2.0 INTERIM ACTION WORK PLAN

This section discusses the existing site conditions in the WDR, results of previous investigations, supplemental data to be collected prior to the Interim Action field work, evaluation of cleanup alternatives, and cleanup levels. It also discusses design and construction plans, soil management, stormwater management, site restoration, cultural resources assessment, and project schedule.

2.1 WDR - Phase I Remedial Investigation

This section describes the activities that were conducted in the WDR in 2006 as part of the Phase I RI.

2.1.1 Surface Soil Sampling

Surface soil samples (WDR-SS-1 through WDR-SS-18) were collected along the length of the former WDR down to the concrete diversion structure at the approximate base of the ravine. The sampling locations were limited to the areas where the ravine had not been filled. For the remainder of this Work Plan, the portion of the ravine to the east of the roadway will be referred to as the upper WDR. The portion or the ravine to the west of the roadway and extending to the river will be referred to as the lower WDR.

Surface soil samples were collected on May 10 and 11, 2006, from 18 locations along the upper and lower WDR. Samples were collected on 25-foot centers at the bottom of the ravine along its axis. Figure 2-1 shows the approximate locations of the surface soil samples.

Duff and vegetative cover were removed and soil samples were collected in the top foot of soil. The surface soils encountered during sampling consisted of light to dark brown, fine- to coarse-grained silty to sandy Gravel with cobbles and organic material. No sheens or odors were detected in the samples collected, and the ravine was dry. Table 2-1 provides the sample depth and soil description for each surface soil sample.

2.1.2 Surface Soil Analysis

Samples collected from the WDR were submitted for analysis of PCBs (EPA Method 8082), TPH (NWTPH-HCID), and TOC (EPA Method 9060; selected samples only). In addition, grain size analyses were conducted on selected soil samples from the WDR.

Analytical test results for the surface soil samples are presented in Table 2-2. Aroclor 1248 was detected in the 18 surface soil samples analyzed, at concentrations ranging from 3.2 mg/kg (WDR-SS-11) to 650 mg/kg (WDR-SS-13). In addition, heavy oil- and diesel-range hydrocarbons were also detected in the ravine surface soils. Heavy oil-range hydrocarbons were detected in the 18 surface soil samples collected from the ravine at concentrations ranging from 120 to 12,000 mg/kg. Diesel-range hydrocarbons were detected in 13 of the 18 surface soil samples collected at concentrations ranging from 140 to 3,400 mg/kg. Grain and particle size distribution results are presented in Tables 2-3 and 2-4, respectively.

2.2 Regulatory Framework and Cleanup Levels

Facilities where there has been a historical release of PCBs above specific concentrations are typically subject to remediation under the federal Toxics Substance Control Act (TSCA). The regulations under TSCA related to PCBs are in 40 CFR 761. As a seldom occupied area, the WDR would meet the standards of a low occupancy area per 40 CFR 761.3, which is defined as an area where average weekly individual worker occupancy is less than 6.7 hours per week (335 hours per year). With a low occupancy area classification, TSCA would set a cleanup goal for PCBs at this site at ≤ 25 mg/kg for low occupancy unrestricted use.

In Washington State, MTCA also regulates the cleanup of PCB-impacted media as well as remediation of petroleum hydrocarbon-impacted soil. Currently, MTCA sets more stringent cleanup levels (CULs) for PCBs under Method A standards. MTCA Method A sets two cleanup levels for soil at sites containing PCB remediation waste; 10 mg/kg for industrial properties, and 1 mg/kg for unrestricted land use.

The MTCA Method A level for industrial properties was not considered protective enough by Ecology to protect groundwater and surface water, particularly due to the proximity of the site to the Spokane River. Therefore, the goal of this cleanup is to remove soil with PCB concentrations above 1 mg/kg. An additional CUL for site soils will be ≤ 2000 mg/kg for heavy oils and diesel under MTCA Method A unrestricted land use standards.

This cleanup level will be protective of human health and the environment and will meet MTCA Method A soil cleanup levels for unrestricted land use. In this instance, the CULs selected under MTCA Method A are more restrictive than CULs under TSCA. Through discussions between Ecology and EPA, it was agreed that the EPA, under TSCA, would defer cleanup of this site to Ecology under MTCA regulations. In the course of planning and execution of this Interim

Action, TSCA will be an Applicable, or Relevant and Appropriate Requirement (ARAR). A broader discussion of the ARARs evaluated for this work is provided in Section 3.0.

2.3 Interim Action Alternative Selection

The MTCA provisions pertaining to Interim Actions (WAC 173-340-430) require the identification and evaluation of alternatives, though not at the level of detailed analysis conducted under final cleanup actions. The intent of Interim Actions is to provide an interim remedy at an accelerated pace to reduce immediate threats to human health and the environment or to correct problems at a site that may become substantially worse if remedial action is delayed. Following the Phase I RI sampling and analysis, the WDR was identified as warranting cleanup through an Interim Action based on conditions that may pose a threat to human health and the environment and, therefore, require an expedited cleanup. Though conducted as an Interim Action, the goal of this Work Plan is to provide a permanent solution for contaminated soil in the WDR.

