Draft
West Discharge Ravine Interim Action Work Plan
Kaiser Trentwood Facility
Spokane Valley, Washington

Prepared for
Kaiser Aluminum
Fabricated Products, LLC

May 21, 2007
2644-105

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WEST DISCHARGE RAVINE INTERIM ACTION WORK PLAN
KAISER TRENTWOOD FACILITY
SPOKANE VALLEY, WASHINGTON

1.0 INTRODUCTION

This Interim Action Work Plan describes the proposed tasks and field methods that will be used to address polychlorinated biphenyl- (PCB-) and petroleum-contaminated soil in the West Discharge Ravine (WDR). This Work Plan was prepared under Ecology Order DE 2692 and will be accomplished in accordance with the Model Toxics Control Act (MTCA) requirements for Interim Actions (WAC 173-340-430).

1.1 Purpose

Based on soil data collected from the WDR during the Phase I Remedial Investigation (RI), Kaiser and Ecology determined that conducting the WDR cleanup as an Interim Action is necessary to reduce potential risks to human health and the environment. The primary purpose of this Interim Action is to address PCB- and petroleum-contaminated soil in the bottom of the WDR. Associated with this will be verification sampling and analysis to confirm cleanup levels are met, site restoration to prevent erosion and enhance habitat, and screening and disposal of the excavated soil.

1.2 Report Organization

This Work Plan has been developed in accordance with WAC 173-340-430 and consists of five sections:

- **1.0 INTRODUCTION** describes the project background, facility description, objectives, and report organization.
- **2.0 INTERIM ACTION WORK PLAN** discusses existing site conditions, previous investigation results, additional data needs, Interim Action alternatives evaluated, cleanup levels, design and construction plans, soil management and disposal, stormwater management, site restoration, cultural resources assessment, and project schedule.
- **3.0 APPLICABLE RELEVANT AND APPROPRIATE REQUIREMENTS** lists the federal, state, and local requirements that will apply to this interim action.

- **4.0 PUBLIC PARTICIPATION** discusses the public review requirements of this project.

- **5.0 REFERENCES** presents the references cited in this report.

These five sections are supported by tables and figures that are numbered and presented at the end of their respective sections. Further, the report contains the following appendices.

- **A – SAMPLING AND ANALYSIS PLAN AND QUALITY ASSURANCE PROJECT PLAN** describes the methods to be used for field sampling, verification sampling, excavated soil characterization sampling, and the analytical methods and quality assurance/quality control procedures to ensure adequate data quality.

- **B – HEALTH AND SAFETY PLAN** contains the site-specific requirements to be followed by field personnel, which ensure the work is conducted in a safe manner and follows state and federal Occupational Health and Safety regulations.

1.3 Location and Facility Description

The Kaiser Trentwood facility, which consists of about 512 acres of land, is located in the Spokane River Valley at East 15000 Euclid Avenue, about 10 miles east of downtown Spokane in the City of Spokane Valley, Washington (see Figure 1-1 for location). Township/range coordinates for the site are Township 25 North, Range 44 East, Section 2 (south ½), Section 10 (northeast ¼), and Section 11 (north ½).

The Kaiser Trentwood aluminum rolling mill was originally planned and constructed by the United Engineering and Foundry Company of Pittsburgh, Pennsylvania, acting "for and on the behalf of" the Defense Plant Corporation. The facilities purpose was to provide aluminum for the manufacture of fighter planes and bombers used in the World War II effort. The first construction machinery was at the site in April 1942, and the first aluminum ingot was cast from the mill on November 24, 1942. During the war, 75 percent of the aluminum was heat-treated, and 25 percent was annealed. The plant successfully supported the war effort, and at war's end, was placed in mothball status (with weekly standby maintenance).

Kaiser Aluminum & Chemical Corporation first leased the government's surplus Trentwood facility in 1946, as well as its Mead smelter. With these facilities, plus a smelter in Tacoma, Washington, along with relatively inexpensive alumina

sources, Kaiser entered into the aluminum business. Kaiser redesigned machinery throughout the plant to allow for manufacture of more diverse products. For example, the cold-roll area was changed to produce soft alloys, which were used for transportation, building materials, and consumer goods. Flat sheet, coil sheet, coring sheet, and plate were the aluminum products initially produced at Trentwood, in two basic alloy types: soft (non-heat-treatable) and hard (heat-treatable).

At the end of 3 years of operation, Kaiser purchased the facility from the federal government.

Post-World War II domestic and overseas demands for aluminum were above expected levels, and with the advent of the Korean War in the early 1950s, defense needs also increased. A booming economy prompted Kaiser to expand its Trentwood facility to keep up with the demand.

During the Korean War, Trentwood installed machinery for roll forming and added equipment for painting, slitting, and anodizing their products. In the late 1950s, Kaiser was developing a continuous heat-treat furnace that would significantly reduce the labor involved in the manual process.

The 1960s brought an important capital and process addition to the Kaiser Trentwood facility; coating coil to be used as the ends of beverage cans. Kaiser had the industries first can stock finishing line.

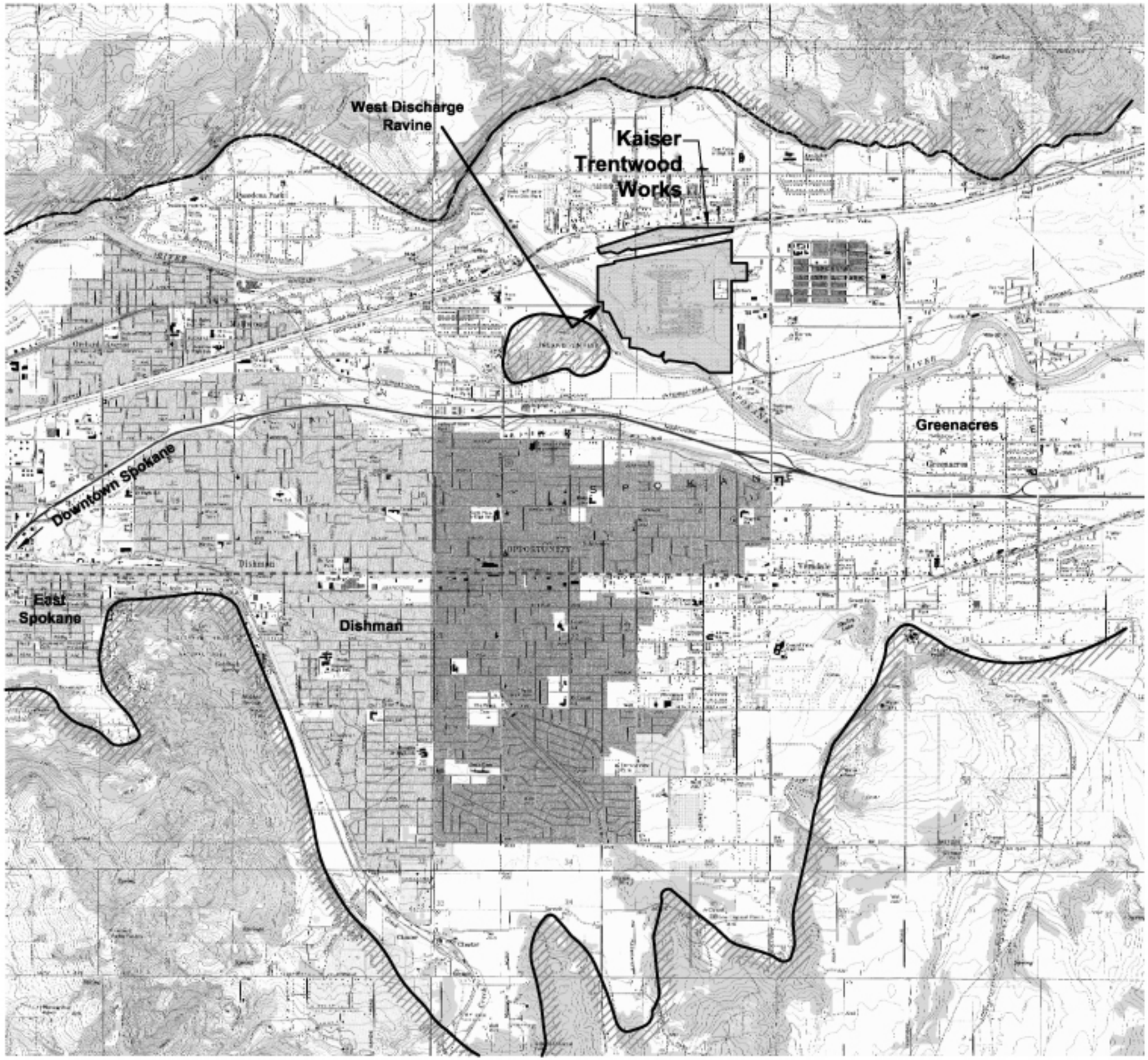
The 1970s brought changes associated with passing of the Clean Air Act (CAA) and Clean Water Act (CWA). Induction and rotary barrel furnace emissions in the remelt department were controlled by new baghouses. An industrial wastewater treatment plant was constructed in 1972-1973, consisting of a cooker, oil/water separators, wastewater storage tanks, Hoffman tank, lime neutralization system, a clarifier, drum filter, sludge bin, surge pond, and lagoon.

The 1980s and 1990s were a period of modernization and equipment upgrade at the Kaiser Trentwood mill, to keep pace with the changes in technology and customer needs. Since 2001, plant production operations have become more focused on the aircraft, transportation, and industrial markets. As part of this change, the beverage can body and lid stock were eliminated and overall plant production volumes were reduced.

A number of upgrades were made to the Trentwood wastewater treatment processes in 1973 associated with requirements of the CWA. These included the installation of the Industrial Wastewater Treatment (IWT) plant designed for the treatment of concentrated oil/emulsion, hexavalent chromium, and related

wastewaters. Additionally, the wastewater originating from the Casting Operations, Oil Reclamation Building (ORB), Hot Line, and associated areas that were previously discharged to the river through the old WDR were routed to the new IWT plant and lagoon system. The location of the former WDR is shown on Figure 1-1.

According to aerial photographs, the ravine area located east of Kaiser's fence line began to be filled to make way for the sanitary and IWT plants in about 1972. Today, the ravine is visible west of the fence line and appears to be in its original configuration (Figure 1-2). Moving up the ravine east of the fence line, the ravine has been filled to provide a road crossing east of which the ravine is again visible to within about 20 feet of the Emergency Bypass Basin for the IWT plant. The remainder of the ravine up from this point has been filled. Because of the permeable nature of site soils, the WDR is typically dry and does not contain water.



Boundary of Spokane Valley Aquifer

N

0 4000 8000

Scale in Feet

Note:
Base map prepared from USGS 7.5 minute quadrangle maps of Spokane NE and Greenacres, Washington, dated 1986 and Freeman and Spokane SE, Washington, dated 1973.

