB	Aroclor-1221	11104-28-2	mg/kg	0.14	1	6.7	U	1.4	U	0.055	U	0.056	U	0.51	U	0.061	U	0.056	U	0.052	U	0.063	U	0.059	U	0.064	U	0.36	U	5.2	U	0.061	U	0.065	U
PCB	Aroclor-1232	11141-16-5	mg/kg	0.14	1	6.7	U	1.4	U	0.055	U	0.056	U	0.51	U	0.061	U	0.056	U	0.052	U	0.063	U	0.059	U	0.064	U	0.36	U	5.2	U	0.061	U	0.065	U
PCB	Aroclor-1242	53469-21-9	mg/kg	0.22	1	**35**		**18**		0.055	U	0.056	U	**0.71**		0.061	U	0.056	U	**0.3**		**0.28**		**0.42**		**0.27**		0.36	U	**10**		**0.062**		0.065	U
PCB	Aroclor-1248	12672-29-6	mg/kg	0.22	1	6.7	U	1.4	U	0.055	U	0.056	U	0.51	U	0.061	U	0.056	U	0.052	U	0.063	U	0.059	U	0.064	U	0.36	U	5.2	U	0.061	U	0.065	U
PCB	Aroclor-1254	11097-69-1	mg/kg	0.22	1	6.7	U	1.4	U	0.055	U	0.056	U	**4.1**		0.061	U	0.056	U	**0.84**		**0.78**		**0.49**		**0.7**		**2.3**		**41**		**0.18**		0.065	U
PCB	Aroclor-1260	11096-82-5	mg/kg	0.22	1	6.7	U	1.4	U	0.055	U	0.056	U	0.51	U	**0.11**		0.056	U	**0.45**		**0.74**		**0.18**		**0.2**	**J**	**0.71**		5.2	U	**0.2**		0.065	U

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.
(1) MTCA cleanup level for PCBs is for the total of all PCBs.

Key:
CAS =Chemical Abstracts Service
J = estimated value
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
PCB =Polychlorinated Biphenyls
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Table 2
PCBs in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties (1)	9090932 SA05SB04 Sept. 2009		9090933 SA05SB08 Sept. 2009		9090936 SH01SB04 Sept. 2009		9090937 SH01SB08 Sept. 2009		9090953 SW01SB08 Sept. 2009		9090954 SW01SB04 Sept. 2009		9090956 SW02SS Sept. 2009		9090957 SW02SB02 Sept. 2009		9101047 TP01SB07 Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
PCB	Aroclor-1016	12674-11-2	mg/kg	3.9	1	0.066	U	0.068	U	0.71	U	0.078	U	0.058	U	0.56	U	0.078	U	0.081	U	0.66	U
PCB	Aroclor-1221	11104-28-2	mg/kg	0.14	1	0.066	U	0.068	U	0.71	U	0.078	U	0.058	U	0.56	U	0.078	U	0.081	U	0.66	U
PCB	Aroclor-1232	11141-16-5	mg/kg	0.14	1	0.066	U	0.068	U	0.71	U	0.078	U	0.058	U	0.56	U	0.078	U	0.081	U	0.66	U
PCB	Aroclor-1242	53469-21-9	mg/kg	0.22	1	**0.075**	J	**0.16**		**4.5**		**0.54**		0.058	U	0.56	U	0.078	U	0.081	U	**4**	
PCB	Aroclor-1248	12672-29-6	mg/kg	0.22	1	0.066	U	0.068	U	0.71	U	0.078	U	0.058	U	0.56	U	0.078	U	0.081	U	0.66	U
PCB	Aroclor-1254	11097-69-1	mg/kg	0.22	1	**0.16**		0.068	U	0.71	U	0.078	U	0.058	U	0.56	U	0.078	U	0.081	U	**2.6**	
PCB	Aroclor-1260	11096-82-5	mg/kg	0.22	1	**0.085**		**0.15**		0.71	U	0.078	U	0.058	U	0.56	U	**0.12**	J	0.081	U	0.66	U

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.
(1) MTCA cleanup level for PCBs is for the total of all PCBs.

Key:
CAS =Chemical Abstracts Service
J = estimated value
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
PCB =Polychlorinated Biphenyls
RSL = Regional Screening Level
U = not detected at indicated reporting limit
UJ = not detected, reporting limit is estimated

Table 3
Pesticides in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090908 SA07SB04 Sept. 2009		9090909 SA07SB08 Sept. 2009		9090912 SA04SB04 Sept. 2009		9090913 SA04SB08 Sept. 2009		9090915 SA04SS Sept. 2009		9090916 SA01SB04 Sept. 2009		9090917 SA01SB08 Sept. 2009		9090919 SA01SS Sept. 2009		9090920 SA03SB04 Sept. 2009		9090921 SA03SB08 Sept. 2009		9090924 SA06SB04 Sept. 2009		9090928 SA02SB04 Sept. 2009		9090929 SA02SB08 Sept. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Pesticide	alpha-BHC	319-84-6	µg/kg	77	159	6.7	UJ	6.8	UJ	5.5	UJ	5.6	U	5.1	U	6.1	UJ	5.6	U	5.2	U	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	gamma-BHC	58-89-9	µg/kg	520	10	**110**	J	6.8	UJ	5.5	UJ	5.6	U	5.1	U	6.1	U	5.6	U	5.2	U	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	beta-BHC	319-85-7	µg/kg	270	556	**280**	J	6.8	UJ	5.5	UJ	5.6	U	**9.6**		6.1	U	5.6	U	5.2	U	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	delta-BHC	319-86-8	µg/kg	NA	NA	6.7	UJ	6.8	UJ	5.5	UJ	5.6	UJ	5.1	UJ	6.1	UJ	5.6	U	5.2	UJ	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	Heptachlor	76-44-8	µg/kg	110	222	6.7	UJ	6.8	UJ	5.5	UJ	5.6	U	5.1	U	6.1	U	5.6	U	5.2	U	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	Aldrin	309-00-2	µg/kg	29	59	6.7	UJ	6.8	UJ	5.5	UJ	5.6	UJ	5.1	UJ	6.1	U	5.6	U	5.2	UJ	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	Heptachlor epoxide	1024-57-3	µg/kg	53	110	6.7	UJ	6.8	UJ	5.5	UJ	5.6	UJ	5.1	UJ	6.1	UJ	5.6	U	5.2	UJ	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	gamma-Chlordane	5103-74-2	µg/kg	NA	NA	13	UJ	14	UJ	11	UJ	11	UJ	**26**	**J**	12	UJ	11	U	10	UJ	13	U	12	U	13	UJ	12	UJ	13	UJ
Pesticide	alpha-Chlordane	5103-71-9	µg/kg	NA	NA	**44**	J	14	UJ	11	UJ	11	UJ	10	UJ	12	UJ	11	U	10	UJ	13	UJ	12	UJ	13	UJ	12	UJ	13	UJ
Pesticide	4,4'-DDE	72-55-9	µg/kg	1400	2941	**160**	**J**	14	UJ	11	UJ	11	UJ	**52**	**J**	**31**	**J**	**29**		**77**	**J**	**19**		12	U	13	UJ	12	UJ	13	UJ
Pesticide	Endosulfan I	959-98-8	µg/kg	NA	NA	6.7	UJ	6.8	UJ	5.5	UJ	5.6	UJ	5.1	UJ	6.1	UJ	5.6	UJ	5.2	UJ	6.3	U	5.9	U	6.4	UJ	6.1	UJ	6.5	UJ
Pesticide	Dieldrin	60-57-1	µg/kg	30	63	**100**	**J**	14	UJ	11	UJ	11	UJ	**51**		12	UJ	11	U	**22**	**J**	13	UJ	12	UJ	13	UJ	12	UJ	13	UJ
Pesticide	Endrin	72-20-8	µg/kg	18000	24000	13	UJ	14	UJ	11	UJ	11	UJ	10	UJ	12	UJ	11	U	10	UJ	13	U	12	U	13	UJ	12	UJ	13	UJ
Pesticide	4,4'-DDD	72-54-8	µg/kg	2000	4167	**84**	**J**	14	UJ	11	UJ	11	UJ	10	UJ	12	UJ	11	U	10	UJ	13	U	12	U	13	UJ	12	UJ	13	UJ
Pesticide	Endosulfan II	33213-65-9	µg/kg	NA	NA	13	UJ	14	UJ	11	UJ	11	UJ	10	UJ	12	UJ	11	U	10	UJ	13	UJ	12	UJ	13	UJ	12	UJ	13	UJ
Pesticide	4,4'-DDT	50-29-3	µg/kg	1700	3000	13	U	14	UJ	11	UJ	11	UJ	**72**	**J**	12	UJ	11	U	**89**	**J**	**60**	**J**	12	UJ	13	UJ	**24**	**J**	13	UJ
Pesticide	Endrin aldehyde	7421-93-4	µg/kg	NA	NA	**140**	J	14	UJ	11	UJ	11	UJ	**68**	J	12	UJ	11	U	**77**	J	**48**	**J**	12	UJ	13	UJ	12	UJ	13	UJ
Pesticide	Methoxychlor	72-43-5	µg/kg	310000	400000	**86**	J	14	UJ	11	UJ	11	UJ	**26**	J	12	UJ	11	U	10	UJ	13	U	12	U	13	UJ	12	UJ	13	UJ
Pesticide	Endosulfan sulfate	1031-07-8	µg/kg	NA	NA	13	UJ	14	UJ	11	UJ	11	UJ	10	UJ	12	UJ	11	U	10	UJ	13	UJ	12	U	13	UJ	12	UJ	13	UJ
Pesticide	Endrin ketone	53494-70-5	µg/kg	NA	NA	**30**	UJ	14	UJ	11	UJ	11	UJ	10	UJ	12	UJ	11	U	10	UJ	13	U	12	U	13	UJ	12	UJ	13	UJ
Pesticide	Toxaphene	8001-35-2	µg/kg	440	909	67	UJ	68	UJ	55	UJ	56	U	51	UJ	61	U	56	U	52	U	63	U	59	U	64	UJ	61	UJ	65	UJ