The CULs identified above were used to identify several technologies for addressing contamination in the WDR soil. These technologies were then screened for their applicability to actual site conditions. Three alternatives were evaluated in the process of selecting this interim action alternative. These alternatives are briefly summarized in Table 2-5.

2.3.1 Alternative 1—No Action

Alternative 1 is typically included in the selection of cleanup alternatives to provide a basis for comparing the effectiveness of other alternatives. Inclusion of this alternative helps ensure that the consequences of no action are fully evaluated.

Under this alternative, no proactive measures would be undertaken to remediate contaminated soil and no institutional controls would be imposed to reduce or prevent human exposure. Concentrations of PCBs would remain comparatively constant across the site, but a gradual reduction in the concentration of petroleum hydrocarbons, and to a lesser degree PCBs, would occur through natural breakdown processes. Therefore, the potential would exist for direct contact to site workers and for contaminates to impact surface water and groundwater. This alternative would not include environmental monitoring to assess the effectiveness of natural attenuation or to verify protection of human health or the environment.

2.3.2 Alternative 2—Capping with Institutional Controls and Monitoring

Alternative 2 would provide a cap over the areas of the WDR where soil contamination is above CULs. Associated with this alternative would be institutional controls and compliance monitoring. Institutional controls for the WDR would be aimed at limiting or prohibiting activities that could affect the integrity of the cap. This would include measures such as controls on excavation and site access, and cap integrity monitoring and maintenance. A compliance monitoring plan would be required under this alternative to evaluate the effectiveness of the cap over time.

This alternative would be immediately protective of human health for site workers by preventing direct contact with contaminated soils. The long-term protectiveness to human health and the environment of this alternative would be compromised by the potential for erosion, particularly in the steeper sections of the ravine, and the potential for transport of site contaminants to groundwater.

2.3.3 Alternative 3—Excavation and Off-Site Disposal of Site Soils

Under this alternative, contaminated soil in the WDR above CULs would be excavated and disposed of off site. Following excavation and verification sampling and analysis, clean fill would be placed in the excavated areas to stabilize the ravine. In addition, removed vegetation would be replaced where appropriate to provide habitat and stabilize slopes. PCB-contaminated soil would be disposed of in a TSCA-regulated landfill or a Subtitle D solid waste facility depending on the PCB concentration in the soil.

2.3.4 Evaluation of Alternatives

Ecology has established that the following minimum criteria be met when selecting cleanup alternatives and this framework was used in evaluating the alternatives to this Interim Action.

- Protection of Human Health and the Environment;
- Compliance with Cleanup Standards (WAC 173-340-700 through 173-340-760);
- Compliance with ARARs; and
- Performance of compliance monitoring.

Alternative 1, the No Action alternative, does not include actions to control potential direct contact by humans or transport of contaminants to surface water or groundwater. This alternative would not provide for verification of

contaminant degradation through natural processes or assess contaminant transport to surface water or groundwater. Thus, Alternative 1 is not protective of human health and the environment, does not meet this threshold criterion, and is eliminated from further consideration.

Alternative 2, Capping with Institutional Controls and Monitoring, would provide immediate protection to human health by preventing site worker contact with contaminants. This alternative would initially reduce the potential for erosional transport of contaminants to the adjacent river, but would not address the potential for site contaminants to impact groundwater. Under this alternative, a compliance monitoring plan would evaluate the effectiveness of the cap over time, and an inspection and maintenance plan would ensure cap integrity over the long term. Alternative 2 would not comply with the ARARs, namely TSCA, due to the fact that PCBs would remain on site above 100 mg/kg, which is the CUL for low occupancy access that are capped. In addition, this alternative would not constitute a permanent action as defined by the MTCA. For these reasons, this alternative is eliminated from further consideration.

Alternative 3, Excavation and Off-Site Disposal of Site Soils, is the selected Interim Action alternative for the WDR. The main factors in the selection of Alternative 3 include the following:

- It is more protective of human health and the environment than the other alternatives because it involves removal of contaminants and restoration of the ravine;
- This alternative complies with MTCA and TSCA cleanup levels and ARARs (see Section 3.0 for further discussion of ARARs);
- Alternative 3 provides for compliance monitoring by guiding excavation with the use of real time field analysis of PCBs and laboratory verification analysis once field screening data indicate CULs are achieved; and
- Alternative 3 also gets the highest rating of all the alternatives on long-term effectiveness and permanence with the permanent removal of contaminants and restoration of the ravine.