Kaiser West Discharge Ravine Spokane Valley, Washington	
Project Vicinity Map	
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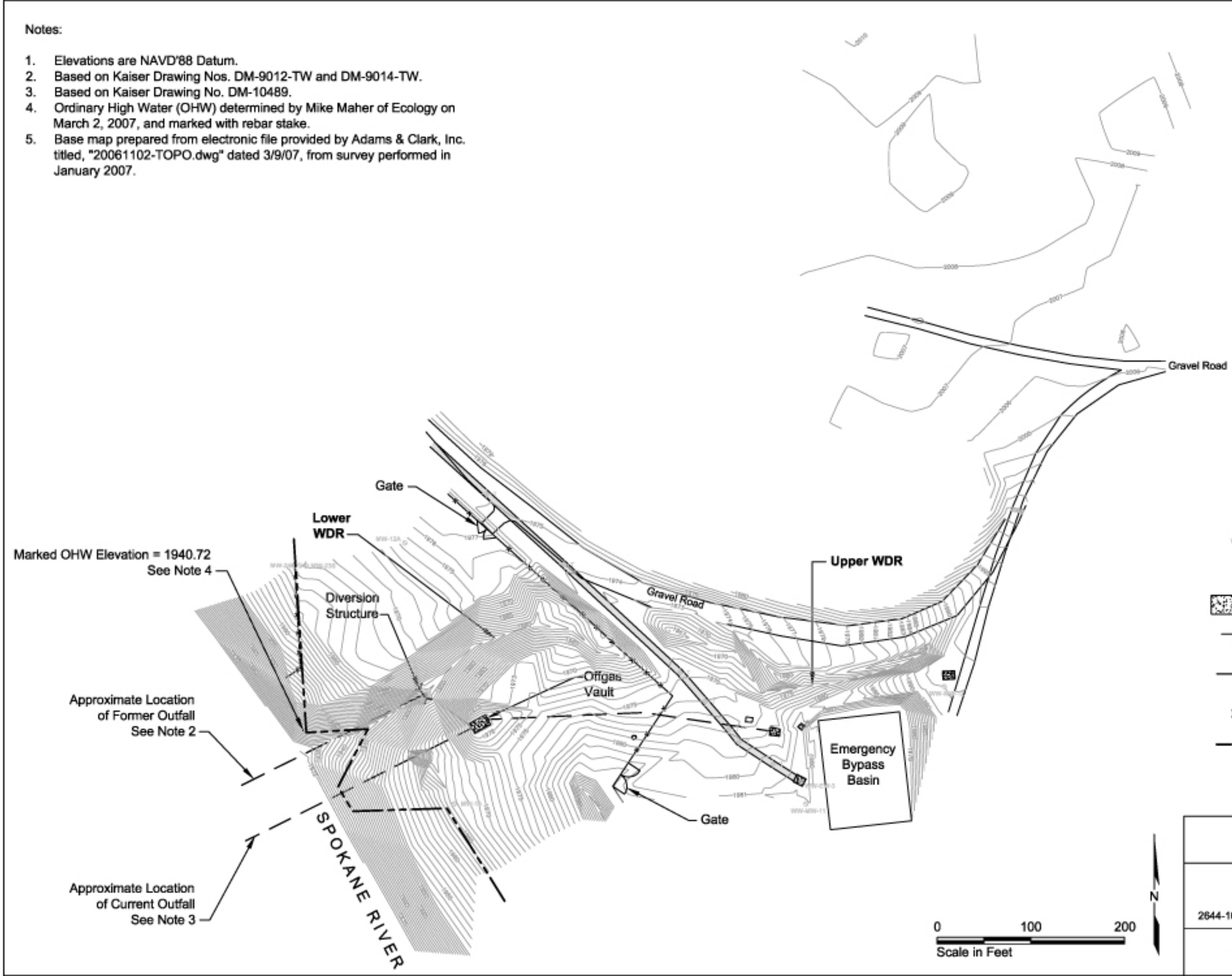
EAL 04/16/07 2644105-013.dwg

Notes:

1. Elevations are NAVD'88 Datum.
2. Based on Kaiser Drawing Nos. DM-9012-TW and DM-9014-TW.
3. Based on Kaiser Drawing No. DM-10489.
4. Ordinary High Water (OHW) determined by Mike Maher of Ecology on March 2, 2007, and marked with rebar stake.
5. Base map prepared from electronic file provided by Adams & Clark, Inc. titled, "20061102-TOPO.dwg" dated 3/9/07, from survey performed in January 2007.



Kaiser West Discharge Ravine
Spokane Valley, Washington

West Discharge Ravine Existing Conditions Map

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Figure 1-2

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.

3.0 APPLICABLE, OR RELEVANT AND APPROPRIATE REQUIREMENTS

This Interim Action will protect human health and the environment by eliminating the transport of contaminated soil to the Spokane River from the WDR, substantially reducing the potential for leaching of contaminants from soil to groundwater, and substantially reducing the potential for site workers to have direct contact with contaminated soil.

3.1 Compliance with ARARs

This Interim Action will comply with federal, state, and local applicable or relevant and appropriate requirements (ARARs). Under the MTCA, applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or local laws that specifically address a hazardous substance, cleanup action, location, or other circumstance encountered at a MTCA site. Relevant and appropriate requirements are cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental or local requirements that, while not "applicable" to a hazardous substance, cleanup action, location, or other circumstance at a MTCA site, address problems or situations sufficiently similar to those encountered at a MTCA site that their use is well suited to the particular site.

Under RCW 70.105D.090, persons conducting a remedial action under an agreed order with Ecology are exempt from state-administered procedural requirements and the procedural requirements of any local laws requiring or authorizing local government permits or approval. However, the substantive requirements of state and local laws requiring permits or approvals shall be complied with. Thus, only the substantive requirements of state and local laws apply to the WDR Interim Action.

Site ARARs discussed below are subject to review and concurrence by the state and public prior to the implementation of this Work Plan.

Washington Water Quality Standards for Surface Waters (Chapter 90.48 RCW and Chapter 173-201A WAC). These regulations are applicable to discharges to surface water in Washington State. These regulations are applicable to the Interim Action to the extent that this action will result in a discharge to surface water in Washington State, i.e., during excavation and fill work. Note that the construction plan is designed to prevent any discharge of excavated or fill material into surface water bodies.

Clean Water Act, Section 404—Dredge or Fill Regulations (33 CFR Parts 320-330, 40 CFR Part 230). These requirements are applicable to construction activities conducted below the OHW mark in the ravine. They establish requirements that limit the discharge of dredged or fill material into navigable waters. Again, no discharge of material to navigable waters is anticipated. However, excavation and filling below the OHW mark is anticipated during implementation of this Interim action.

Hydraulics Project Approval (Chapter 220-110 WAC). This regulation applies to construction, which may require work within the OHW mark of the river that could change the natural flow or bed of the water body (and therefore has the potential to affect fish habitat). The requirements include bank protection (WAC 220-110-050), bed materials restrictions, siltation minimization, and debris disposal (WAC-222-110-270).

Toxic Substances Control Act (40 CFR 761). TSCA is applicable to the remediation and disposal of materials containing PCBs. The Environmental Protection Agency (EPA) conducts oversight of TSCA self-implementing cleanups. As MTCA limits for PCBs are more stringent in this case, EPA has deferred cleanup oversight to Ecology under MTCA. TCSA requirements for verification sampling and analysis and PCB disposal will be adhered to for this Interim Action.

Washington Hazardous Waste Management Act Regulations (Chapter 173-303 WAC) and Resource Conservation and Recovery Act (RCRA) Subtitle C Regulations (40 CFR Parts 261 and 268). These regulations are applicable to the identification and disposal of solid wastes that designate as dangerous (including federally hazardous) wastes. Requirements for designation, management, and disposal of dangerous/hazardous waste apply to this interim action. However, generation of such waste is not anticipated.

Washington Solid Waste Management Act Regulations (Chapter 173-350 WAC). These regulations are applicable to the management and disposal of solid waste materials that are not Washington dangerous wastes. They provide minimum functional standards for solid waste handling. These requirements apply to solid (non-hazardous) wastes generated during the project.

Washington Water Pollution Control Law & Federal Clean Water Act Storm Water Multi-Sector General Permit for Construction Activities (Chapter 90.48 RCW and 40 CFR 122.26, respectively). These regulations provide that discharges of stormwater associated with "construction activities over 1 acre" require an NPDES permit. Although a permit will not be required for implementing the remedy on the site, the substantive requirements of the state

Construction Stormwater General Permit apply to elements of the Interim Action that could result in discharges of stormwater, including excavation and fill placement and soil screening and segregation. The general permit provides for use of sediment and erosion controls, and stormwater management measures.

Washington State Environmental Policy Act (SEPA) (Chapter 197-11 WAC). These regulations require the lead state or local agency to evaluate the environmental impacts of actions and identify possible alternatives prior to committing to a particular course of action. SEPA also provides for the preparation of environmental documentation, mitigation for project impacts where applicable, and encourages public involvement in the decision making process. Ecology is the lead agency under SEPA for this Interim Action.

Washington Shoreline Management Act of 1971 (Chapter 90.58 RCW), Shoreline Master Program Planning Guidelines (Chapter 173-26 WAC), Shoreline Management Permit and Enforcement Procedures (Chapter 173-27 WAC), and City of Spokane Valley Shoreline Master Program and Regulations (Chapter 10.20). Management of shorelines in the Trentwood area has been delegated to the City of Spokane Valley. Development activities within 250 feet of a designated shoreline need to comply with the substantive requirements of the City's Shoreline Management Program. This will apply to grading and filling activities in the WDR.

Washington Archaeological Sites and Resources Act (Chapter 27.53 RCW). This state law requires identification, preservation, and special handling of cultural and archaeological resources. The Spokane Tribe of Indians has notified Ecology of potential archaeological sites of interest that may be on or near the Kaiser property. To address the Tribe's concerns Kaiser contracted with an independent, qualified cultural resource firm to conduct a cultural resource assessment in the WDR (see Section 2.9).

4.0 PUBLIC PARTICIPATION

This Interim Action is subject to public review in accordance with MTCA Public Participation requirements (WAC 173-340-600) and SEPA Public Notice requirements (WAC 197-11-510). As the lead agency in the decision making for this Interim Action, Ecology will take the lead on fulfilling public participation requirements. Kaiser will provide Ecology with assistance, as requested. At a minimum, a newspaper ad will announce that copies of this Work Plan will be available during a public review period. Construction activities related to this Interim Action will not commence until after the public review process is complete.

5.0 REFERENCES

Hart Crowser 2003. Draft Groundwater Remedial Investigation/Feasibility Study, Kaiser Trentwood Facility, Spokane, Washington. J-2644-76. Modified July 2003.

Hart Crowser 2005. Phase I Remedial Investigation Work Plan, Kaiser Trentwood Facility, Spokane, Washington. J-2644-95. December 21, 2005.

Hart Crowser 2007. Phase I Technical Memorandum, Kaiser Trentwood Facility, Spokane, Washington. J-2644-104. February 27, 2007.

Ecology 2004. Stormwater Management Manual for Eastern Washington, Publication Number 04-10-076, September, 2004.

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Table 2-1 - Surface Soil Sample Data - West Drainage Ravine