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.

Key:
CAS =Chemical Abstracts Service
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Table 3
Pesticides in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090932 SA05SB04 Sept. 2009		9090933 SA05SB08 Sept. 2009		9090936 SH01SB04 Sept. 2009		9090937 SH01SB08 Sept. 2009		9090953 SW01SB08 Sept. 2009		9090954 SW01SB04 Sept. 2009		9090956 SW02SS Sept. 2009		9090957 SW02SB02 Sept. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Pesticide	alpha-BHC	319-84-6	µg/kg	77	159	6.6	UJ	6.8	UJ	7.1	UJ	7.8	UJ	5.8	U	5.6	U	7.8	UJ	8.1	UJ
Pesticide	gamma-BHC	58-89-9	µg/kg	520	10	6.6	UJ	6.8	UJ	7.1	UJ	7.8	UJ	5.8	U	5.6	U	7.8	UJ	8.1	UJ
Pesticide	beta-BHC	319-85-7	µg/kg	270	556	6.6	UJ	6.8	UJ	7.1	UJ	7.8	UJ	5.8	U	5.6	U	7.8	UJ	8.1	UJ
Pesticide	delta-BHC	319-86-8	µg/kg	NA	NA	6.6	UJ	6.8	UJ	**54**	**J**	7.8	UJ	5.8	U	5.6	UJ	7.8	UJ	8.1	UJ
Pesticide	Heptachlor	76-44-8	µg/kg	110	222	6.6	UJ	6.8	UJ	7.1	UJ	7.8	UJ	5.8	U	5.6	U	7.8	UJ	8.1	UJ
Pesticide	Aldrin	309-00-2	µg/kg	29	59	6.6	UJ	6.8	UJ	7.1	UJ	7.8	UJ	5.8	U	5.6	UJ	7.8	UJ	8.1	UJ
Pesticide	Heptachlor epoxide	1024-57-3	µg/kg	53	110	6.6	UJ	6.8	UJ	**24**	**J**	7.8	UJ	5.8	U	5.6	UJ	7.8	UJ	8.1	UJ
Pesticide	gamma-Chlordane	5103-74-2	µg/kg	NA	NA	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	alpha-Chlordane	5103-71-9	µg/kg	NA	NA	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	4,4'-DDE	72-55-9	µg/kg	1400	2941	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	**45**	**J**	16	UJ
Pesticide	Endosulfan I	959-98-8	µg/kg	NA	NA	6.6	UJ	6.8	UJ	7.1	UJ	7.8	UJ	5.8	U	5.6	UJ	7.8	UJ	8.1	UJ
Pesticide	Dieldrin	60-57-1	µg/kg	30	63	13	UJ	14	UJ	14	UJ	16	UJ	12	UJ	11	UJ	16	UJ	16	UJ
Pesticide	Endrin	72-20-8	µg/kg	18000	24000	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	4,4'-DDD	72-54-8	µg/kg	2000	4167	13	UJ	14	UJ	**26**	**J**	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	Endosulfan II	33213-65-9	µg/kg	NA	NA	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	4,4'-DDT	50-29-3	µg/kg	1700	3000	13	UJ	14	UJ	14	UJ	16	UJ	12	UJ	11	UJ	16	UJ	16	UJ
Pesticide	Endrin aldehyde	7421-93-4	µg/kg	NA	NA	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	Methoxychlor	72-43-5	µg/kg	310000	400000	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	Endosulfan sulfate	1031-07-8	µg/kg	NA	NA	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	U	16	UJ	16	UJ
Pesticide	Endrin ketone	53494-70-5	µg/kg	NA	NA	13	UJ	14	UJ	14	UJ	16	UJ	12	U	11	UJ	16	UJ	16	UJ
Pesticide	Toxaphene	8001-35-2	µg/kg	440	909	66	UJ	68	UJ	71	UJ	78	UJ	58	U	56	U	78	UJ	81	UJ

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.

Key:
CAS =Chemical Abstracts Service
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UJ = not detected, reporting limit is estimated

Table 4
TPH in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090912 SA04SB04 Sept. 2009		9090913 SA04SB08 Sept. 2009		9090915 SA04SS Sept. 2009		9090916 SA01SB04 Sept. 2009		9090917 SA01SB08 Sept. 2009		9090924 SA06SB04 Sept. 2009		9090925 SA06SB08 Sept. 2009		9090927 SA06SS Sept. 2009		9090932 SA05SB04 Sept. 2009		9090933 SA05SB08 Sept. 2009		9090936 SH01SB04 Sept. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
NWTPH-Dx	Diesel Range Organics	NA	mg/Kg	NA	2000	28	U	28	U	93	U	31	U	28	U	130	U	570	U	11000	U	2200	U	2200	U	**27000**	
NWTPH-Dx	Oil Range Organics	NA	mg/Kg	NA	2000	55	U	56	U	**700**		**91**		**62**		**1400**		**3400**		**100000**		**35000**		**29000**		**46000**	

Notes: A **BOLD** result indicates a detected compound.