2.4 Design and Construction Plans

A general summary and sequence of the planned construction for the project is provided in this section. Detailed figures describing this work are included at the end of this section. Final construction plans for this project will be based on the figures contained in this work plan and will be provided to Ecology for review and approval under separate cover after the Work Plan is approved. The construction plans will address comments regarding this Work Plan resulting from the 30-day public comment period. Construction plans will also address

substantive agency requirements that are received after submission of this Work Plan for the public comment period.

2.4.1 Site Preparation

Initial Removal of Vegetation and Debris

The ravine contains a few large trees and a significant amount of brush. The segment of the ravine outside of the facility's fence also contains some debris. In general, small vegetation, including brush, will be removed from the area to be disturbed. It is proposed that the larger trees, especially near the riverbank be retained, to the extent practicable. However, such trees will be removed if their removal becomes necessary to accomplish the work. The brush and wooden debris will be collected, chipped, and spread over the land to the north and/or south of the ravine. Prior to vegetation removal in the ravine, a Habitat and Restoration Professional will assess and document the existing vegetation on the site. This will aid in the restoration of the ravine following construction and allow, to the maximum extent practicable, the replacement of removed vegetation with a proper selection of native species. Refer to Section 2.7 for additional details on site restoration.

Other debris (including the concrete diversion structure and a portion of its outfall) will be removed and disposed of with solid waste from the site. The section of aluminum outfall pipe removed during the project will be recycled by Kaiser. This preparation work allows for a more efficient soils removal phase.

Temporary Erosion and Sedimentation Control (TESC)

TESC measures will be conducted in accordance with the procedures specified in Section 2.6. TESC measures will be implemented/installed prior to the start of excavation activities. Refer to Figure 2-2 for TESC measures.

Cultural Resources

Refer to Section 2.9 for cultural resources assessment information.

2.4.2 Backfill Materials

Backfill material may be obtained from two potential sources. One backfill source would be clean soils at the top of the ravine resulting from initial excavation described in Section 2.4.3. These soils are from the ravine side walls and not in contact with PCB-contaminated water during the time material was discharged to the ravine. The second backfill source could be other on-site

material that will be screened prior to beginning soil removal activities. This second source is an existing, on-site, clean fill material that may be relocated to the materials screening and stockpile area (see Section 2.5). This material may be screened and the coarser portion use for backfill in the base of the ravine waterward of the ordinary high water (OHW) mark, if it does not contain sufficient gravel (determined by the geotechnical engineer). Alternatively, it may be used farther from the river where erosion potential is not as critical. This material, screened or not, would be stockpiled on the north side of the ravine near the western end of the site. Larger gravel/cobbles could be used for backfill material in the ravine below the OHW as indicated on Figure 2-5. The smaller fraction could be used for backfill in the portions of the ravine farther from the river. All backfill materials would be tested for total petroleum hydrocarbons (TPH) and PCBs prior to placement in the ravine.

2.4.3 Excavation Activities

The following sections describe the anticipated construction activities. Prior to excavation of PCB- and petroleum-contaminated soils in the ravine, the upper slopes of the ravine will be sloped back as shown on Figures 2-3 and 2-6 to reduce the potential for unstable slopes that could lead to cross-contamination. Excavation and removal of contaminated soils will begin in the western end of the lower stretch of the WDR nearest the river. To reduce/avoid potential erosion impacts, work will be done only in dry areas, during the summer months, and while the river level is near its lowest elevation. The section closest to the river is the most critical to excavate and backfill before river levels rise. This also ensures that any work performed near or below the OHW will be conducted during the approved work window between June 15 and August 15.

Work will then progress up the WDR to the east. Soils will be removed in 1-foot lifts. It is anticipated that PCB- and petroleum-contaminated soils will be encountered and removed to a maximum average depth of about 2 feet. The width of suspect soil is assumed to be an average of about 20 feet (Figures 2-3 and 2-6). Excavation waterward of the OHW mark should extend 0.5 to 1 foot deeper than when field screening methods indicate cleanup levels are met, to the extent practicable (i.e., excavation in the dry only). This is intended to provide additional assurance that laboratory PCB concentrations meet and/or are below the cleanup level. We anticipate that an excavator would remove the soil and place it in a front-end loader. The front-end loader would then fill a truck at the eastern end of the lower WDR. The truck would then take the soil to the materials screening and stockpile Area (see Figures 2-4 and 2-7 and Section 2.5).

The portion of the unused outfall (Figure 1-2) will be uncovered and removed from the diversion structure down as close to the river as possible without excavating below water (i.e., not in the river nor below groundwater). Clean soil from sloping of the upper portion of the ravine (sand, gravel, and cobbles) will be used to backfill the portion of the outfall pipe left in place. Sufficient room will be left so that the upper 3 feet of the pipe can be plugged with concrete. The soil and outfall line removal will then proceed up the ravine. When the excavation reaches the concrete diversion structure, the concrete will be removed for off-site disposal.