Sample Number	Depth in Feet	PID	Description
WDR-SS-1	0 to 1	0.5	Three- to four-inch-diameter dead tree limbs over one inch of compact Forest Duff over damp, brown, slightly silty, sandy GRAVEL with cobbles and scattered organic material and woody debris.
WDR-SS-2	0 to 1	5.6	Two inches of compact Forest Duff over dry to damp, brown, slightly silty, sandy GRAVEL with cobbles and scattered organic material.
WDR-SS-3	0 to 1	0.4	One inch of compact Forest Duff over dry, brown, slightly silty sandy GRAVEL with cobbles and organic material.
WDR-SS-4	0 to 1	0.2	One inch of compact Forest Duff over dry to damp, brown, slightly silty, sandy GRAVEL with cobbles and scattered organic material and woody debris.
WDR-SS-5	0 to 1	0.4	Three-fourths inch of compact Forest Duff over damp, dark brown, slightly silty, sandy GRAVEL with cobbles and scattered organic material and woody debris.
WDR-SS-6	0 to 1	0.2	One inch of compact Forest Duff over dry, light brown, slightly sandy GRAVEL with trace of silt and scattered organic material and woody debris.
WDR-SS-7	0 to 1	0.4	One and a half inches of compact Forest Duff over dry, brown, slightly silty, sandy GRAVEL with cobbles and scattered organic material and woody debris.
WDR-SS-8	0 to 1	0.2	One-half inch of compact Forest Duff over dry, light brown, silty, sandy GRAVEL with cobbles and minor organic material (rootlets).
WDR-SS-9	0 to 1	0.6	One inch of compact Forest Duff over damp, dark brown, silty, sandy GRAVEL with cobbles and abundant organic material (rootlets).
WDR-SS-10	0 to 1	0.3	One inch of compact Forest Duff over dry to damp, dark brown, slightly silty, sandy GRAVEL with cobbles and abundant organic material (rootlets). Organic-rich to 5-inch depth.
WDR-SS-11	0 to 1	0.4	One inch Moss over one-half inch of compact Forest Duff over dry to damp, dark brown, silty, sandy GRAVEL with cobbles and abundant organic material (rootlets). Organic-rich to 6-inch depth.
WDR-SS-12	0 to 1	0.5	One inch of Moss over one inch of compact Forest Duff over dry, brown, slightly silty, sandy GRAVEL with cobbles and abundant organic material (rootlets). Organic-rich to 8-inch depth.
WDR-SS-13	0 to 1	0.2	Two inches of Moss over compact Forest Duff over damp, brown, slightly silty, sandy, very cobbly GRAVEL with abundant organic material. Organic-rich to 8-inch depth.
WDR-SS-14	0 to 1	0.1	One and one-half inches of Moss and Forest Duff over damp, brown, slightly silty, sandy, very cobbly GRAVEL with abundant wood fragments, stems, roots, and organic material. Organic-rich to 8-inch depth.
WDR-SS-15	0 to 1	0.3	One inch of Moss over damp, brown, slightly silty, slightly sandy GRAVEL with moderate organic material. Organic-rich to 8-inch depth.
WDR-SS-16	0 to 1	0.3	Trash (plywood and miscellaneous debris) over minimal Forest Duff over damp, brown, slightly silty to silty, sandy GRAVEL with scattered organic material. Organic-rich to 8-inch depth.
WDR-SS-17	0 to 1	0.8	One inch of Moss over damp, brown, slightly silty, sandy GRAVEL with trace of organic material.
WDR-SS-18	0 to 1	0.5	One-half inch of Moss over dry to damp, gray-brown, slightly sandy GRAVEL with trace of organic material.

Table 2-2 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	WDR-SS-1	WDR-SS-100	WDR-SS-2	WDR-SS-3	WDR-SS-4	WDR-SS-101	WDR-SS-5
Sampling Date	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006
		Dup of WDR-SS-1				Dup of WDR-SS-4	
Conventionals in %							
Moisture	17	17	16	6	15	14	15
Total Organic Carbon					1.18	1.51	
Total Solids	84.9	83.9	94.6	96.8	94.9	95.1	94.2
PCBs in mg/kg							
Aroclor 1016	1 U	1 U	1 U	1 U	0.1 U	0.1 U	1 U
Aroclor 1221	2 U	2 U	2 U	2 U	0.2 U	0.2 U	2 U
Aroclor 1232	1 U	1 U	1 U	1 U	0.1 U	0.1 U	1 U
Aroclor 1242	1 U	1 U	1 U	1 U	0.1 U	0.1 U	1 U
Aroclor 1248	38 J	41 J	73 J	23 J	4	3.6	54
Aroclor 1254	1 U	1 U	1 U	1 U	0.1 U	0.1 U	1 U
Aroclor 1260	1 U	1 U	1 U	1 U	0.1 U	0.1 U	1 U
Total PCBs	38	41	73	23	4	3.6	54
NWTPH HCID in mg/kg							
Gasoline	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	50 U	50 U	370	140	50 U	50 U	920
Bunker C	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	150	120	670	730	300	190	2000

Table 2-2 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	WDR-SS-6	WDR-SS-7	WDR-SS-8	WDR-SS-9	WDR-SS-10	WDR-SS-11	WDR-SS-12
Sampling Date	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006
Conventionals in %							
Moisture	7	9	14	18	14	15	16
Total Organic Carbon	1.07		1.08				
Total Solids	98.4	97.7	97.6	90.8	93.8	88.1	94.5
PCBs in mg/kg							
Aroclor 1016	1 U	1 U	1 U	1 U	0.1 U	0.1 U	10 U
Aroclor 1221	2 U	2 U	2 U	2 U	0.2 U	0.2 U	20 U
Aroclor 1232	1 U	1 U	1 U	1 U	0.1 U	0.1 U	10 U
Aroclor 1242	1 U	1 U	1 U	1 U	0.1 U	0.1 U	10 U
Aroclor 1248	85	28	43	29	5.2	3.2	300 J
Aroclor 1254	1 U	1 U	1 U	1 U	0.1 U	0.1 U	10 U
Aroclor 1260	1 U	1 U	1 U	1 U	0.1 U	0.1 U	10 U
Total PCBs	85	28	43	29	5.2	3.2	300
NWTPH HCID in mg/kg							
Gasoline	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	640	180	170	50 U	50 U	50 U	1900
Bunker C	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	1400	630	530	220	290	150	3200

Table 2-2 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	WDR-SS-13	WDR-SS-14	WDR-SS-15	WDR-SS-16	WDR-SS-17	WDR-SS-18
Sampling Date	5/11/2006	5/11/2006	5/11/2006	5/11/2006	5/11/2006	5/11/2006
Conventionals in %						
Moisture	17	14	9	15	8	6
Total Organic Carbon						
Total Solids	93.2	84.5	98.5	92.3	98.7	97.7
PCBs in mg/kg						
Aroclor 1016	10 U	1 U	1 U	20 U	1 U	1 U
Aroclor 1221	20 U	2 U	2 U	40 U	2 U	2 U
Aroclor 1232	10 U	1 U	1 U	20 U	1 U	1 U
Aroclor 1242	10 U	1 U	1 U	20 U	1 U	1 U
Aroclor 1248	650 J	53	63	360 J	66	41
Aroclor 1254	10 U	1 U	1 U	20 U	1 U	1 U
Aroclor 1260	10 U	1 U	1 U	20 U	1 U	1 U
Total PCBs	650	53	63	360	66	41
NWTPH HCID in mg/kg						
Gasoline	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	3400	140	740	1800	400	190
Bunker C	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	12000	620	3100	5800	1600	440

U = Not detected at the detection limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte.

Table 2-3 - Grain Size Distribution for West Discharge Ravine Soil

Sample ID	Sieve	Cumul. Wt. Retained	Percent finer
W. Ravine			
	6 inch	0.00	100.0
	4 inch	6164.00	89.1
	3 inch	7929.00	75.0
	2 inch	15442.00	47.6
	1.5 inch	8244.00	33.0
	1 inch	5530.00	23.2
	0.75 inch	2257.40	19.2
	0.50 inch	529.86	15.3
	0.375 inch	336.47	12.9
	# 4	554.50	8.8
	# 10	413.37	5.8
	# 20	141.63	4.7
	# 40	96.06	4.0
	# 60	77.96	3.5
	# 100	64.45	3.0
	# 200	72.07	2.5

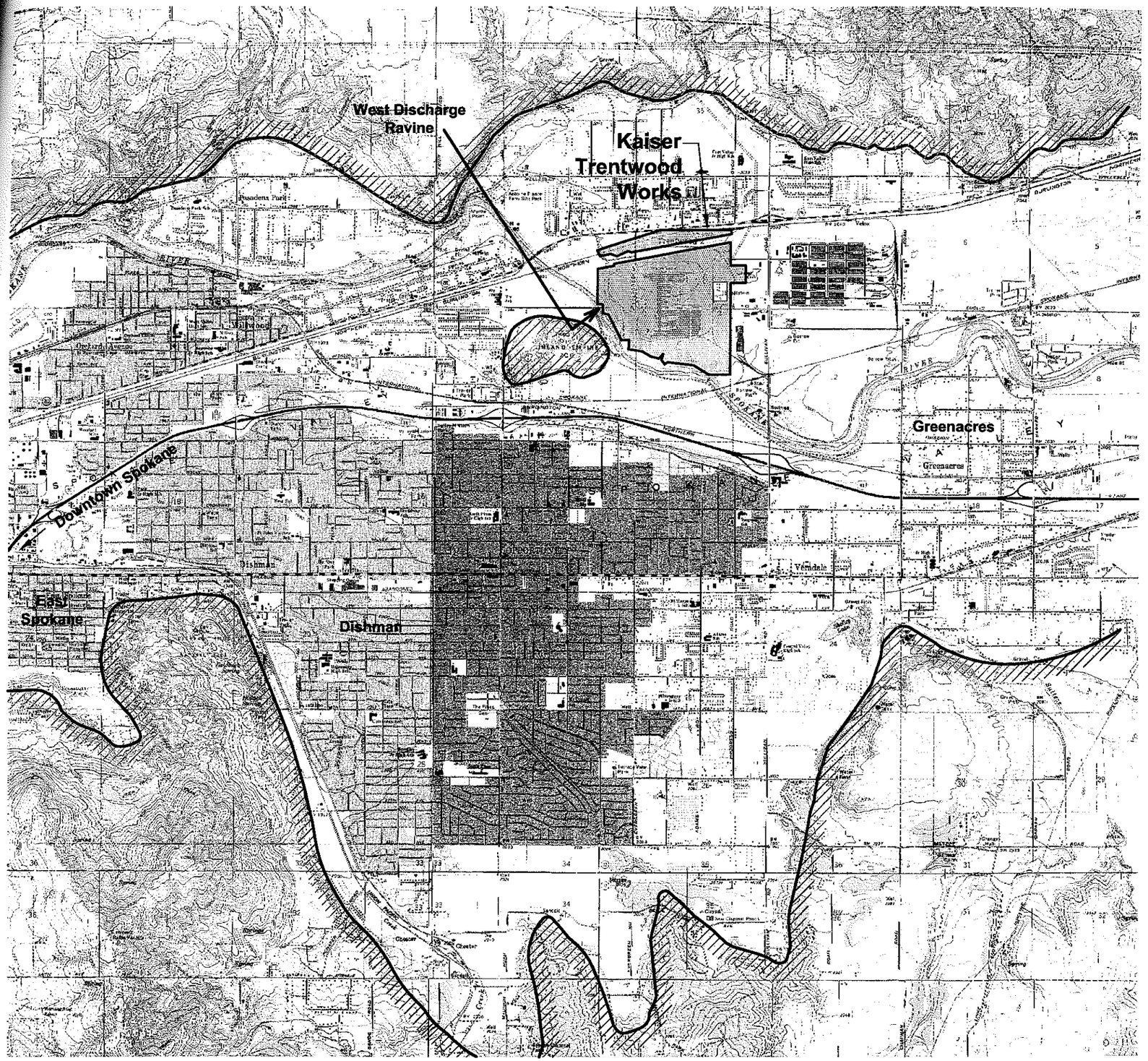
Note: #10 fraction primarily wood, bark, and organic material.

Table 2-4 - Particle Size Distribution for West Discharge Ravine Soil

Sample ID	Parameter	Value
W. Ravine		
	Cobbles in %	25.0
	Gravel in %	66.2
	Sand in %	6.3
	Silt/Clay in %	2.5
	D85	92.0
	D60	61.0
	D50	52.7
	D30	34.9
	D15	12.3
	D10	6.06
	Cc	3.29
	Cu	10.07
	Description	Slightly sandy, cobbly GRAVEL
	USCS	GP

Table 2-5 - Summary of Alternatives for WDR Interim Action

Alternative	Description
1—No Action	• No active cleanup would occur. • No significant changes in PCB concentrations would occur, but some reduction of petroleum hydrocarbon concentrations is expected due to natural attenuation. • Does not include monitoring.
2—Capping with Institutional Controls and Monitoring	• Includes capping of soil above CULs with clean fill. • Includes institutional controls to restrict land use and control site access to preserve cap integrity. • Includes compliance monitoring to evaluate cap integrity and effectiveness.
3—Excavation and Off-Site Disposal of Site Soils	• Includes excavation and off-site disposal of contaminated soil above CULs. • Includes backfilling excavated areas with clean soil. • Includes habitat restoration.



Boundary of Spokane Valley Aquifer

N

0 4000 8000

Scale in Feet

Note:
Base map prepared from USGS 7 5 minute quadrangle maps of Spokane NE and Greenacres, Washington, dated 1986 and Freeman and Spokane SE, Washington dated 1973.