Table 4
TPH in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090937 SH01SB08 Sept. 2009		9090953 SW01SB08 Sept. 2009		9090954 SW01SB04 Sept. 2009		9090956 SW02SS Sept. 2009		9090957 SW02SB02 Sept. 2009		9101047 TP01SB07 Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
NWTPH-Dx	Diesel Range Organics	NA	mg/Kg	NA	2000	**2600**		29	U	**33**		39	U	40	U	**12000**	J
NWTPH-Dx	Oil Range Organics	NA	mg/Kg	NA	2000	**4400**		58	U	**140**		**210**		**110**		**18000**	J

Notes: A **BOLD** result indicates a detected compound.

Table 5
SVOCs in Soils Results, September and October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Soil - Residential	Washington State MTCA Soil Cleanup Levels for Unrestricted Properties	9090908 SA07SB04 Sept. 2009 Result	Qualifier	9090909 SA07SB08 Sept. 2009 Result	Qualifier	9090912 SA04SB04 Sept. 2009 Result	Qualifier	9090913 SA04SB08 Sept. 2009 Result	Qualifier	9090915 SA04SS Sept. 2009 Result	Qualifier	9090916 SA01SB04 Sept. 2009 Result	Qualifier	9090917 SA01SB08 Sept. 2009 Result	Qualifier	9090920 SA03SB04 Sept. 2009 Result	Qualifier
SVOCs	N-Nitrosodimethylamine	62-75-9	mg/kg	0.0023	0.020	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Pyridine	110-86-1	mg/kg	78	80	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Phenol	108-95-2	mg/kg	18000	48000	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Aniline	62-53-3	mg/kg	85	175	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Bis(2-Chloroethyl)ether	111-44-4	mg/kg	0.21	0.91	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2-Chlorophenol	95-57-8	mg/kg	390	400	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,3-Dichlorobenzene	541-73-1	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,4-Dichlorobenzene	106-46-7	mg/kg	2.4	41.7	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	0.042	U
SVOCs	Benzyl alcohol	100-51-6	mg/kg	6100	24000	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,2-Dichlorobenzene	95-50-1	mg/kg	1900	7200	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2-Methylphenol	95-48-7	mg/kg	3100	4000	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	4.6	14.3	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	3 & 4-Methylphenol	108-39-4/106	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	N-Nitroso-di-n-propylamine	621-64-7	mg/kg	0.069	0.14	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Hexachloroethane	67-72-1	mg/kg	35	71.4	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Nitrobenzene	98-95-3	mg/kg	4.8	40	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Isophorone	78-59-1	mg/kg	510	1053	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2-Nitrophenol	88-75-5	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,4-Dimethylphenol	105-67-9	mg/kg	1200	1600	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	mg/kg	180	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,4-Dichlorophenol	120-83-2	mg/kg	180	240	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,2,4-Trichlorobenzene	120-82-1	mg/kg	22	800	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Naphthalene	91-20-3	mg/kg	3.6	5	**0.78**		**0.086**		0.0073	U	0.0074	U	**0.015**		**0.0081**		0.0075	U	2.1	U
SVOCs	4-Chloroaniline	106-47-8	mg/kg	2.4	320	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Hexachlorobutadiene	87-68-3	mg/kg	6.2	12.8	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	4-Chloro-3-methylphenol	59-50-7	mg/kg	6100	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2-Methylnaphthalene	91-57-6	mg/kg	310	5	**0.17**		**0.053**		0.0073	U	0.0074	U	**0.013**		**0.011**		0.0075	U	0.042	U
SVOCs	1-Methylnaphthalene	90-12-0	mg/kg	22	5	**0.12**		**0.04**		0.0073	U	0.0074	U	**0.0086**		0.0081	U	0.0075	U	0.042	U
SVOCs	Hexachlorocyclopentadiene	77-47-4	mg/kg	370	480	0.44	U	0.22	U	0.037	U	0.037	U	0.17	UJ	0.041	U	0.037	U	2.1	U
SVOCs	2,4,6-Trichlorophenol	88-06-2	mg/kg	44	90.9	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,3-Dichloroaniline	608-27-5	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,4,5-Trichlorophenol	95-95-4	mg/kg	6100	8000	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2-Chloronaphthalene	91-58-7	mg/kg	6300	6400	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2-Nitroaniline	88-74-4	mg/kg	610	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,4-Dinitrobenzene	100-25-4	mg/kg	6.1	32	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Dimethylphthalate	131-11-3	mg/kg	NA	80000	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	21	U