Field screening samples will be obtained and used to estimate extent and depth of PCBs with immunoassay methods as described in Appendix A. As areas are deemed to meet PCB cleanup goals based on field screening techniques, verification samples will be collected and submitted to an approved laboratory for appropriate analyses (Appendix A). Once achievement of the PCB and petroleum cleanup levels have been verified through laboratory analysis, backfilling with the appropriate materials will be performed. This process will then continue east up the lower WDR and then proceed to the upper WDR.

2.4.4 Backfilling

Planned ravine backfilling will occur in areas where soils are removed as shown on Figures 2-5 and 2-6. Backfill will consist of coarser gravel to cobble material in the base of the ravine. In areas that are close to the river, a layer of sand will be placed in excavation areas prior to backfilling with the coarser material as shown on Figures 2-5 and 2-6. PCBs have an affinity for fine-grained soil and the intent of the sand is to provide additional long-term means to minimize the potential for possible residual PCBs, if any remain, from migrating toward the river. Areas below OHW will be backfilled with gravel/cobble mix above the sand layer as indicated on Figure 2-6. The purpose of the gravel/cobble mix is to provide additional protection from river flows. Clean gravel and sand will be placed along the sides of the ravine. Topsoil backfill will be used to fill surficial voids between larger particles close to the river to promote revegetation and enhance habitat benefit (Figure 2-5).

2.5 Soil Screening and Management

Soils excavated from the WDR will be removed from the ravines with a front-end loader and taken to a transfer area adjacent to the ravines (Figure 2-4). From these two transfer areas, it will be placed in dump trucks for transport to the soil screening area. The layout of these transfer areas will consist of a segregation line of ecology blocks and construction fencing placed to physically separate the loader area from the dump truck area. The intent of the segregation line is to

provide a boundary for contamination that may be spilled by the loader operations and could potentially be tracked out of the loading area by the dump trucks. During loading operations, site workers will promptly remove any spill of materials to the ground on the dump truck side of the segregation line. This will prevent the exiting trucks from tracking it out of the transfer area. Typically this will consist of the workers shoveling spilled material and placing the material either into the dump truck or back into the loader bucket. To facilitate demobilization and to prevent the need for follow on sampling and analysis, the loader side of the transfer area will be underlain by a continuous 60-mil high density polyethylene (HDPE) liner with a layer of clean soil on top of the liner for protection. Following the completion of excavation in the ravines, the transfer areas will be broken down. The soil cover that overlaid the HDPE liner on the loader side will be removed and trucked to the screening area for stockpiling and characterization. The HDPE liner will either be disposed of as a TSCA-regulated waste or, following decontamination in the screening area, will be disposed of as municipal waste.

During excavation in the lower WDR, the transfer area will be located at the head of the lower ravine and the transfer area for the upper WDR will be located south of the approximate mid-point of the ravine as indicated on Figure 2-4. Soil will not be stockpiled in the transfer areas. Detailed plans for these transfer areas will be provided to Ecology for review and approval along with the design and construction plans.

2.5.1 Soil Screening and Stockpile Management

The stockpile and screening operations will be sited in a flat undeveloped area approximately 400 feet to the north of the ravine and adjacent to an existing access road (Figure 2-4). Stockpiling and screening operations will be contained inside an earthen berm that will be approximately 100 feet per side for a perimeter of roughly 400 feet. Similar to above described transfer areas, the screening/stockpile area will be underlain by a continuous 60-mil HPDE liner with several inches of clean soil overlying and protecting the liner. Plans and details of the stockpile and screening area are presented on Figures 2-4 and 2-7.

The shaker screen plant as well as one to two loaders will be inside the bermed area. The loader(s) will be used for feeding the shaker screen plant, stockpile management, and eventual delivery of screened materials to roll-off bins for disposal. The excavated soil from the ravines is expected to contain a large amount of gravel and cobbles greater than 2 inches in diameter. Since PCBs will preferentially adhere to the finer grain material, the use of the shaker screen is an effort to remove materials greater than 2 inches in diameter, leaving the PCB contamination concentrated in the finer material. The shaker screen plant will

contain a 2-inch screen to capture the large diameter materials. Using gravity and vibratory methods, the shaker screen will send large diameter materials to a stockpile alongside the plant. The less than 2-inch-diameter materials will fall through the screen to a large catch pan. From here the materials will be delivered to stockpiles via a movable conveyor belt system.

Gravel and cobbles larger than 2 inches in diameter will be maintained on site for fill in upland areas, as part of a separate review and approval by Ecology. These materials will be underlain and covered with visqueen until that time. Soil less than 2 inches in diameter will be stockpiled, sampled, and shipped off site for proper disposal based on the results of analysis (see Section 2.8 for discussion of disposal methods and Appendix A for discussion of soil sampling). Detailed plans for the shaker screen and stockpile areas will be provided to Ecology for review and approval along with the design and construction plans.