Kaiser West Discharge Ravine
Spokane Valley, Washington

Project Vicinity Map

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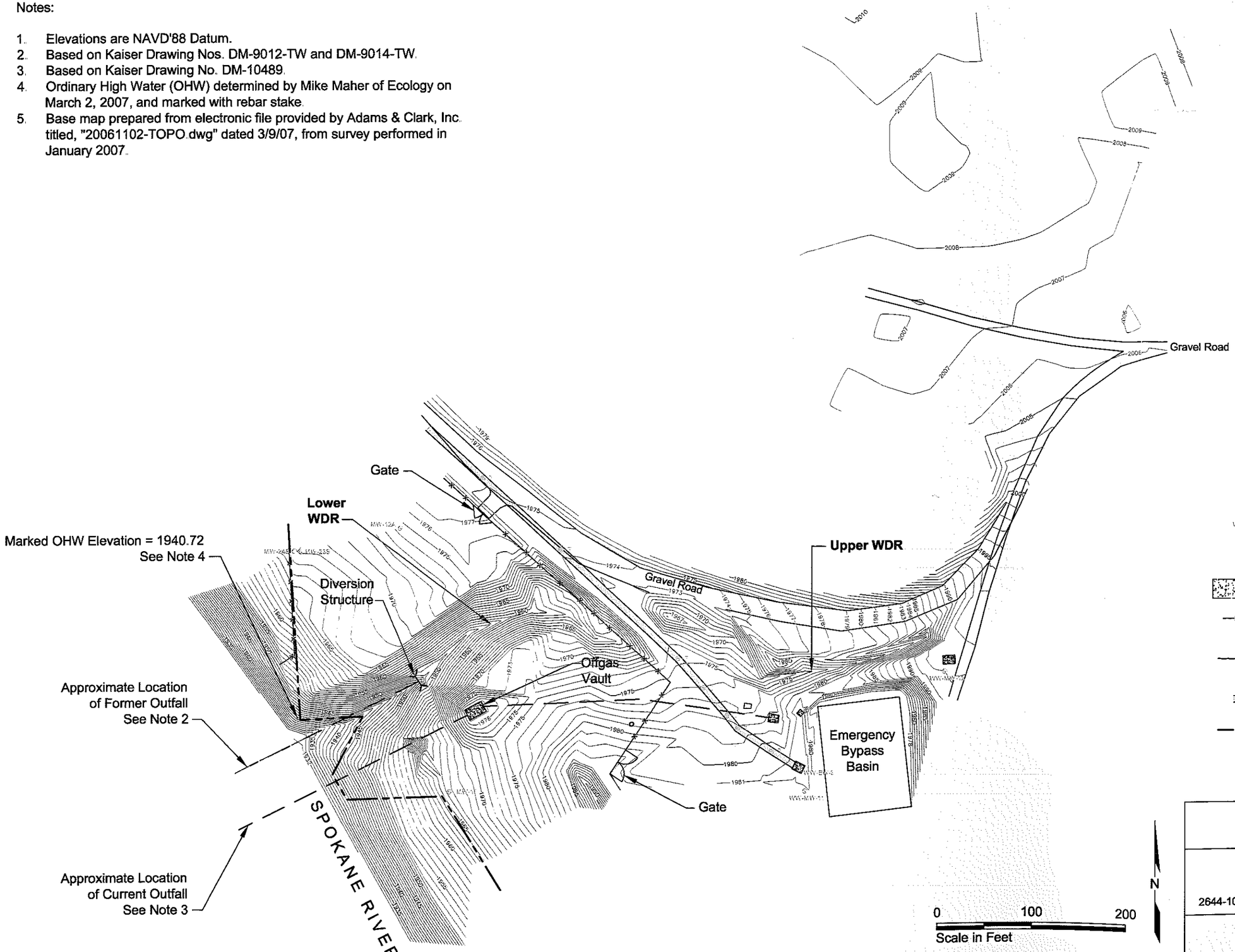
Figure
1-1

EAL 04/16/07 2644105-013.dwg

Notes:

1. Elevations are NAVD'88 Datum.
2. Based on Kaiser Drawing Nos. DM-9012-TW and DM-9014-TW.
3. Based on Kaiser Drawing No. DM-10489.
4. Ordinary High Water (OHW) determined by Mike Maher of Ecology on March 2, 2007, and marked with rebar stake.
5. Base map prepared from electronic file provided by Adams & Clark, Inc. titled, "20061102-TOPO.dwg" dated 3/9/07, from survey performed in January 2007.



Kaiser West Discharge Ravine
Spokane Valley, Washington

West Discharge Ravine
Existing Conditions Map

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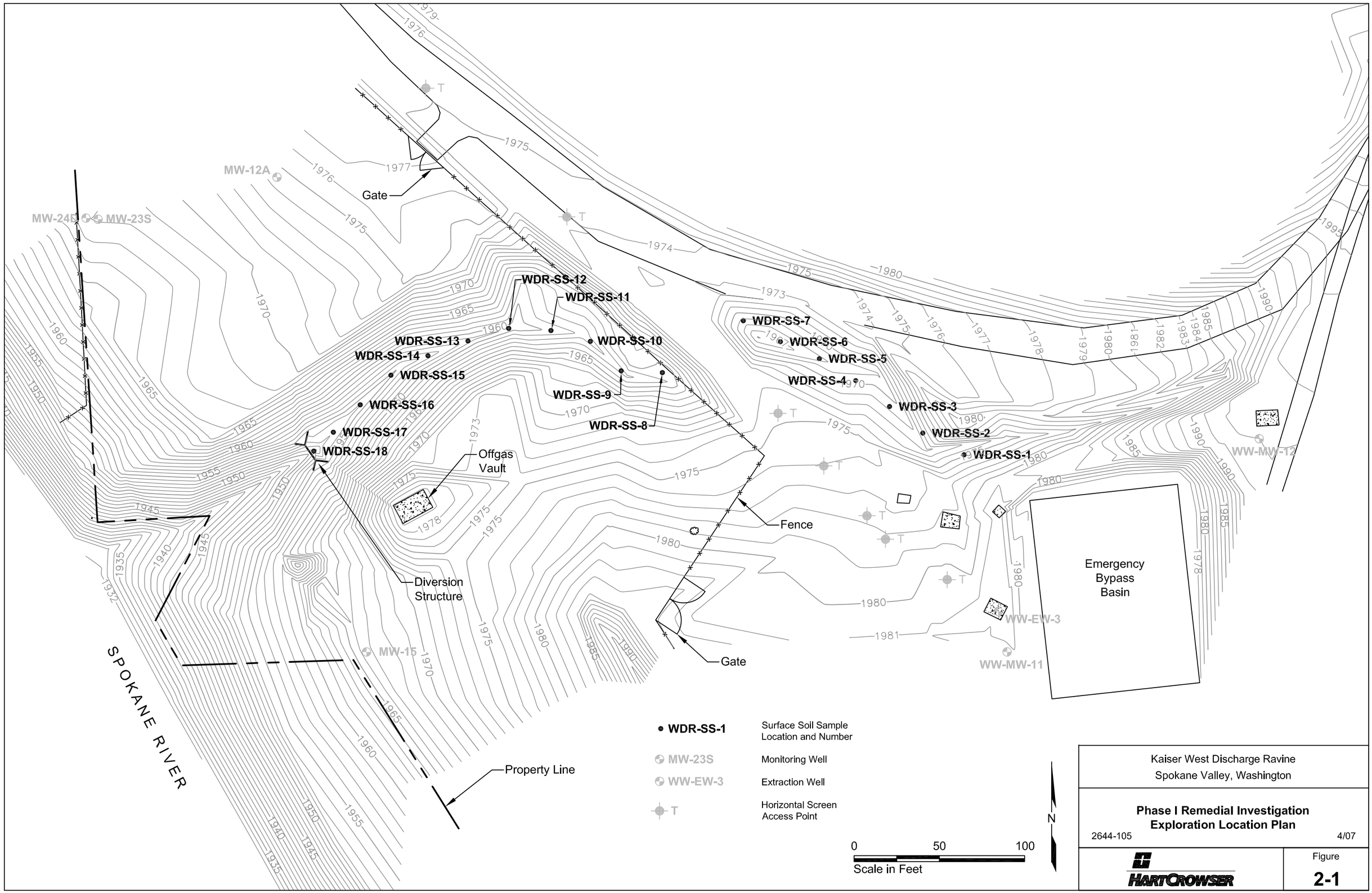
Figure
1-2

SRN 04/16/07 2844105-006.dwg


MW-12A
MW-24D
MW-23S
Gate
WDR-SS-12
WDR-SS-11
WDR-SS-13
WDR-SS-14
WDR-SS-15
WDR-SS-16
WDR-SS-17
WDR-SS-18
WDR-SS-10
WDR-SS-9
WDR-SS-8
WDR-SS-7
WDR-SS-6
WDR-SS-5
WDR-SS-4
WDR-SS-3
WDR-SS-2
WDR-SS-1
WW-MW-12
Offgas Vault
Diversion Structure
Fence
Gate
Emergency Bypass Basin
WW-EW-3
WW-MW-11
MW-15
SPOKANE RIVER
Property Line
WDR-SS-1 Surface Soil Sample Location and Number
MW-23S Monitoring Well
WW-EW-3 Extraction Well
T Horizontal Screen Access Point
N
0 50 100
Scale in Feet
Kaiser West Discharge Ravine
Spokane Valley, Washington
Phase I Remedial Investigation
Exploration Location Plan
2644-105
4/07
HARTCROWSER
Figure
2-1
EAL 04/16/07 2644105-004.dwg

Notes:

1. Preserve trees, shrubs, and vegetation to the extent practicable. Removal of suspect soil takes precedence over avoiding vegetation.
2. Install TESC measures prior to earthwork activities on site.
3. Use ditches or other BMPs to prevent up slope surface water running onto slope face of the ravine during construction.
4. See Figure 2-7 for stockpile screening area and loading area BMPs.
5. Interceptor/Filter Berm and silt fence near river shall be moved up ravine as final backfilling in ravine bottom is completed so they are not in the water.

MW-12A
MW-24D
MW-23S
Gate
Diversion Structure
See Note 4
Offgas Vault
Fence
Gate
MW-15
SPOKANE RIVER
WW-MW-12
WW-EW-3
WW-MW-11
Emergency Bypass Basin
N
0 50 100
Scale in Feet

MW-15 Monitoring Well Location and Number
WW-EW-3 Extraction Well Location and Number
T Horizontal Trench Access Point
Silt Fence (See Note 5 and Detail B on Figure 2-8)
Temporary Ditch (See Note 3)
Interceptor/Filter Berm (See Note 5 and Detail A on Figure 2-8)

Kaiser West Discharge Ravine
Spokane Valley, Washington

Temporary Erosion and Sedimentation Control Plan

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Figure **2-2**

EAL 04/25/07 2644105-010.dwg

Notes:

1. Protect all existing structures and utilities (especially offgas vault, monitoring wells, fence, current outfall, infiltrate trench) unless noted otherwise.
2. Demolish existing diversion structure/former outfall and dispose of it and other debris in ravine in legal manner. Clear and grub brush, shrubs, vegetation, and trees as necessary to complete construction with prior approval of Engineer (see Note 1 on Figure 2-2).
3. Remove former outfall pipe to limits of excavation, fill with non-suspect 2-inch or greater gravel, and plug upper 3 feet with concrete.
4. Excavation would extend to within about 5 feet of waters edge, but will not extend vertically below water. River level elevation assumed to be about 1932 feet in mid-July to mid-September 2007, based on 2006 staff gage data. Limits of excavation adjacent to the river will be determined by the height of the river at the start of construction. To avoid excavating below the water table a field determined setback distance will be required.
5. See Erosion Control Plan (Figure 2-2) for Temporary Erosion and Sedimentation Control Plan.
6. Excavate as necessary in 1 foot lifts to remove suspect soil, but do not excavate below water table. Excavation depth assumed to be about 2 feet.
7. Before excavating suspect soil, flatten ravine side slopes as necessary to maintain stable side slopes and minimize cross contamination, or as directed by Engineer (assumed to be about 2H:1V), based on assumed 2-foot excavation depth. Maintain and modify slopes above suspect soil excavation during construction as necessary to maintain stable slope conditions.
8. Preserve trees, shrubs, and vegetation to the extent practicable. Removal of suspect soil takes precedence over avoiding vegetation.
9. Remove and dispose of existing debris in ravine in a legal and appropriate manner.
10. Staging areas will only be used to temporarily store clean soil to be used as backfill during site restoration.