SVOCs	1,3-Dinitrobenzene	99-65-0	mg/kg	6.1	8	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,6-Dinitrotoluene	606-20-2	mg/kg	61	80	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,2-Dinitrobenzene	528-29-0	mg/kg	6.1	32	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Acenaphthylene	208-96-8	mg/kg	NA	NA	**0.05**		**0.018**		**0.013**		0.0074	U	**0.04**		**0.01**		0.0075	U	2.1	U
SVOCs	3-Nitroaniline	99-09-2	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,4-Dinitrophenol	51-28-5	mg/kg	120	160	2.2	U	1.1	U	0.18	U	0.19	U	0.85	U	0.2	U	0.19	U	10	UJ
SVOCs	Acenaphthene	83-32-9	mg/kg	3400	4800	**2**		**1**		0.0073	U	0.0074	U	**0.019**		0.0081	U	0.0075	U	**0.049**	
SVOCs	4-Nitrophenol	100-02-7	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,4-Dinitrotoluene	121-14-2	mg/kg	1.6	160	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Dibenzofuran	132-64-9	mg/kg	78	160	**1.1**		**0.38**		0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,3,5,6-Tetrachlorophenol	935-95-5	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	mg/kg	1800	2400	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Diethylphthalate	84-66-2	mg/kg	49000	64000	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	4-Chlorophenyl-phenylether	7005-72-3	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	4-Nitroaniline	100-01-6	mg/kg	24	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Fluorene	86-73-7	mg/kg	2300	3200	**2**		**0.87**		0.0073	U	0.0074	U	0.019		0.0081	U	0.0075	U	**0.045**	
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	6.1	NA	2.2	U	1.1	U	0.18	U	0.19	U	0.85	UJ	0.2	U	0.19	U	2.1	UJ
SVOCs	N-Nitrosodiphenylamine	86-30-6	mg/kg	99	204	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	1,2-Diphenylhydrazine	122-66-7	mg/kg	0.61	1.25	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	4-Bromophenyl-phenyl ether	101-55-3	mg/kg	NA	NA	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Hexachlorobenzene	118-74-1	mg/kg	0.3	0.625	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	Pentachlorophenol	87-86-5	mg/kg	3	8.33	2.2	U	1.1	U	0.18	U	0.19	U	0.85	U	0.2	U	0.19	U	2.1	U
SVOCs	Phenanthrene	85-01-8	mg/kg	NA	NA	**19**		**11**		**0.04**		0.0074	U	**0.52**		**0.073**		**0.016**		**0.66**	
SVOCs	Anthracene	120-12-7	mg/kg	17000	24000	**5.7**		**3.6**		**0.018**		0.0074	U	**0.099**		**0.02**		0.0075	U	**0.22**	
SVOCs	Carbazole	86-74-8	mg/kg	NA	50	**3.1**		**2.2**		0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	0.042	U
SVOCs	Di-n-butylphthalate	84-74-2	mg/kg	6100	8000	0.55		0.25		0.037	U	0.037	U	0.49		0.041	U	0.037	U	2.1	U
SVOCs	Fluoranthene	206-44-0	mg/kg	2300	3200	46		23		0.21		0.0074	U	1.4	U	**0.21**		**0.077**		**1.2**	
SVOCs	Benzidine	92-87-5	mg/kg	0.0005	0.00435	4.4	U	2.2	U	0.37	U	0.37	U	1.7	UJ	0.41	U	0.37	U	2.1	UJ
SVOCs	Pyrene	129-00-0	mg/kg	1700	2400	**39**		**18**		**0.17**		0.0074	U	**1.1**		**0.22**		**0.084**		**1**	
SVOCs	Butylbenzylphthalate	85-68-7	mg/kg	260	16000	**3.3**		**0.48**		0.037	U	0.037	U	**0.87**		**0.079**		0.037	U	2.1	U
SVOCs	bis-2-Ethylhexyladipate	103-23-1	mg/kg	400	833	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.037	U	2.1	U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	mg/kg	1.1	2.22	4.4	U	2.2	U	0.37	U	0.37	U	1.7	U	0.41	U	0.37	U	21	U
SVOCs	Benzo(a)anthracene	56-55-3	mg/kg	0.15	NA	**17**		**8**		**0.12**		0.0074	U	**0.64**		**0.13**		**0.048**		**0.55**	
SVOCs	Chrysene	218-01-9	mg/kg	15	NA	**18**		**8.3**		**0.13**		0.0074	U	**0.9**		**0.13**		**0.054**		**0.62**	
SVOCs	Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	35	71.4	**6.1**		**3.5**		0.037	U	0.037	U	**0.56**		**0.07**		**0.076**		2.1	U
SVOCs	Di-n-octylphthalate	117-84-0	mg/kg	NA	1600	0.44	U	0.22	U	0.037	U	0.037	U	0.17	U	0.041	U	0.37	U	2.1	U
SVOCs	Benzo(b)fluoranthene	205-99-2	mg/kg	0.15	NA	**13**		**6.5**		**0.089**		0.0074	U	**0.85**		**0.11**		**0.044**		**0.64**	
SVOCs	Benzo(k)fluoranthene	207-08-9	mg/kg	1.5	NA	**9.1**		**3.6**		**0.12**		0.0074	U	**0.77**		**0.13**		**0.045**		**0.19**	
SVOCs	Benzo(a)pyrene	50-32-8	mg/kg	0.015	0.1	**12**		**5.3**		**0.13**		0.0074	U	**0.74**		**0.14**		**0.05**		**0.43**	
SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	0.15	NA	**5**		**2.2**		**0.058**		0.0074	U	**0.54**		**0.086**		**0.02**		**0.22**	
SVOCs	Dibenzo(a,h)anthracene	53-70-3	mg/kg	0.015	NA	**1.8**		**0.78**		**0.018**		0.0074	U	**0.19**		**0.021**		0.0075	U	**0.091**	
SVOCs	Benzo(g,h,i)perylene	191-24-2	mg/kg	NA	NA	**5.1**		**2.1**		**0.061**		0.0074	U	**0.62**		**0.099**		**0.024**		**0.26**	