Soil will be delivered to the screening/stockpile area via a ramped access anticipated to be on the south berm to allow the dump trucks to deliver soil from the ravines without entering the interior of the bermed area. This will minimize the potential for trucks to track contaminated materials from within the contaminant area. Export of the screened and characterized material for disposal is anticipated to be on the north end of the bermed area with an interior loader transferring material over the berm and into lined roll-off bins.

Controls to prevent material loss at the screening/stockpile area during soil unloading and offloading operations will be similar to those described for the ravine transfer areas. In addition to providing protection against material loss from stormwater runoff, the earthen berm will act as a segregation line, which will prevent vehicles from tracking contamination from the site. Loss of material outside of the bermed area will be promptly removed and transferred to the containment area. Elements of the soil stockpile management related to stormwater controls are discussed in Section 2.6. During soil transfer and management activities at the screening/stockpile area, dust monitoring will be conducted in accordance with the Health and Safety Plan (Appendix B). If necessary based on field observations, water misting of stockpiles will be used to suppress airborne transport of materials.

2.6 Construction Stormwater Management

This section discusses stormwater management measures to be used in the design, implementation, and project closeout to prevent loss of contaminants and impacts to the adjacent Spokane River. Note that this Interim Action will not add any new impervious surface to the site and should not significantly increase soil compaction. Based on extensive subsurface information indicating

the pervious subsurface soils and the timing of the project during the summer months, it is expected that surface infiltration will prevent stormwater runoff, if any, from leaving the site in all areas of construction.

Although a permit will not be required for implementing the remedy on site, the substantive requirements of the state Construction Stormwater General Permit will apply to elements of the Interim Action that could result in discharges of stormwater off site. This section, in conjunction with the preceding sections on site conditions, construction plans, and soil management, give this Work Plan the required elements of a Stormwater Pollution Prevention Plan (SWPPP) under the state's Construction Stormwater General Permit. The best management practices (BMPs) described below are in accordance with the Stormwater Management Manual for Eastern Washington (Ecology 2004).

Based on the nature of the remedy, some of the 12 BMP elements do not require specific actions because of site-specific conditions and activities. Refer to Figure 2-2 for BMP/TESC measures.

2.6.1 The 12 BMP Elements

Element 1 – Mark Clearing Limits

To protect the adjacent Spokane River and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. Trees that are to be preserved, as well as riparian buffers, will be clearly delineated, both in the field and on the plans. In general, natural vegetation and native topsoil shall be retained in an undisturbed state to the maximum extent possible. The BMPs relevant to marking the clearing limits that will be applied for this project include:

- **BMP C101—Preserving Natural Vegetation**

  During clearing and excavation, large trees will be left in place to the extent practicable, especially in areas without impacted soil. If necessary, areas where significant removal of large trees is required could be replanted with live stakes and/or 1- to 5-gallon size trees (native species). This will be more related to preserving riparian habitat near the river than to providing slope stability.

- **BMP C102—Buffer Zones**

  To the extent practicable the riparian buffer adjacent to the river will be preserved during clearing and excavation. If necessary, areas where

significant removal of large trees is required could be replanted with live stakes and/or 1- to 5-gallon size trees (native species).

- **BMP C103—High Visibility Plastic Fence**

  High visibility fencing will be used as appropriate to define the clearing limits and boundaries of excavation. Based on site conditions at the time of construction, fencing may be used to protect riparian buffer areas adjacent to the river. Additionally, fencing will be used to define boundaries within the ravine soil transfer areas as discussed in Section 2.5.

Element 2 – Establish Construction Access

Element 2 is related to providing construction access to the site to minimize the tracking of sediment onto public roads. All construction associated with this Interim Action occurs on unpaved areas on Kaiser property. Vehicles and equipment used in the excavation, on-site transport, and stockpile management will remain on the site for the duration of the project. These vehicles will be cleaned at the end of construction activities and prior to being moved off the site. Site worker's personal vehicles will be parked on paved and/or stabilized areas each day and will not be a concern for tracking sediment off the site. Thus, this BMP is not applicable.

Element 3 – Control Flow Rates

No BMPs to control flow rates will be implemented. As described above, the project will take place during the mid-July to mid-September timeframe, which coincides with the annual lowest flows in the river. Additionally, excavation and filling activities adjacent to the river will be in the first phase of work to ensure it is completed well in advance of fall rains. Therefore, project timing and phasing are intended to remove the possibility of surface water runoff leaving the construction site.