Gate
MW-12A
Staging Area
See Note 10
MW-24D
MW-23S
Potential Excavation Limits of Clean Soil (See Note 7)
Diversion Structure See Note 2
A
2-3 2-6
See Note 4
Former Outfall (See Note 3)
Current Outfall (See Note 1)
SPOKANE RIVER
Assumed Excavation Limits of PCB-Impacted Soil (Approx. 20-foot wide) (See Note 6)
See Note 7
Offgas Vault
Staging Area
See Note 10
MW-15
Potential Excavation Limits of Clean Soil
See Note 7
See Note 7
Fence
Assumed Excavation Limits of PCB-Impacted Soil (See Note 6)
Gate
WW-MW-12
WW-EW-3
WW-MW-11
Emergency Bypass Basin
N
0 50 100
Scale in Feet

MW-15 Monitoring Well Location and Number
WW-EW-3 Extraction Well Location and Number
T Horizontal Trench Access Point
Assumed Excavation Limits of PCB-Impacted Soil
Assumed Excavation Limits of Clean Soil
A 2-3 2-6 Approximate Cross Section Location and Designation

Kaiser West Discharge Ravine
Spokane Valley, Washington

WDR Excavation Plan

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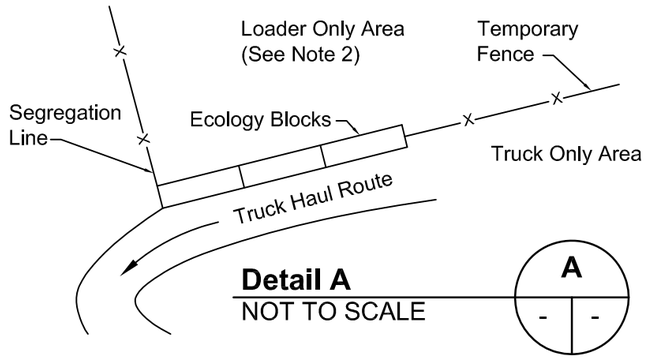
Figure **2-3**

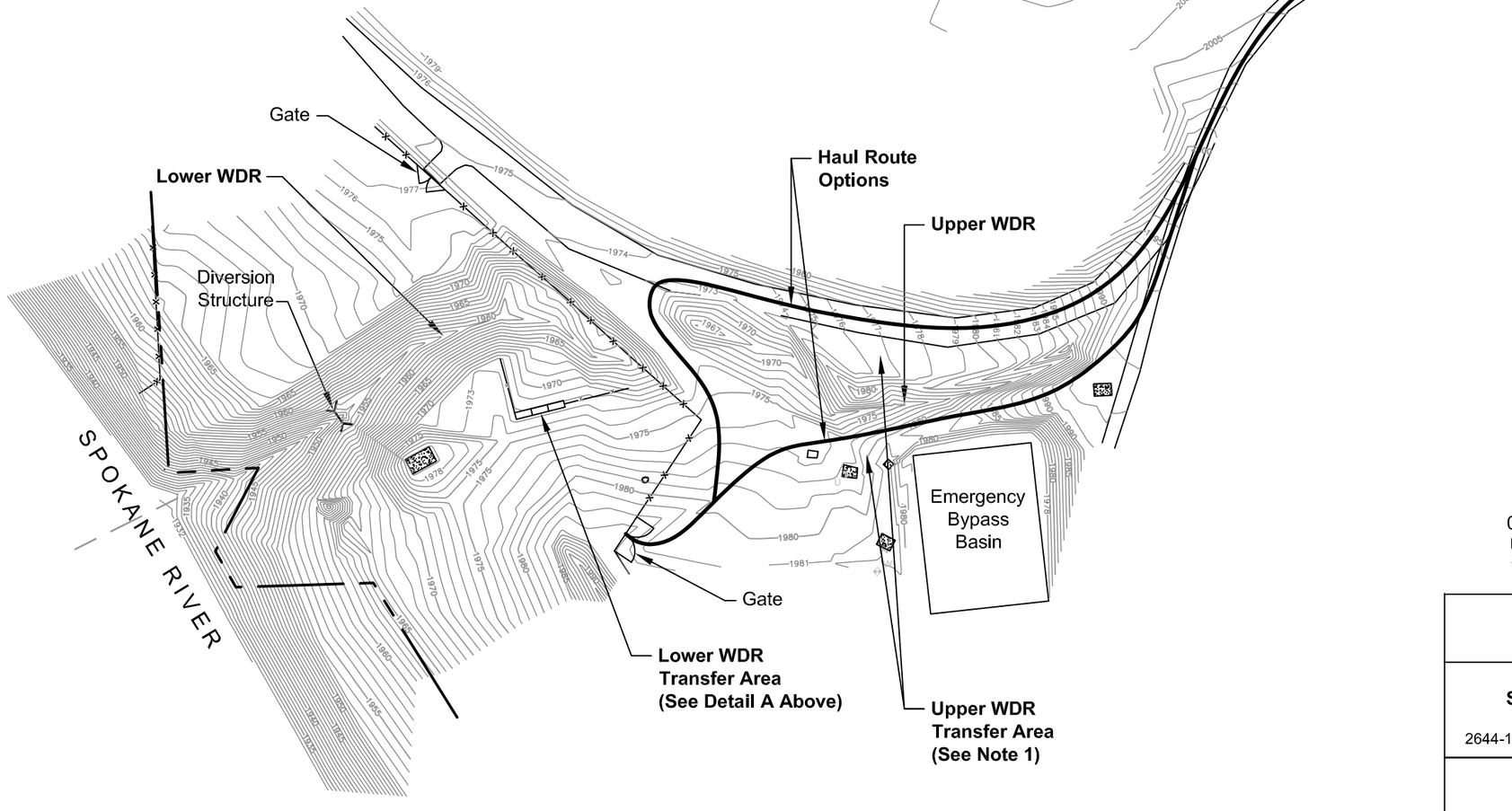
EAL 05/21/07 2644105-011.dwg

Notes:

1. Upper WDR Transfer Area location to be determined. Layout and operation of the upper WDR Transfer Area will be similar to the lower WDR Transfer Area.

2. Place 60-mil HDPE tarp over non-suspect soil outside ravine and cover with 4 to 6 inches of soil in Loader Area only.





Kaiser West Discharge Ravine
Spokane Valley, Washington

Soil Transfer and Transportation Plan

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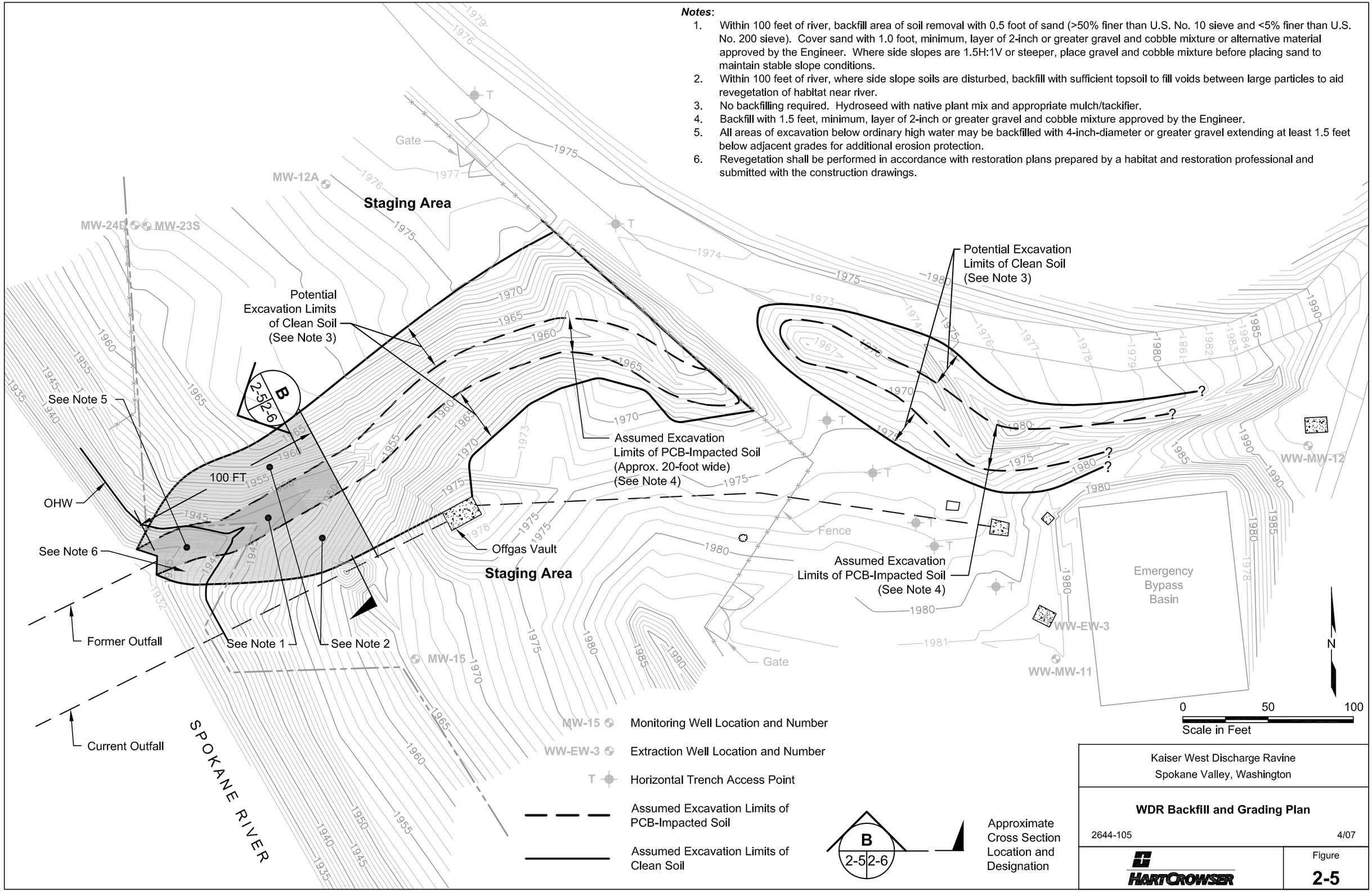
Figure
2-4

EAL 04/26/07 2644105-012.dwg

Notes:

1. Within 100 feet of river, backfill area of soil removal with 0.5 foot of sand (>50% finer than U.S. No. 10 sieve and <5% finer than U.S. No. 200 sieve). Cover sand with 1.0 foot, minimum, layer of 2-inch or greater gravel and cobble mixture or alternative material approved by the Engineer. Where side slopes are 1.5H:1V or steeper, place gravel and cobble mixture before placing sand to maintain stable slope conditions.
2. Within 100 feet of river, where side slope soils are disturbed, backfill with sufficient topsoil to fill voids between large particles to aid revegetation of habitat near river.
3. No backfilling required. Hydroseed with native plant mix and appropriate mulch/tackifier.
4. Backfill with 1.5 feet, minimum, layer of 2-inch or greater gravel and cobble mixture approved by the Engineer.
5. All areas of excavation below ordinary high water may be backfilled with 4-inch-diameter or greater gravel extending at least 1.5 feet below adjacent grades for additional erosion protection.
6. Revegetation shall be performed in accordance with restoration plans prepared by a habitat and restoration professional and submitted with the construction drawings.