Compound Name	9090921 SA03SB08 Sept. 2009 Result	Qualifier	9090924 SA06SB04 Sept. 2009 Result	Qualifier	9090925 SA06SB08 Sept. 2009 Result	Qualifier	9090927 SA06SS Sept. 2009 Result	Qualifier	9090928 SA02SB04 Sept. 2009 Result	Qualifier	9090929 SA02SB08 Sept. 2009 Result	Qualifier	9090932 SA05SB04 Sept. 2009 Result	Qualifier	9090933 SA05SB08 Sept. 2009 Result	Qualifier	9090936 SH01SB04 Sept. 2009 Result	Qualifier	9090937 SH01SB08 Sept. 2009 Result	Qualifier	9090953 SW01SB08 Sept. 2009 Result	Qualifier	9090954 SW01SB04 Sept. 2009 Result	Qualifier	9090956 SW02SS Sept. 2009 Result	Qualifier	9090957 SW02SB02 Sept. 2009 Result	Qualifier	9101047 TP01SB07 Oct-2009 Result	Qualifier
N-Nitrosodimethylamine	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Pyridine	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Phenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Aniline	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Bis(2-Chloroethyl)ether	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2-Chlorophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,3-Dichlorobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,4-Dichlorobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Benzyl alcohol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,2-Dichlorobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2-Methylphenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Bis(2-chloroisopropyl)ether	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
3 & 4-Methylphenol	**0.071**		0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
N-Nitroso-di-n-propylamine	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Hexachloroethane	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Nitrobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Isophorone	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2-Nitrophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,4-Dimethylphenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Bis(2-chloroethoxy)methane	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,4-Dichlorophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,2,4-Trichlorobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Naphthalene	**0.023**		**0.016**		**1.4**		**2.2**		0.0081	U	0.0087	U	**0.018**		**0.03**		**0.43**		**0.04**		0.0078	U	**0.036**		0.01	U	0.011	U	**0.053**	J
4-Chloroaniline	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Hexachlorobutadiene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
4-Chloro-3-methylphenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2-Methylnaphthalene	**0.014**		**0.016**		**0.49**		**0.89**		0.0081	U	0.0087	U	**0.081**		**0.067**		**2.2**		**0.38**		0.0078	U	**0.0095**		0.01	U	0.011	U	**0.097**	J
1-Methylnaphthalene	**0.012**		**0.014**		**0.37**		**0.74**		0.0081	U	0.0087	U	**0.067**		**0.05**		**2**		**0.31**		0.0078	U	0.0074	U	0.01	U	0.011	U	**0.066**	J
Hexachlorocyclopentadiene	0.039	U	0.43	U	4.8	U	3.4	UJ	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,4,6-Trichlorophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,3-Dichloroaniline	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,4,5-Trichlorophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2-Chloronaphthalene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2-Nitroaniline	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,4-Dinitrobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Dimethylphthalate	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,3-Dinitrobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,6-Dinitrotoluene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,2-Dinitrobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Acenaphthylene	0.0078	U	**0.16**		0.19	U	**0.37**		**0.019**		**0.03**		0.0088	U	0.018	U	0.19	U	0.01	U	**0.011**		**0.11**		0.01	U	**0.013**		**0.061**	J
3-Nitroaniline	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,4-Dinitrophenol	0.2	UJ	2.1	UJ	4.8	U	17	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.19	U	0.93	U	0.26	U	0.27	U	11	UJ
Acenaphthene	**0.26**		**0.56**		**7.3**		**18**		0.0081	U	0.0087	U	**0.029**		**0.02**		**0.37**		**0.03**		0.0078	U	**0.0093**		0.01	U	0.011	U	**0.18**	J
4-Nitrophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,4-Dinitrotoluene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Dibenzofuran	**0.11**		0.43	U	4.8	U	**7.8**		0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,3,5,6-Tetrachlorophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
2,3,4,6-Tetrachlorophenol	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	UJ	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Diethylphthalate	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
4-Chlorophenyl-phenylether	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
4-Nitroaniline	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Fluorene	**0.24**		**0.55**		**7.1**		**16**		0.0081	U	0.22	U	0.043	U	0.45	U	0.42	U	0.048	U	0.0078	U	**0.048**		0.01	U	0.011	U	**0.13**	J
4,6-Dinitro-2-methylphenol	0.2	UJ	2.1	UJ	24	UJ	17	UJ	1	UJ	1.1	UJ	1.1	UJ	2.3	UJ	24	UJ	1.3	UJ	0.19	U	0.93	U	0.26	U	0.27	U	11	UJ
N-Nitrosodiphenylamine	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	**0.31**		0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
1,2-Diphenylhydrazine	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
4-Bromophenyl-phenyl ether	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Hexachlorobenzene	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Pentachlorophenol	0.2	U	2.1	U	24	U	17	U	1	U	1.1	U	1.1	UJ	2.3	U	24	U	1.3	U	0.19	U	0.93	U	0.26	U	0.27	U	11	UJ
Phenanthrene	**3.1**		**5.7**		**59**		**130**		**0.14**		**0.058**		**0.22**		**0.14**		**0.97**		**0.14**		**0.091**		**0.82**		**0.03**		**0.04**		**0.96**	J
Anthracene	**0.85**		**2.2**		**18**		**53**		**0.066**		**0.03**		**0.034**		**0.03**		0.19	U	0.01	U	**0.048**		**0.94**		**0.01**		**0.03**		**0.53**	J
Carbazole	**0.5**		0.43	U	**12**		**23**		0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Di-n-butylphthalate	**0.049**		0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Fluoranthene	**5.2**		**14**		**9.9**		**370**		**0.81**		**0.52**		**0.06**		**0.42**		0.19	U	0.26	U	**0.44**		**6.1**		0.13		0.21		**7.8**	J
Benzidine	0.39	UJ	4.3	UJ	48	UJ	34	UJ	2	UJ	2.2	UJ	2.2	U	4.5	UJ	48	UJ	2.6	UJ	0.39	U	1.9	U	0.52	U	0.54	U	22	UJ
Pyrene	**4.2**		**10**		**67**		**340**		**0.69**		**0.5**		**0.22**		**0.63**		**0.46**		**0.03**		**0.34**		**5.6**		**0.12**		**0.12**		**7.6**	J
Butylbenzylphthalate	**0.18**		0.43	U	4.8	U	3.4	UJ	**0.49**		0.22	U	0.22	U	0.45	U	**9**		**1.4**		0.039	U	0.19	U	0.052	U	0.054	U	**3.6**	J
bis-2-Ethylhexyladipate	0.039	U	0.43	U	4.8	U	3.4	UJ	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
3,3'-Dichlorobenzidine	0.39	U	4.3	U	48	U	34	UJ	2	U	2.2	U	2.2	U	4.5	U	48	U	2.6	U	0.39	U	1.9	U	0.52	U	0.54	U	22	UJ
Benzo(a)anthracene	**1.9**		**5.3**		**33**		**130**	J	**0.37**		**0.37**		**0.0144**		**0.071**		0.19	U	0.01	U	**0.24**		**2.5**		**0.077**		**0.13**		**2.5**	J
Chrysene	**2**		**5.2**		**34**		**130**	J	**0.4**		**0.36**		**0.0432**		**0.26**		0.19	U	**0.01**		**0.25**		**2.6**		**0.082**		**0.14**		**2.8**	J
Bis(2-ethylhexyl)phthalate	**0.28**		0.43	U	4.8	U	**11**	J	0.2	U	0.22	U	**0.59**		0.45	U	**5.2**		**0.42**		0.039	U	0.19	U	**0.33**		0.054	U	**12**	J
Di-n-octylphthalate	0.039	U	0.43	U	4.8	U	3.4	U	0.2	U	0.22	U	0.22	U	0.45	U	4.8	U	0.26	U	0.039	U	0.19	U	0.052	U	0.054	U	2.2	UJ
Benzo(b)fluoranthene	**1.4**		**3.7**		**20**		**90**	J	**0.32**		**0.22**		**0.11**		**0.14**		**0.19**		0.01	U	**0.15**		**1.7**		**0.067**		**0.12**		**2.6**	J
Benzo(k)fluoranthene	**1**		**2.9**		**21**		**66**	J	**0.32**		**0.3**		**0.032**		**0.2**		0.19	U	0.01	U	**0.23**		**2.4**		**0.072**		**0.11**		**0.86**	J
Benzo(a)pyrene	**1.3**		**3.5**		**22**		**84**	J	**0.41**		**0.35**		**0.12**		**0.2**		0.19	U	0.01	U	**0.26**		**2.8**		**0.088**		**0.17**		**1.2**	J
Indeno(1,2,3-cd)pyrene	**0.47**		**1.9**		**11**		**52**	J	**0.26**		**0.13**		0.0088	U	0.018	U	0.19	U	0.01	U	**0.11**		**1.1**		**0.054**		**0.1**		**0.51**	J
Dibenzo(a,h)anthracene	**0.15**		**0.7**		**2.9**		**18**	J	**0.058**		**0.05**		0.0088	U	0.018	U	0.19	U	0.01	U	**0.037**		**0.29**		**0.01**		**0.02**		**0.18**	J
Benzo(g,h,i)perylene	**0.44**		**1.9**		**11**		**53**	J	**0.34**		**0.13**		**0.071**		0.018	U	0.19	U	0.01	U	**0.12**		**1.2**		**0.063**		**0.12**		**0.57**	J