Element 4 – Install Sediment Controls

Element 4 sediment controls will be installed in areas where runoff from disturbed areas where sediment-laden runoff could potentially travel off site prior to surface infiltration, although this is not anticipated. Controls will also be established to prevent the possible transport of contaminated materials off site or outside the designated storage areas. The specific BMPs to be used for controlling sediment on this project include:

- **BMP C233—Silt Fence**

  A silt fence will be installed perpendicular to the ravine axis at the mouth of the ravine below all excavation activities. This fence will be installed and maintained above the water level of the river.

- **BMP—Interceptor/Filter Berm**

  Based on an evaluation of site conditions and typical weather during the planned construction period, no surface water flow is anticipated. However, in the unlikely event stormwater does accumulate, a berm will be installed in the base of the ravine at the beginning of construction. This berm is designed to preclude flow to the river and encourage water to infiltrate. The berm will be constructed of rock and placed in the ravine to be perpendicular to any flow. The intent of the berm is to provide a means for potential, although unlikely, flows running down the ravine to infiltrate behind the berm, filter any sediment that might flow through the berm, and reduce the loading on the downstream silt fence. Figure 2-8 presents typical design for the interceptor/filter berm and silt fencing.

Element 5 – Stabilize Soils

If necessary, soils should be stabilized at the end of the shift before a holiday or weekend based on the weather forecast throughout the life of the project. The specific BMPs for soil stabilization that shall be used on this project include:

- **BMP C123—Plastic Covering**

  It is expected that soil stockpiles will be generated and maintained in the both the upper and lower ravines and inside the bermed screening/stockpile area throughout the project. Stockpiles generated will consist of chemically clean topsoil/gravel/sand materials for backfill, and clean and contaminated excavation spoils. Plastic sheeting will be used to stabilize all unworked soil stockpiles generated during this project.

- **BMP C120—Permanent Seeding**

  Following excavation and backfilling of the ravine slopes, the revegetation plan includes hydroseeding for soil stabilization. Hydroseeding, also known as hydromulching, is a process that involves applying a mixture of grass seed, wood mulch, fertilizer, germination agents, tackifier, and water to areas to provide soil stabilization. It is anticipated that seeding will occur within the "acceptable permanent seeding window" of September 1 through April 30,

as defined in the stormwater manual (Ecology 2004). If it is required to seed prior to this window, adequate irrigation may be necessary to ensure the vegetation is well established.

Element 6 – Protect Slopes

Cut and fill slopes will be designed, constructed, and protected in a manner than minimizes erosion. The following specific BMPs, defined above for preceding elements, will be used to protect slopes for this project:

- BMP C101—Preserving Natural Vegetation;
- BMP C120—Permanent Seeding; and
- BMP C102—Buffer Zones.

Element 7 – Protect Drain Inlets

There are no storm drain inlets near the site that could potentially receive surface runoff from this project site. No BMPs associated with Element 7 will be used.

Element 8 – Stabilize Channels and Outlets

The WDR has long ceased to be a natural outlet of water to the Spokane River based on various changes to the upland topography of the site, including construction of the road that divides the lower and upper ravines (see Figure 1-2). This Interim Action will not change the drainage characteristics of the ravines.

For excavation below the OHW of the river, bank restoration near the river could include placement of 'vegetated riprap' consisting of live stake planting of native species in joints between larger rock (as specified in the USDA Streambank and Shoreline Protection Engineering Field Handbook or WDFW Integrated Streambank Protection Guidelines).

Element 9 – Control Pollutants

All pollutants, including waste materials and demolition debris, that occur on the site shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well organized, and free

of debris. If required, BMPs to be implemented to control specific sources of pollutants are discussed below.

- **Vehicles, Construction Equipment, and/or Petroleum Product Storage/ Dispensing**

  - Vehicles, equipment, and petroleum product storage/dispensing areas will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.

  - On-site fueling tanks and petroleum product storage containers will include secondary containment.

  - Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.

  - To perform emergency repairs on site, temporary plastic will be placed beneath the operations and, if raining, over the vehicle.

  - Contaminated surfaces will be cleaned immediately following any discharge or spill incident.

- **Chemical Storage**

  - Chemicals stored in the construction areas will have cover, containment, and protection provided on site.

  - Application of agricultural chemicals, including fertilizers, will be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. The manufacturers' recommendations for application procedures and rates will be followed.

- **Solid Waste**

  - Solid wastes that are expected to be generated by this action will consist of excavated soils, vegetation and debris removed from the ravines, personal protective equipment (PPE), disposable sampling equipment, and common garbage. Management of the excavated soils is discussed in Section 2.5 and in Element 5 above. All other wastes will be stored in secure and clearly marked containers prior to disposal.

Element 10 – Control Dewatering

There will be no dewatering as part of this construction project as it is not necessary.

Element 11 –Maintain BMPs

Temporary and permanent erosion and sediment control BMPs will be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs will be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency will be reduced to once every month.