Kaiser West Discharge Ravine
Spokane Valley, Washington

WDR Backfill and Grading Plan

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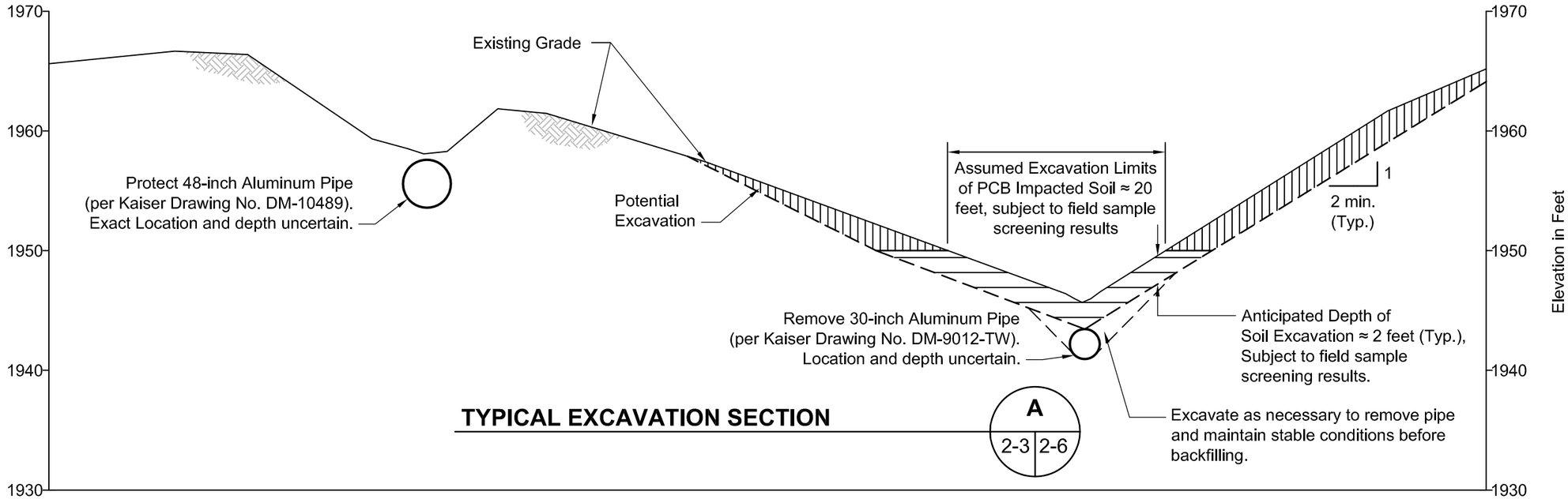
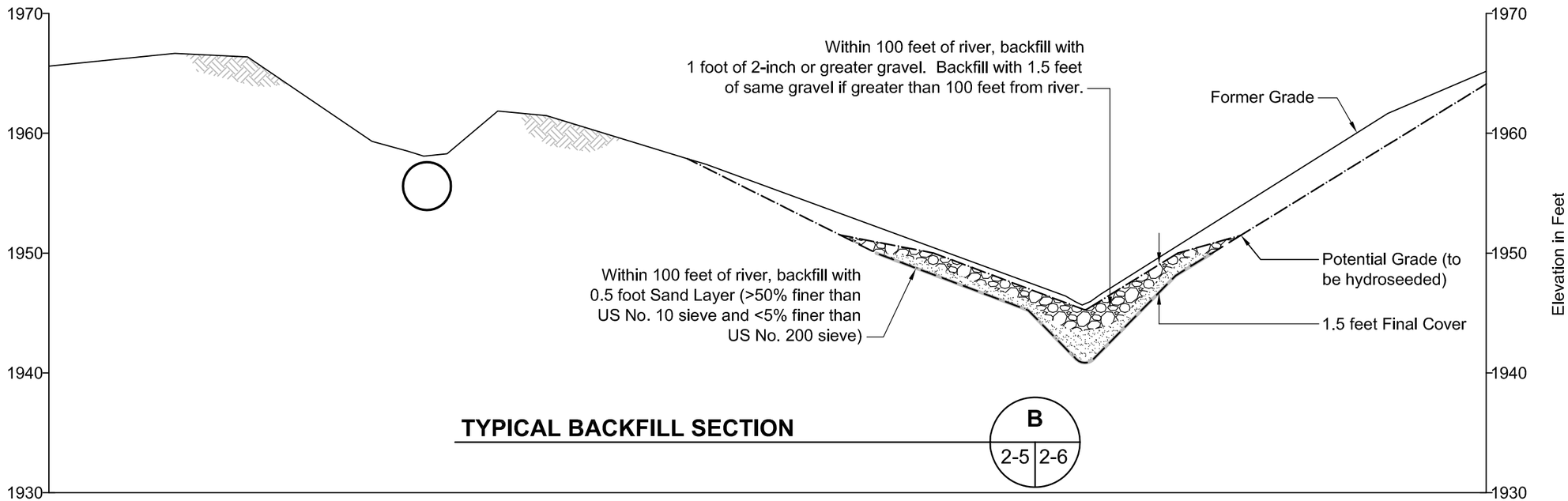
Figure
2-5

EAL 05/21/07 2644105-009.dwg



TYPICAL EXCAVATION SECTION

A
2-3 | 2-6



TYPICAL BACKFILL SECTION

B
2-5 | 2-6

0 10 20
Scale in Feet

West Kaiser Discharge Ravine
Spokane Valley, Washington

Excavation and Grading Typical Sections

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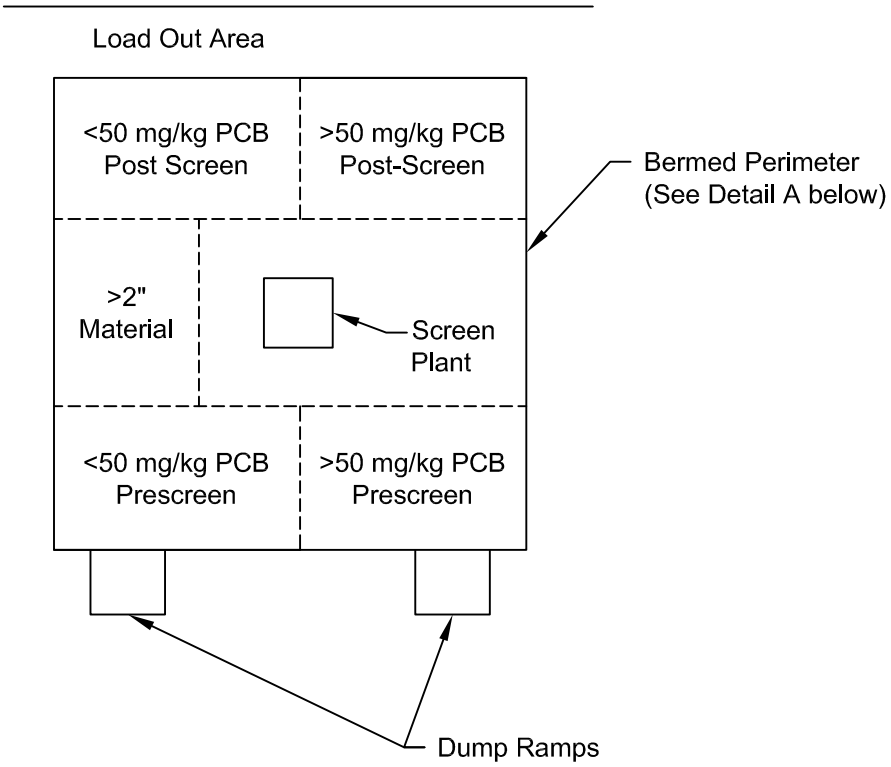
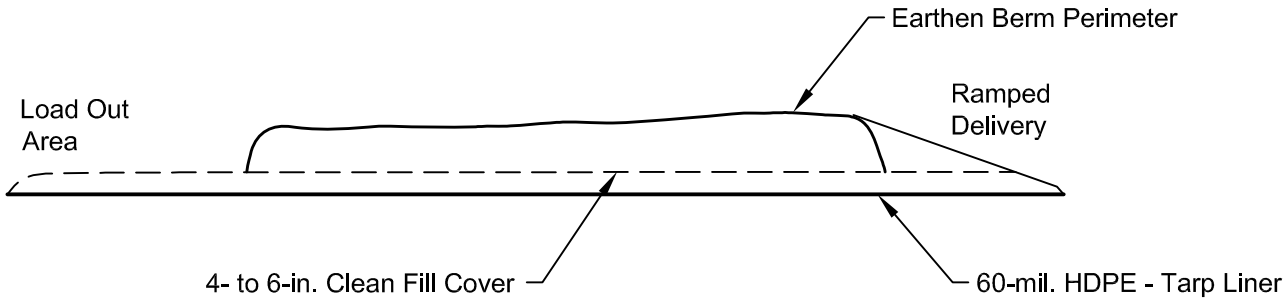
Figure
2-6

EAL 04/26/07 2644105-017.dwg





Detail A
NOT TO SCALE

A
- -

Notes:

1. Extend tarp and fill cover to dump ramps and load out area.
2. Orientation of the dump ramps and load out area to the gravel access road to be determined by the contractor.
3. Ecology blocks may be used inside the bermed area as needed for stockpile segregation.

N

Kaiser West Discharge Ravine
Spokane Valley, Washington

Soil Screening/Stockpile Area Plan

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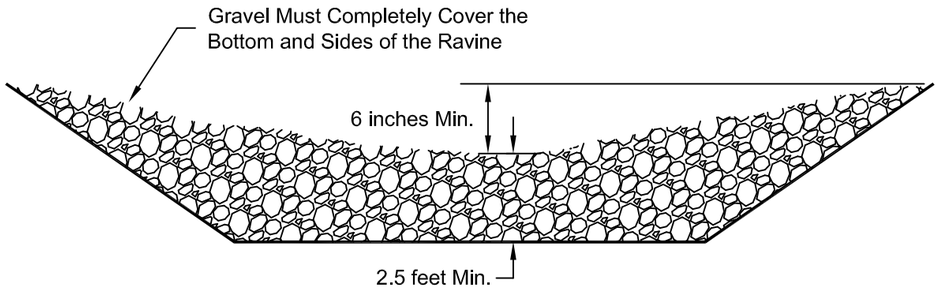
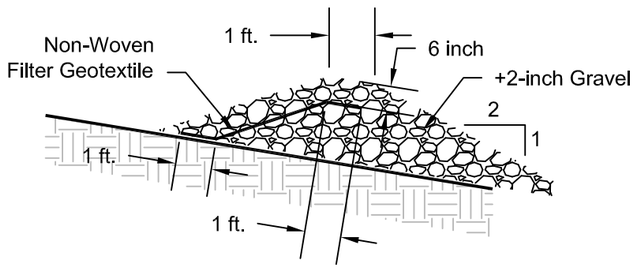
Figure
2-7