A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.

Key:
CAS =Chemical Abstracts Service
J = estimated value
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
RSL = Regional Screening Level
SVOC = Semivolatile Organic Compounds
U = not detected at indicated reporting limit
UJ = not detected, reporting limit is estimated

Table 6
Metals in Surface Water Results, October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS#	Units	EPA RSL Tap Water	Washington State MTCA Method B Groundwater Cleanup Levels	9101021 MC01SW Oct. 2009		9101022 MC02SW Oct. 2009		9101023 MC03SW Oct. 2009		9101024 MC04SW Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
TAL Metals	Aluminum	7429-90-5	µg/L	37000	NA	110	UJ	**120**		110	U	110	U
TAL Metals	Antimony	7440-36-0	µg/L	15	6.4	5.6	UJ	5.6	U	5.6	U	5.6	U
TAL Metals	Arsenic	7440-38-2	µg/L	0.045	5.000	3.3	UJ	3.3	U	3.3	U	3.3	U
TAL Metals	Barium	7440-39-3	µg/L	7300	3200	28	UJ	28	U	28	U	28	U
TAL Metals	Beryllium	7440-41-7	µg/L	73	32	11	UJ	11	U	11	U	11	U
TAL Metals	Cadmium	7440-43-9	µg/L	NA	5.0	4.4	UJ	4.4	U	4.4	U	4.4	U
TAL Metals	Calcium	7440-70-2	µg/L	NA	NA	**9600**	**J**	**10000**		**9900**		**10000**	
TAL Metals	Chromium	7440-47-3	µg/L	NA	50	11	UJ	11	U	11	U	11	U
TAL Metals	Cobalt	7440-48-4	µg/L	11	NA	11	UJ	11	U	11	U	11	U
TAL Metals	Copper	7440-50-8	µg/L	1500	592	11	UJ	11	U	11	U	11	U
TAL Metals	Iron	7439-89-6	µg/L	26000	NA	**120**	**J**	**190**		**82**		**110**	
TAL Metals	Lead	7439-92-1	µg/L	15	15	1.1	UJ	1.1	U	1.1	U	1.1	U
TAL Metals	Magnesium	7439-95-4	µg/L	NA	NA	**3700**	**J**	**3900**		**3800**		**3900**	
TAL Metals	Manganese	7439-96-5	µg/L	NA	2240	11	UJ	11	U	11	U	11	U
TAL Metals	Mercury	7439-97-6	µg/L	0.57	2	0.5	UJ	0.5	U	0.5	U	0.5	U
TAL Metals	Nickel	7440-02-0	µg/L	730	320	22	UJ	22	U	22	U	22	U
TAL Metals	Potassium	7440-09-7	µg/L	NA	NA	**2800**	**J**	**2900**		**2800**		**2700**	
TAL Metals	Selenium	7782-49-2	µg/L	180	80	5.6	UJ	5.6	U	5.6	U	5.6	U
TAL Metals	Silver	7440-22-4	µg/L	180	80	11	UJ	11	U	11	U	11	U
TAL Metals	Sodium	7440-23-5	µg/L	NA	NA	**4200**	**J**	**4600**		**4300**		**4300**	
TAL Metals	Thallium	7440-28-0	µg/L	NA	1.12	5.6	UJ	5.6	U	5.6	U	5.6	U
TAL Metals	Vanadium	7440-62-2	µg/L	2.6	112	11	UJ	11	U	11	U	11	U
TAL Metals	Zinc	7440-66-6	µg/L	11000	4800	56	UJ	56	U	56	U	56	U

Notes:
A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.
MCL for chromium used as EPA RSL total chromium.
MCL for lead used as EPA RSL and MTCA CUL for lead.
MCL for thallium used as EPA RSL for thallium.
EPA RSL for inorganic mercury salts used for mercury.
MTCA CUL for chromium-III used for total chromium.

Key:
CAS =Chemical Abstracts Service
CUL = Cleanup Level
J = estimated value
µg/L = micrograms per liter
MTCA = Model Toxics Control Act
RSL = Regional Screening Level
TAL = Target Analyte List
U = not detected at indicated reporting limit
UJ = not detected, reporting limit is estimated

Table 7
PCBs in Surface Water Results, October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Tap Water	Washington State MTCA Method B Groundwater CULs	9101021 MC01SW Oct. 2009		9101022 MC02SW Oct. 2009		9101023 MC03SW Oct. 2009		9101024 MC04SW Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
PCBs	Aroclor 1016	12674-11-2	µg/L	0.96	1.12	0.048	U	0.048	U	0.048	U	0.048	U
PCBs	Aroclor 1221	11104-28-2	µg/L	0.0068	0.1	0.048	U	0.048	U	0.048	U	0.048	U
PCBs	Aroclor 1232	11141-16-5	µg/L	0.0068	0.1	0.048	U	0.048	U	0.048	U	0.048	U
PCBs	Aroclor 1242	53469-21-9	µg/L	0.034	0.1	0.048	U	0.048	U	0.048	U	0.048	U
PCBs	Aroclor 1248	12672-29-6	µg/L	0.034	0.1	0.048	U	0.048	U	0.048	U	0.048	U
PCBs	Aroclor 1254	11097-69-1	µg/L	0.034	0.32	0.048	U	0.048	U	0.048	U	0.048	U
PCBs	Aroclor 1260	11096-82-5	µg/L	0.034	0.1	0.048	U	0.048	U	0.048	U	0.048	U

Notes:
A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.
MTCA Method A CUL for PCBs (CAS 1336-36-3) used for Aroclors 1221, 1232, 1242, 1248, 1260.

Key:

CAS	=Chemical Abstracts Service
CUL	= Cleanup Level
J	= estimated value
µg/L	= micrograms per liter
MTCA	= Model Toxics Control Act
PCBs	= polychlorinated biphenyls
RSL	= Regional Screening Level
U	= not detected at indicated reporting limit
UJ	= not detected, reporting limit is estimated

Table 8
Pesticides in Surface Water Results, October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Tap Water	Washington State MTCA Method B Groundwater CULs	9101021 MC01SW Oct. 2009		9101022 MC02SW Oct. 2009		9101023 MC03SW Oct. 2009		9101024 MC04SW Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chlorinated Pesticides	4,4'-DDD	72-54-8	µg/L	0.28	0.36	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	4,4'-DDE	72-55-9	µg/L	0.2	0.26	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	4,4'-DDT	50-29-3	µg/L	0.2	0.26	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	Aldrin	309-00-2	µg/L	0.004	0.0026	0.0049	UJ	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	alpha-BHC	319-84-6	µg/L	0.011	0.014	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
Chlorinated Pesticides	alpha-Chlordane	5103-71-9	µg/L	NA	NA	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	beta-BHC	319-85-7	µg/L	0.037	0.049	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	delta-BHC	319-86-8	µg/L	NA	NA	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
Chlorinated Pesticides	Dieldrin	60-57-1	µg/L	0.0042	0.005	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
Chlorinated Pesticides	Endosulfan I	959-98-8	µg/L	NA	NA	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
Chlorinated Pesticides	Endosulfan II	33213-65-9	µg/L	NA	NA	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	Endrin	72-20-8	µg/L	11	4.8	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	Endrin Aldehyde	7421-93-4	µg/L	NA	NA	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	Endrin Ketone	53494-70-5	µg/L	NA	NA	0.02	U	0.019	U	0.019	U	0.019	U
Chlorinated Pesticides	Endsulfan Sulfate	1031-07-8	µg/L	NA	NA	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	gamma-BHC	58-89-9	µg/L	0.061	0.2	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
Chlorinated Pesticides	gamma-Chlordane	5103-74-2	µg/L	NA	NA	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	Heptachlor	76-44-8	µg/L	0.015	0.019	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
Chlorinated Pesticides	Heptachlor Epoxide	1024-57-3	µg/L	0.0074	0.0048	0.0049	U	0.0048	U	0.0048	U	0.0048	U
Chlorinated Pesticides	Methoxychlor	72-43-5	µg/L	180	80	0.0098	UJ	0.0097	UJ	0.0097	UJ	0.0096	UJ
Chlorinated Pesticides	Toxaphene	8001-35-2	µg/L	0.061	NA	0.049	U	0.048	U	0.048	U	0.048	U

Notes:

A **BOLD** result indicates a detected compound.

A highlighted result indicates the result exceeds one of the cleanup levels.

EPA RSL and MTCA CUL for chlordane (CAS 12789-03-6) used for all chlordane analytes.

EPA RSL and MTCA CUL for beta-BHC (CAS 319-85-7) used for delta-BHC analyte.

EPA RSL and MTCA CUL for endosulfan (CAS 115-29-7) used for all endosulfan analytes.

EPA RSL for endrin (CAS 72-20-8) used for all endrin analytes.