Element 12 – Manage the Project

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Design the project to fit the existing topography, soils, and drainage patterns;
- Emphasize erosion control rather than sediment control;
- Minimize the extent and duration of the area exposed;
- Keep runoff velocities low;
- Retain sediment on site;
- Thoroughly monitor site and maintain all erosion and sediment control measures; and
- Schedule all earthwork during the dry season.

In addition, project management will incorporate the key components listed below. As this project site is located east of the Cascade Mountain Crest, the project will be managed according to the following key project components:

- **Phasing of Construction**

  - The construction project is being phased to the extent practicable to prevent the transport of sediment from the site during construction. Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the Interim Action activities.

  - Clearing and grading activities will be conducted only as necessary to the goal of removing contaminated soil. The clearing and grading areas and other areas required to preserve riparian buffers and large tree retention will be delineated on the site plans and at the construction site.

- **Inspection and Monitoring**

  - BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function.

  - This project is not anticipated to discharge stormwater to surface water and, therefore, a Certified Erosion and Sediment Control Lead is not required.

- **Maintenance of the Construction SWPPP**

  - This Work Plan, which contains the elements of a SWPPP, shall be retained on the site.

  - The Work Plan SWPPP elements will be modified whenever there is a significant change in the design, construction, operation, or maintenance of any BMP.

  - The Work Plan SWPPP elements will be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

  - The Work Plan SWPPP elements will be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the Work Plan SWPPP elements are ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Work Plan SWPPP elements will be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the

Work Plan SWPPP elements will be completed within 7 days following the inspection.

2.7 Site Restoration

This section discusses restoration of the site following construction activities associated with this Interim Action. Included in this discussion is the restoration of the ravine areas following backfilling, restoration of the ravine transfer areas, and the dismantling and restoration of the bermed screening/stockpile area.

2.7.1 West Discharge Ravine Restoration

Once the excavation and backfilling activities have been completed, the ravine will be revegetated in accordance with the restoration plan. A detailed restoration plan will be prepared and submitted by a Habitat and Restoration Professional along with the construction and grading plans prior to the start of field work. A 3-year monitoring period will be specified in the restoration plans to ensure an 80 to 90 percent survival rate of replanted vegetation. Additionally, these plans will address comments resulting from the 30-day public comment period.

The restoration plan will include the following general components. The ravine side slopes and bottom (except where backfilled with rock) will be revegetated by hydroseeding with appropriate native species, mulch, and tackifier. Areas near the river (waterward and 50 feet upland of OHW) requiring removal of vegetation will be restored with similar native vegetation types in generally similar locations. Areas requiring significant removal of large trees (to be avoided if possible per Section 2.4.1) will be replanted with live stakes and/or about 5-gallon size trees (native species) in generally similar locations, or as determined by the Habitat and Restoration Professional.

Bank restoration at the river's edge is not anticipated since excavation will only occur in the dry. However, areas below OHW, where excavation is completed to perform removal of impacted soil will be backfilled with larger sized material (e.g., rounded large gravel and cobbles) to minimize the potential for bank erosion. These areas could be vegetated with live stake planting of native species in joints between larger rock if indicated in the restoration plan or as directed by the Habitat and Restoration Professional. We anticipate this will be more important near the river to preserve riparian habitat.

2.7.2 Ravine Transfer Areas Restoration

Following the removal of the contaminated soils from the upper and lower WDR, the soil transfer areas will be dismantled. The first step in the breakdown of the transfer areas will be the removal of the 4- to 6-inch soil layer that was placed over the HDPE tarp for protection in the loader area (see Figure 2-4). This soil will be transported to the screening/stockpile area and handled as soil with >50 mg/kg PCB. See Appendix A for a description of the handling and characterization procedures to be used for soil once deposited in the screening/stockpile area.

With the removal of the soil from the loader areas, the segregation line consisting of ecology blocks and temporary fencing will be removed. The HDPE liner used in the loader areas will be rolled up and taken to the screening/ stockpile area for cleaning. Soil attached to the tarps will be removed inside the screening/stockpile area using pressure washing or similar techniques. Cleaned HDPE liners will be disposed of as municipal solid waste.

In the event that breaches of the liner are noted during removal, efforts will be made to determine whether contamination of the underlying soil has occurred. On-site field screening methods will be used to assess potential PCB contamination in the underlying soil surrounding a liner breach. Refer to Appendix A for a description of the field screening techniques. If required, contaminated soil will be removed in 6-inch lifts in the areas surrounding a liner breach and verification samples will be collected and analyzed.

2.7.3 Screening/Stockpile Area Restoration

The following details the steps necessary to dismantle the bermed screening/ stockpile area. As described in Section 2.5, the bermed screening/stockpile area is underlain by a continuous HDPE liner with 4 to 6 inches of clean soil overtop for liner protection (see Figure 2-7). Clean liner protection soil that has been in contact with soil with >50 mg/kg PCB will be removed from the tarp and disposed of with the WDR soil with >50 mg/kg PCBs. See Section 2.8 for soil disposal information.