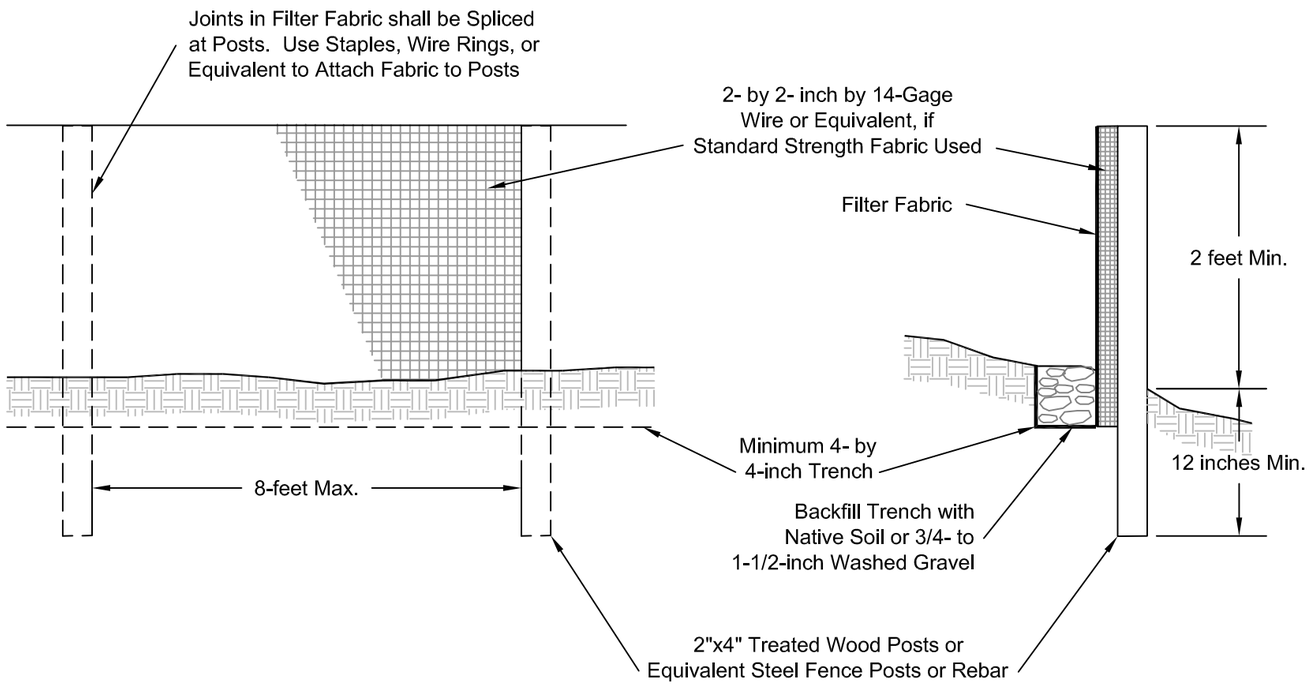
EAL 04/16/07 2644105-015.dwg



SECTION ACROSS RAVINE CENTERLINE



PROFILE ALONG RAVINE CENTERLINE



NOTE: Filter fabric fences shall be installed along contour whenever possible.

DETAIL - SILT FENCE
NOT TO SCALE

B
2-2 | 2-8

DETAIL - INTERCEPTOR/FILTER BERM
NOT TO SCALE

A
2-2 | 2-8

Kaiser West Discharge Ravine
Spokane Valley, Washington

Details

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Figure
2-8

EAL 04/25/07 2644105-016.dwg

APPENDIX A
SAMPLING AND ANALYSIS PLAN

APPENDIX A
SAMPLING AND ANALYSIS PLAN

This appendix presents the Sampling and Analysis Plan (SAP), which describes the field methods that will be used to collect the soil samples at the West Discharge Ravine (WDR). This appendix includes information for collecting additional characterization samples from below the diversion structure and transect samples in the upper and lower WDR (Pre-Interim Action sampling), verification samples after excavation, and stockpile samples for waste designation.

Disposable equipment will be used to sample surface and subsurface soils. Miscellaneous tools, which may be used to break up dense soil, will be decontaminated before collection of each sample. The decontamination procedure will consist of the following:

- Scrub with a phosphate detergent (Alconox) solution;
- Rinse with potable water; and
- Rinse by thoroughly spraying with deionized/distilled water.

A.1 Pre-Interim Action Sampling

A.1.1 Soil Sampling

Surface soil samples will be collected from beneath the surface using a disposable plastic sampling spoon or trowel. Surface vegetation will be removed before samples are collected. Soil samples will be collected from 0 to 1 foot below ground surface. Each sample will be collected so as to be representative of the conditions. Debris, vegetation, and gravel larger than 0.25 inch in diameter will be removed prior to homogenizing the sample. Soil samples will be homogenized in a decontaminated stainless steel mixing bowl and placed in an 8-ounce glass jar. Samples will be submitted for laboratory analysis of PCBs by EPA Method 8082 and Petroleum Hydrocarbons by NWTPH-Dx.

Soil samples will be visually classified in the field in accordance with ASTM D 2488. Other relevant details, such as staining, odor, and presence of debris will also be noted.

A.1.2 Sample Locations and Designations

Soil sampling locations will be located by measuring from known features so they can be placed on site maps. Each location will also be marked with a stake

labeled with the sample identification number. Please refer to Figure A-1 to aid in understanding the planned sampling scheme.

- The ravine below the spillway is approximately 125 feet long and has not been sampled previously. Samples will be collected from the concrete diversion structure along the centerline of the ravine to the Spokane River on 25-foot intervals (samples WDR-PIA-1 through WDR-PIA-5). In addition, one transect perpendicular to the centerline of the ravine will be collected at about 10-foot intervals to help determine the lateral extent of PCB contamination in a north/south direction (samples WDR-PIA-6 through WDR-PIA-9).

- A north/south transect will be established at the location for previously collected sample WDR-SS-13 in the lower Ravine, which had the highest PCB concentration is surface soil samples collected during the Phase I investigation. Samples will be collected at about 10-foot intervals perpendicular to the centerline of the ravine to help determine the lateral extent of PCB contamination in a north/south direction (samples WDR-PIA-10 through WDR-PIA-13).

- A north/south transect will be established at the midpoint of the upper WDR in the vicinity of Phase I surface soil sampling location WDR-SS-3. Samples will be collected at about 10-foot intervals perpendicular to the centerline of the ravine to help determine the lateral extent of PCB contamination in a north/south direction (samples WDR-PIA-14 through WDR-PIA-17).

Sample nomenclature is as follows:

- Soil sample numbers for this sampling will begin with WDR, followed by a dash and PIA (Pre-Interim Action), followed by a dash and a sequential number (WDR-PIA--XX).

- Numbering for the samples will begin with the sample adjacent to the river and proceed up the lower WDR and continuing in the upper WDR.

In summary, it is anticipated that 17 soil samples will be collected and analyzed to characterize the ravine below the spillway and estimate the width of contamination in the lower and upper WDR.

A.2 Field Sampling, Excavation, and Soil Logging of WDR

A.2.1 Excavation and Soil Logging

Excavation of the impacted soils will start in the lower WDR in the area immediately adjacent to the Spokane River. The intent is to address the near-river areas during the seasonal low flow period of mid- to late summer. This will enable the removal of the maximum amount of impacted soil in the lower WDR and reduce the potential for erosion during higher river flow periods. Subsequent excavations will proceed up the lower WDR to the road and then into the upper WDR.

Prior to the start of excavation, Hart Crowser field representatives will mark the areas to be excavated. The excavation areas in the upper and lower WDR will be divided into 23 individual cells. The number of cells reflects the number of characterization samples collected from the base of the ravine (i.e., 18 Phase I samples and 5 Pre-Interim Action ravine bottom samples, see Figure A-2). Cells will be centered on individual characterization sample locations and extend along the ravine bottom half the distance to the adjacent characterization samples. The base of the ravine characterization samples are spaced at 25-foot intervals. The Pre-Interim Action sampling transect results along with field screening for PCBs will be used to determine the width of each cell. The working assumption for this Work Plan is that PCBs contamination above the CULs extends 10 feet from the ravine centerline for total cell width of 20 feet. This will provide excavation cells with approximate dimensions of 25 by 20 feet.

Field screening for PCBs will be conducted with the Ensys PCB test system manufactured by Strategic Diagnostics. The Ensys system will be calibrated to Aroclor 1248. Using EPA Method 4020, this will give field indication of the extent of soil with PCB concentrations greater than about 1.0 mg/kg.

With the boundaries of a cell field marked, excavation will proceed in that cell in 12-inch lifts until clean soil is reached based on field screening results. Refer to Section A.2.2 for a discussion of the methods to be used to determine that sufficient excavation in each cell has occurred and that CULs have been achieved. Cells will be designated numerically with the cell adjacent to the river being Cell Number 1.

Excavation will be conducted under the direction of a Hart Crowser field representative, who will prepare a detailed field log of the excavation. Soil samples will be visually classified in the field in accordance with ASTM D 2488. Other relevant details, such as staining, odor, presence of debris, and results of the field screening analysis will also be noted.

A.2.2 Verification Sample Locations and Sample Designations

Following excavation of a 12-inch lift from a cell, a square-based sampling grid will be overlaid on the cell per the procedures defined in Subpart O of TSCA (40 CFR 761.283). The grid system origin will be at the center of each cell, which corresponds to the characterization sample location. A grid axis will be oriented on the centerline of the ravine with an axis, also centered in the cell, perpendicular to the centerline of the ravine. From the grid origin, grid lines will be spaced at 5-foot intervals from the center axes to the edge of the excavation cell as shown in schematic on Figure A-2.

Following the layout of the grid system in a cell, individual soil samples will be collected at the intersection of grid lines that fall within the excavation cell. Samples from each grid point will be individually field screened for PCBs using the Ensys PCB test system. If the individual field screened samples indicate that the entire cell is below CULs, excavation in that cell can be terminated, and verification samples will be collected for laboratory analysis. If individual field screened samples, or groups of samples, indicate that areas within the cell are still above CULs, the TSCA area of inference for these samples will be used to mark areas within the cell for further excavation. TSCA specifies that the area of inference for an individual sample extends one half grid interval distance from the sample point in four directions. Therefore, with grid spacing at 5-foot intervals, this will establish a 25-square-foot area centered on the sample for further excavation. An additional 12-inch lift will be excavated from these areas. Field screening will be used to determine whether the additional 12-inch lift was sufficient to meet CULs in the area.

When field screening indicates that an excavation cell meets the CULs, verification sampling for laboratory analysis will proceed. The field compositing techniques specified in TSCA 40 CFR 761.289(b)(i) will be used to collect verification samples within each excavation cell. Using these procedures, a maximum of nine adjacent grid point can be composited. The maximum dimensions of the area enclosing the nine grid point composite is two grid intervals bounded by three collinear grid points. This establishes an area of 10 by 10 feet or 100 square feet.

Some latitude in determining compositing schemes within an individual excavation cell will be given to the field personnel and will be based on the actual area of excavation for each cell. Efforts will be made to include up to nine grid points in a sample, but based on cell dimensions, composites with fewer than nine samples and discrete samples will likely be necessary. Regardless of the actual compositing scheme used in each cell, field personnel will ensure that the sample areas completely overlay the entire excavation cell. Additionally,

field personnel will ensure that grid layout and compositing procedures are consistent for each excavation cell and accurately detailed in field notes.

With the simplifying assumption that excavation cells will have approximate dimensions of 25 by 20 feet, only one nine-point composite can be collected from each cell based on the TSCA criteria for composite sampling (see Detail on Figure A-2). The remainder of the samples will consist of a collection of two-point, four-point, and six-point composites to completely overlay the excavation cell. In reality, the collection of discrete samples will likely be necessary to completely overlay non-uniform dimensioned excavation cells. It is understood that discrete samples collected and submitted for laboratory analysis will provide a better correlation between the discrete field screening techniques and the analytical results as compared with the analytical results from composited samples. Therefore, to assess the accuracy of the Ensys field screening system a minimum of one discrete sample will be collected from each excavation cell and submitted for laboratory analysis. If an individual excavation cell can be covered entirely with composite samples, one two-point composite will be broken out to create two discrete samples to be submitted for laboratory analysis.

Each sample will be collected so as to be representative of the conditions of the excavation. All samples in a composite will be collected at the same depth. Samples will be homogenized in a decontaminated stainless steel mixing bowl. If applicable, samples will be composited and placed in an 8-ounce glass jar.

Verification sample nomenclature is as follows:

- Soil sample names from the ravine will begin with WDR (West Discharge Ravine), followed by a dash and ECX (excavation cell number), followed by a dash and either a C (composite sample) or a D (discrete sample), followed by a dash and sequential number. For example WDR-EC1-C-1 will be the first composite sample from Cell 1.