Key:

CAS	=Chemical Abstracts Service
CUL	= Cleanup Level
J	= estimated value
µg/L	= micrograms per liter
MTCA	= Model Toxics Control Act
RSL	= Regional Screening Level
U	= not detected at indicated reporting limit
UJ	= not detected, reporting limit is estimated

Table 9
TPH in Surface Water Results, October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS #	Units	EPA RSL Tap Water	Washington State MTCA Method A Groundwater Cleanup Levels	9101021 MC01SW Oct. 2009		9101022 MC02SW Oct. 2009		9101023 MC03SW Oct. 2009		9101024 MC04SW Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
NWTPH-Dx	Diesel Range	n/a	mg/L	n/a	**500**	0.24	U	0.25	U	0.24	U	0.25	U
NWTPH-Dx	Lube Oil Range	n/a	mg/L	n/a	**500**	0.39	U	0.4	U	0.39	U	0.4	U

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.

Key:

CAS	=Chemical Abstracts Service
mg/L	= milligrams per liter
MTCA	= Model Toxics Control Act
NWTPH-Dx	= Northwest Total Petroleum Hydrocarbons, Diesel Range Extended
RSL	= Regional Screening Level
TPH	= Total Petroleum Hydrocarbons
U	= not detected at indicated reporting limit

Table 10
SVOCs in Surface Water Results, October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS#	Units	EPA RSL Tap Water	Washington State MTCA Method B Groundwater CULs	9101021 MC01SW Oct. 2009		9101022 MC02SW Oct. 2009		9101023 MC03SW Oct. 2009		9101024 MC04SW Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SVOCs	(3+4)-Methylphenol (m,p-Cresol)	NA	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,2,4-Trichlorobenzene	120-82-1	µg/L	2.3	80	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,2-Dichlorobenzene	95-50-1	µg/L	370	720	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,2-Dinitrobenzene	528-29-0	µg/L	3.7	6.4	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,2-Diphenylhydrazine	122-66-7	µg/L	0.084	0.11	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,3-Dichlorobenzene	541-73-1	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,3-Dinitrobenzene	99-65-0	µg/L	3.7	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,4-Dichlorobenzene	106-46-7	µg/L	0.43	1.8	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1,4-Dinitrobenzene	100-25-4	µg/L	3.7	6.4	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	1-Methylnaphthalene	90-12-0	µg/L	2.3	160	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	µg/L	1100	480	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,3,5,6-Tetrachlorophenol	935-95-5	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,3-Dichloroaniline	608-27-5	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,4,5-Trichlorophenol	95-95-4	µg/L	3700	800	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,4,6-Trichlorophenol	88-06-2	µg/L	6.1	4.0	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,4-Dichlorophenol	120-83-2	µg/L	110	24	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,4-Dimethylphenol	105-67-9	µg/L	730	160	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,4-Dinitrophenol	51-28-5	µg/L	73	32	9.8	U	9.8	U	9.6	U	9.6	U
SVOCs	2,4-Dinitrotoluene	121-14-2	µg/L	0.22	32	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2,6-Dinitrotoluene	606-20-2	µg/L	37	16	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2-Chloronaphthalene	91-58-7	µg/L	2900	640	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2-Chlorophenol	95-57-8	µg/L	180	40	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2-Methylnaphthalene	91-57-6	µg/L	150	32	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	2-Methylphenol (o-Cresol)	95-48-7	µg/L	1800	400	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2-Nitroaniline	88-74-4	µg/L	370	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	2-Nitrophenol	88-75-5	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	µg/L	0.15	0.19	9.8	U	9.8	U	9.6	U	9.6	U
SVOCs	3-Nitroaniline	99-09-2	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	µg/L	3.7	NA	4.9	U	4.9	U	4.8	U	4.8	U
SVOCs	4-Bromophenyl-phenylether	101-55-3	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	4-Chloro-3-methylphenol	59-50-7	µg/L	3700	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	4-Chloroaniline	106-47-8	µg/L	0.34	32	9.8	U	9.8	U	9.6	U	9.6	U
SVOCs	4-Chlorophenyl-phenylether	7005-72-3	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	4-Nitroaniline	100-01-6	µg/L	3.4	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	4-Nitrophenol	100-02-7	µg/L	NA	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Acenaphthene	83-32-9	µg/L	2200	960	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Acenaphthylene	208-96-8	µg/L	NA	NA	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Aniline	62-53-3	µg/L	12	7.7	4.9	U	4.9	U	4.8	U	4.8	U
SVOCs	Anthracene	120-12-7	µg/L	11000	4800	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Benzidine	92-87-5	µg/L	0.000094	0.00038	9.8	U	9.8	U	9.6	U	9.6	U
SVOCs	Benzo[a]anthracene	56-55-3	µg/L	0.029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Benzo[a]pyrene	50-32-8	µg/L	0.0029	0.100	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Benzo[b]fluoranthene	205-99-2	µg/L	0.029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Benzo[g,h,i]perylene	191-24-2	µg/L	1100	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Benzo[k]fluoranthene	207-08-9	µg/L	0.29	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Benzyl alcohol	100-51-6	µg/L	3700	2400	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	bis(2-Chloroethoxy)methane	111-91-1	µg/L	110	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	bis(2-Chloroethyl)ether	111-44-4	µg/L	0.012	0.040	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	bis(2-Chloroisopropyl)ether	108-60-1	µg/L	0.32	0.625	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	bis(2-Ethylhexyl)phthalate	117-81-7	µg/L	4.8	6.3	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	bis-2-Ethylhexyladipate	103-23-1	µg/L	56	73	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Butylbenzylphthalate	85-68-7	µg/L	35	3200	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Carbazole	86-74-8	µg/L	NA	4.4	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Chrysene	218-01-9	µg/L	2.9	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Dibenz[a,h]anthracene	132-64-9	µg/L	37	32	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Dibenzofuran	132-64-9	µg/L	37	32	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Diethylphthalate	84-66-2	µg/L	29000	12800	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Dimethylphthalate	131-11-3	µg/L	NA	16000	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Di-n-butylphthalate	84-74-2	µg/L	3700	1600	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Di-n-octylphthalate	117-84-0	µg/L	NA	320	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Fluoranthene	206-44-0	µg/L	1500	640	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Fluorene	86-73-7	µg/L	1500	640	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Hexachlorobenzene	118-74-1	µg/L	0.042	0.055	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Hexachlorobutadiene	87-68-3	µg/L	0.86	0.56	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Hexachlorocyclopentadiene	77-47-4	µg/L	220	48	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Hexachloroethane	67-72-1	µg/L	4.8	3.1	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	µg/L	0.029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
SVOCs	Isophorone	78-59-1	µg/L	71	46	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Naphthalene	91-20-3	µg/L	0.14	160	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Nitrobenzene	98-95-3	µg/L	0.12	4.0	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	N-Nitrosodimethylamine	62-75-9	µg/L	0.00042	9.00E-04	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	N-Nitroso-di-n-propylamine	621-64-7	µg/L	0.0096	NA	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	N-Nitrosodiphenylamine	86-30-6	µg/L	14	NA	9.8	U	9.8	U	9.6	U	9.6	U
SVOCs	Pentachlorophenol	87-86-5	µg/L	0.56	0.73	4.9	U	4.9	U	4.8	U	4.8	U
SVOCs	Phenanthrene	85-01-8	µg/L	NA	NA	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Phenol	108-95-2	µg/L	11000	4800	0.98	U	0.98	U	0.96	U	0.96	U
SVOCs	Pyrene	129-00-0	µg/L	1100	480	0.098	U	0.098	U	0.096	U	0.096	U
SVOCs	Pyridine	110-86-1	µg/L	37	8.0	9.8	U	9.8	U	9.6	U	9.6	U

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.
EPA RSL for m-Cresol (CAS 108-39-4) used for (3+4)-Methylphenol (m,p-Cresol).
EPA RSL for anthracene (CAS 120-12-7) used for phenanthrene.
EPA RSL for pyrene (CAS 129-00-0) used for benzo(g,h,i)pyrylene, acenaphthylene.