Liner protection soil from the remainder of the screening/stockpile area and the soil load out area will be characterized using the procedures defined in Section A.3 of Appendix A.

Following completion of the WDR soil processing, the screening/stockpile area soil berm and material delivery ramps will be removed to permit access to the HDPE liner. Any liner breaches that are noted will be assessed using the

procedures described in Section 2.7.2. The tarps will be rolled up and disposed of with the soil containing >50 mg/kg PCBs.

The following steps outline the breakdown procedure of the screening/stockpile area:

- Remove and properly dispose of soil that has been in contact with >50 mg/kg PCBs WDR soil.
- Characterize and properly dispose of the remaining tarp protection soil in the bermed area.
- Characterize and properly dispose of the liner protection soil in the soil load-out area.
- Dismantle and remove the soil berm and material delivery ramps.
- Assess HDPE liner integrity following berm and protection soil removal. Perform field sampling if tarp breaches are noted.
- Dispose of the liner.

Subsequent to this Interim Action, Kaiser may construct a similar screening/ stockpile area for screening and segregation of additional non-hazardous stockpiles stored at various locations on Kaiser property. The location of a new temporary screening and sorting facility will not be in the vicinity of the WDR activities. The HDPE tarp liner and other disposable materials used for WDR work will not be employed for future soil screening operations at Kaiser.

2.8 Media Disposal

Soil removed from the WDR will fall into two waste designation categories according to TSCA-disposal requirements: >50 mg/kg PCBs and <50 mg/kg PCBs. Site characterization data will be used initially to determine the extent of soil with >50 mg/kg PCBs in the WDR. Defined excavation boundaries surrounding characterization samples, which contained >50 mg/kg PCBs will be assumed to be segregated. No further characterization of this soil will occur. Soil excavated from defined areas surrounding characterization samples, which contained <50 mg/kg PCBs will be sampled for waste designation purposes as the stockpiles are generated. Refer to Sections A.2 and A.3 of Appendix A for a more complete discussion of excavation boundaries and soil segregation and characterization techniques.

Soil with >50 mg/kg PCBs will be sent to the Chemical Waste Management Subtitle C Facility in Arlington, Oregon. This facility is permitted to receive PCB remediation waste, which is defined as media containing >50 mg/kg PCBs. Waste soil determined to have <50 mg/kg PCBs will be sent to Waste Management's Columbia Ridge Subtitle D Landfill in Arlington, Oregon.

Transport of soil with >50 mg/kg PCBs has yet to be determined. Shipment to the Subtitle C Facility in Arlington will likely be accomplished by trucks with lined 40-cubic-yard roll off containers. Regardless of the manner of transport, this operation will meet the Department of Transportation Hazardous Materials Regulations of 49 CFR Parts 171 through 180. Shipment of soil with <50 mg/kg PCBs to the Subtitle D Landfill in Arlington will also likely be accomplished by trucks with 40-cubic-yard roll off containers. Any roll off boxes awaiting transport for disposal will be secured and covered.

Non-liquid cleaning materials and personal protective equipment waste generated during field work will be placed in a Kaiser dumpster for disposal as municipal solid waste at a permitted and licensed facility.

2.9 Cultural Resources Assessment

Historic Research Associates (HRA) conducted a cultural resource assessment of the WDR in late April through early May 2007. The work included an archive review of the history of the area and field work that included site reconnaissance and several hand dug test pits in areas of the ravine that will be excavated. The purpose of this assessment was to assess the likelihood of encountering archaeological or historic materials during construction activities. The report for this cultural resource assessment is pending, but will be made available to project stakeholders prior to the final approval of this work plan. Preliminary discussions with HRA after the field work indicate that significant cultural resources are not anticipated at the site.

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity will stop, the area will be secured, and the Washington State Department of Archaeology and Historic Preservation (DAHP) and affected Native American Tribes will be contacted.

2.10 Schedule

The construction and field sampling activities described in this Work Plan are expected to take 60 days to complete. A tentative window for project implementation has been set to occur between July 15, 2007, and September 15, 2007. The start date of July 15 will depend on completing the 30-day public

review period allowing time for Work Plan revisions, if necessary, based on public comments. A critical aspect of the start date will be allowing sufficient time to complete the near river work prior to the end of the June 15 to August 15 work window (for work below OHW).

Within 60 days of the completion of the Interim Action work, a completion report will be prepared and submitted to Ecology. This report will include a summary of activities undertaken during the Interim Action, as-built drawings of the ravines following backfill and revegetation, a description of sampling activities along with analytical results, and a full account of disposal records.