Key:
CAS =Chemical Abstracts Service
CUL = Cleanup Level
J = estimated value
µg/L = micrograms per liter
MTCA = Model Toxics Control Act
RSL = Regional Screening Level
SVOCs = semivolatile organic compounds
U = not detected at indicated reporting limit
UJ = not detected, reporting limit is estimated

Table 11
VOCs in Suface Water Results, October 2009
Removal Alternatives Evaluation
Stubblefield Salvage Yard Site, Walla Walla, WA

Analysis	Compound Name	CAS#	Units	EPA RSL Tap Water	Washington State MTCA Method B Groundwater CULs	9101021 MC01SW Oct. 2009		9101022 MC02SW Oct. 2009		9101023 MC03SW Oct. 2009		9101024 MC04SW Oct. 2009	
						Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs	(cis) 1,2-Dichloroethene	156-59-2	µg/L	370	80	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	(cis) 1,3-Dichloropropene	542-75-6	µg/L	0.43	0.243	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	(trans) 1,2-dichloroethene	156-60-5	µg/L	110	160	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	(trans) 1,3-Dichloropropene	542-75-6	µg/L	0.43	0.243	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	µg/L	0.52	1.7	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1,1-Trichloroethane	71-55-6	µg/L	9100	200	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	0.067	0.22	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1,2-Trichloroethane	79-00-5	µg/L	0.24	0.77	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1-Dichloroethane	75-34-3	µg/L	2.4	1600	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1-Dichloroethene	75-35-4	µg/L	340	400	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,1-Dichloropropene	563-58-6	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2,3-Trichlorobenzene	87-61-6	µg/L	29	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2,3-Trichloropropane	96-18-4	µg/L	0.00072	0.0063	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2,4-Trichlorobenzene	120-82-1	µg/L	2.3	80	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2,4-Trimethylbenzene	95-63-6	µg/L	15	400	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2-Dibromo-3-chloropropane	96-12-8	µg/L	0.00032	0.031	1	U	1	U	1	U	1	U
VOCs	1,2-Dibromoethane	106-93-4	µg/L	0.0065	0.01	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2-Dichlorobenzene	95-50-1	µg/L	370	720	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2-Dichloroethane	107-06-2	µg/L	0.15	5.00	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,2-Dichloropropane	78-87-5	µg/L	0.39	0.64	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,3,5-Trimethylbenzene	108-67-8	µg/L	370	400	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,3-Dichlorobenzene	541-73-1	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,3-Dichloropropane	142-28-9	µg/L	730	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	1,4-Dichlorobenzene	106-46-7	µg/L	0.43	1.8	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	2,2-Dichloropropane	594-20-7	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	2-Butanone	78-93-3	µg/L	7100	4800	5	U	5	U	5	U	5	U
VOCs	2-Chloroethyl Vinyl Ether	110-75-8	µg/L	NA	NA	1	U	1	U	1	U	1	U
VOCs	2-Chlorotoluene	95-49-8	µg/L	730	160	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	2-Hexanone	591-78-6	µg/L	47	NA	2	U	2	U	2	U	2	U
VOCs	4-Chlorotoluene	106-43-4	µg/L	2600	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Acetone	67-64-1	µg/L	22000	800	5	U	5	U	5	U	5	U
VOCs	Benzene	71-43-2	µg/L	0.41	5.00	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Bromobenzene	108-86-1	µg/L	88	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Bromochloromethane	74-97-5	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Bromodichloromethane	75-27-4	µg/L	0.12	0.71	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Bromoform	75-25-2	µg/L	8.5	5.5	1	U	1	U	1	U	1	U
VOCs	Bromomethane	74-83-9	µg/L	8.7	11	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Carbon Disulfide	75-15-0	µg/L	1000	800	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Carbon Tetrachloride	56-23-5	µg/L	0.20	0.34	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Chlorobenzene	108-90-7	µg/L	91	160	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Chloroethane	75-00-3	µg/L	21000	15	1	U	1	U	1	U	1	U
VOCs	Chloroform	67-66-3	µg/L	0.19	7.2	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Chloromethane	74-87-3	µg/L	190	3.4	1	U	1	U	1	U	1	U
VOCs	Dibromochloromethane	124-48-1	µg/L	0.15	0.52	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Dibromomethane	74-95-3	µg/L	8.2	80	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Dichlorodifluoromethane	75-71-8	µg/L	390	1600	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Ethylbenzene	100-41-4	µg/L	1.5	700	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Hexachlorobutadiene	87-68-3	µg/L	0.86	0.56	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Iodomethane	74-88-4	µg/L	NA	NA	1	U	1	U	1	U	1	U
VOCs	Isopropylbenzene	98-82-8	µg/L	680	800	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	m,p-Xylene	NA	µg/L	200	1000	0.4	U	0.4	U	0.4	U	0.4	U
VOCs	Methyl Isobutyl Ketone	78-93-3	µg/L	7100	4800	2	U	2	U	2	U	2	U
VOCs	Methyl t-Butyl Ether	1634-04-4	µg/L	12	20	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Methylene Chloride	75-09-2	µg/L	4.8	5.0	1	U	1	U	1	U	1	U
VOCs	Naphthalene	91-20-3	µg/L	0.14	160	1	U	1	U	1	U	1	U
VOCs	n-Butylbenzene	104-51-8	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	n-Propylbenzene	103-65-1	µg/L	1300	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	o-Xylene	95-47-6	µg/L	1200	16000	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	p-Isopropyltoluene	99-87-6	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	sec-Butylbenzene	135-98-8	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Styrene	100-42-5	µg/L	1600	1.5	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	tert-Butylbenzene	98-06-6	µg/L	NA	NA	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Tetrachloroethene	127-18-4	µg/L	0.11	5	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Toluene	108-88-3	µg/L	2300	1000	1	U	1	U	1	U	1	U
VOCs	Trichloroethene	79-01-6	µg/L	2	5	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Trichlorofluoromethane	75-69-4	µg/L	1300	2400	0.2	U	0.2	U	0.2	U	0.2	U
VOCs	Vinyl Acetate	108-05-4	µg/L	410	8000	2	U	2	U	2	U	2	U
VOCs	Vinyl Chloride	75-01-4	µg/L	0.016	0.200	0.2	U	0.2	U	0.2	U	0.2	U

Notes: A **BOLD** result indicates a detected compound.
A highlighted result indicates the result exceeds one of the cleanup levels.
EPA RSL for 1,2-dichloropropene used for cis- and trans- isomers.
EPA RSL for xylene mixture used for m,p-xylene.

Key:
CAS =Chemical Abstracts Service
CUL = Cleanup Level
J = estimated value
µg/L = micrograms per liter
MTCA = Model Toxics Control Act
RSL = Regional Screening Level
U = not detected at indicated reporting limit
UJ = not detected, reporting limit is estimated
VOCs = volatile organic compounds