Again, latitude will be given to field personnel in determining the sequential sample numbering within each cell, but these procedures will remain consistent for subsequent cells and will be adequately documented.

In summary, based on simplifying assumptions made for cell dimensions, it is estimated that approximately six composite samples will be obtained in each 20-by 25-foot cell. With 23 cells designated for excavation in the WDR, approximately 140 composite soil verification samples will be collected and analyzed to confirm cleanup goals have been met.

Samples will be analyzed for PCBs by EPA Method 8082. One 9-point composite from each of the 23 excavation cells will be analyzed for petroleum hydrocarbons by NWTPH-Dx.

A.2.3 Contingencies

With the removal of the top 1 to 2 feet of soil from each excavation cell, it is expected that this area will achieve the cleanup goals. Verification samples will be collected from each excavation cell using the above-described procedures. In the event that laboratory analysis indicates that an area (defined by either a discrete or composite sample) exceeds cleanup goals, the area will be flagged for additional characterization and excavation. If the exceedance is a discrete sample, the TSCA-defined area of inference for this sample will be assumed to exceed CULs and an additional 1-foot lift will be removed from this 25-square-foot area. Field screening and collection of a verification sample will confirm that CULs have been met following additional excavation.

Under TSCA, the area of inference for a composite sample is defined as the total of the areas of the individual samples included in the composite. A nine-point composite, at 225 square feet, would represent the largest area that would be affected by an exceedance of the CULs. If laboratory analytical results indicate a composite sample exceedance, field screening will be employed within the composite area to better define the area of exceedance. With a defined area of exceedance, an additional 1-foot lift will be excavated and further field screening and collection of a verification sample(s) will confirm that CULs have been met. Backfilling of the ravine will proceed following receipt of laboratory analytical data indicating CULs have been achieved.

The first excavation cell adjacent to the river will be handled differently from the other 22 upland cells. This is because of the time constraints of the allowable work window and the higher ecological sensitivity of this cell, as this area will be inundated with water during certain times of the year. Following initial excavation from this cell and field screening indication that CULs have been met, an additional 6 to 12 inches of soil will be removed where practicable. One likely constraint that may prohibit additional excavation in the near-river portion of this cell would be the high groundwater table expected in this area. Verification samples collected from this cell will likely be requested for the fastest turnaround from the lab to ensure backfilling is completed before the end of the work window.

A.3 Soil Sampling of Stockpiles

Using the characterization samples, including both the Phase I samples and the Pre-Interim Action samples, an attempt will be made to segregate soils in the ravine containing PCBs <50 mg/kg from soils containing >50 mg/kg PCBs. Referring to Table 2-2 and Figure 2-1, soil excavated from cells centered around characterization samples that were greater than 50 mg/kg PCBs will be assumed to be contaminated at greater than 50 mg/kg PCBs and disposed of at a TSCA-permitted landfill. No further characterization of the soil from these cells will occur. Based on the Phase I data, this would include cells centered around samples WDR-SS-3, WDR-SS-5, WDR-SS-6, and WDR-SS-12 through WDR-SS-17. Additional cells assumed to contain soil with PCBs greater that 50 mg/kg may be added below the spillway based on the Pre-Interim Action sampling and analysis that will occur prior to the start of construction.

Soil from excavation cells centered around Phase I samples and Pre-Interim Action samples, which are <50 mg/kg PCBs, will be segregated from soil with >50 mg/kg PCBs. All soil from these cells will be presumed to be <50 mg/kg PCBs pending further characterization.

Excavated soil will be removed from the ravines and taken to the screening/ stockpile area using the methods described in Section 2.5. Referring to Figure 2-7, two offload ramps will be constructed outside the bermed screening/ stockpile area. This will facilitate segregation of soil above and below 50 mg/kg PCB inside the screening/stockpile area.

Soil from the various cells with >50 mg/kg PCBs will be allowed to accumulate in one stockpile and can be screened and prepared for off-site disposal at the contractor's discretion, as no further characterization will occur.

Attempts will be made to process soil from cells with <50 mg/kg PCBs soil as it is delivered from individual cells to facilitate finer characterization. Based on the simplified excavation cell dimensions described above, it is estimated that approximately 20 cubic yards of soil will be removed from each 12-inch lift in a cell. If feasible, soil from excavation cells with <50 mg/kg PCBs will be processed through the screening plant individually.

As described in Section 2.5, soil removed from the ravines will be screened to separate the >2-inch fraction from the finer-grained material. To further characterize soil from grids with <50 mg/kg PCBs, five-point composite samples will be collected from the <2-inch soil stockpile as is it being processed through the screening plant. Depending on the soil processing rate through the screen plant, equal volume aliquots will be collected from the <2-inch stockpile at

consistently spaced intervals. Five consecutively collected aliquots will be homogenized in a decontaminated stainless steel mixing bowl and placed in an 8-ounce glass jar and sent to the laboratory for analysis. Each stockpile composite sample will be analyzed for PCBs by EPA Method 8082 and Petroleum Hydrocarbons by NWTPH-Dx. The <2-inch material will be managed separately from other screened stockpiles and no further material will be added to it. Upon receipt of the analytical data, this segregated soil can be added to either the >50 mg/kg or <50 mg/kg stockpiles adjacent to the disposal load-out area as shown on Figure 2-7. Refer to Section 2.8 for details on soil disposal.

Kaiser will work with Waste Management personnel to ensure that the above defined stockpile sampling and analysis plan will meet the waste profiling criteria.

Property Line

Gate

Diversion Structure

WDR-SS-12
WDR-SS-11
WDR-PIA-13
WDR-PIA-12
WDR-SS-13
WDR-SS-10
WDR-SS-14
WDR-PIA-11
WDR-SS-15
WDR-PIA-10
WDR-SS-9
WDR-SS-16
WDR-SS-8
WDR-SS-17
WDR-SS-18
WDR-PIA-5
WDR-PIA-9
WDR-PIA-8
WDR-PIA-4
WDR-PIA-3
WDR-PIA-2
WDR-PIA-7
WDR-PIA-1
WDR-PIA-6

WDR-SS-7
WDR-SS-6
WDR-SS-5
WDR-SS-4
WDR-PIA-17
WDR-PIA-16
WDR-SS-3
WDR-PIA-15
WDR-PIA-14
WDR-SS-2
WDR-SS-1

Fence

Gate

Emergency Bypass Basin

SPOKANE RIVER

Sample Location and Number

- WDR-SS-12 — Phase I RI Surface Soil
- WDR-PIA-7 — Pre-Interim Action Surface Soil
- T — Horizontal Trench Access Point

0 50 100
Scale in Feet

N

Kaiser West Discharge Ravine
Spokane Valley, Washington

Pre-Interim Action Exploration Location Plan

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Figure **A-1**

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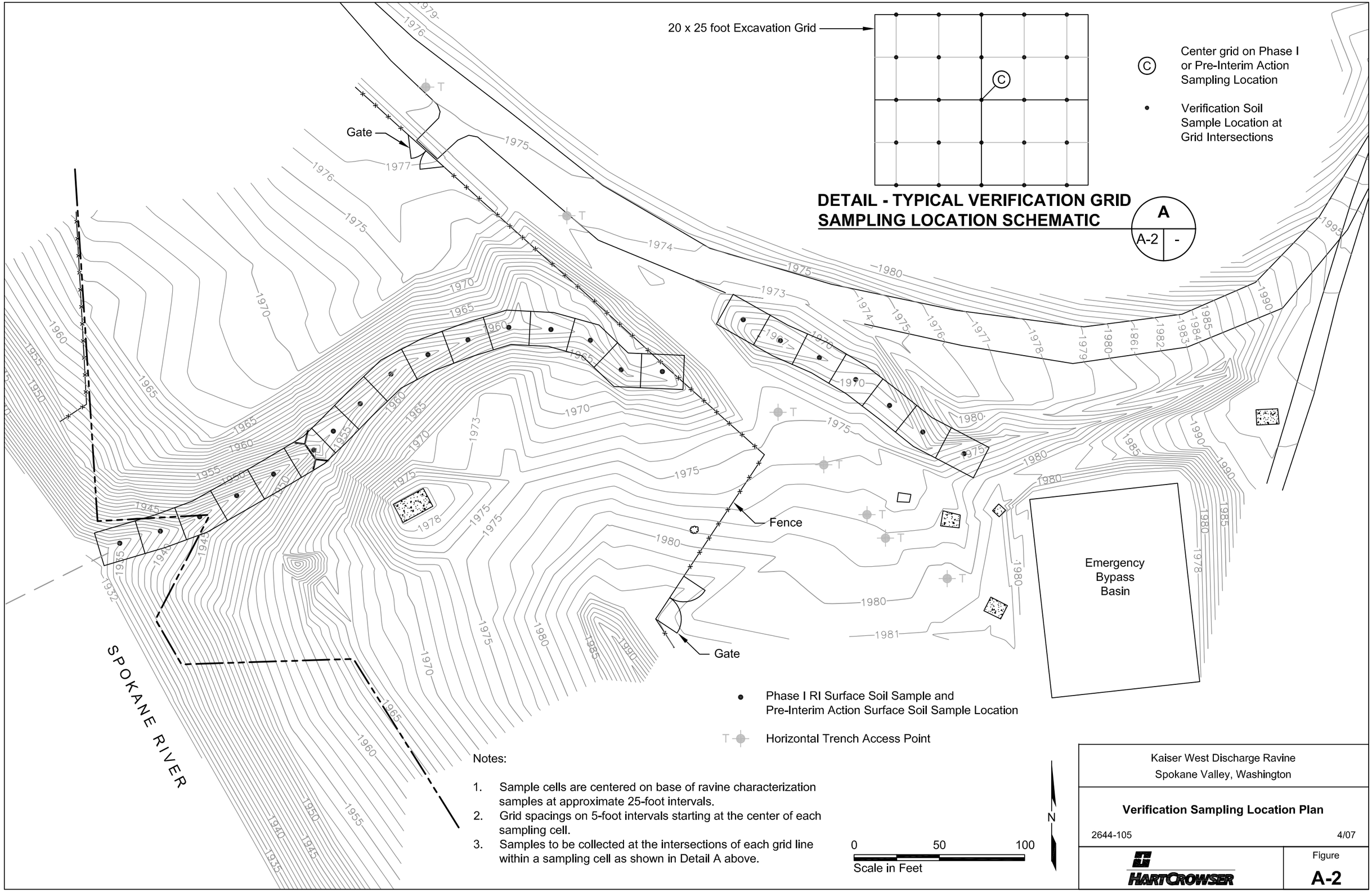

Notes:

1. Sample cells are centered on base of ravine characterization samples at approximate 25-foot intervals.
2. Grid spacings on 5-foot intervals starting at the center of each sampling cell.
3. Samples to be collected at the intersections of each grid line within a sampling cell as shown in Detail A above.

Kaiser West Discharge Ravine
Spokane Valley, Washington

Verification Sampling Location Plan

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Figure
A-2

EAL 04/25/07 2644105-008.dwg

ATTACHMENT A-1
QUALITY ASSURANCE PROJECT PLAN

ATTACHMENT A-1
QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) provides in specific terms, the quality assurance (QA) and quality control (QC) objectives, organization, and functional activities associated with the PCB cleanup Interim Action at the WDR.

Project Organization and Responsibility

The project roles with primary QA responsibility include the Project Manager and the Project QA Manager. A list of these positions, the individuals fulfilling these project roles, and a brief description of each role is presented below:

- **Project Manager.** William Abercrombie. Overall management responsibility for the project.

- **QA Manager.** Anne Conrad. Assures that the required laboratory QC reviews/activities have been completed.

- **Overall Technical Editor Review.** Greg Both. Complete editorial review of all documents, including checks on document completeness, internal consistency, clarity and readability, and adherence to Hart Crowser report format standards.

- **Verification Laboratory Project Manager.** Harvey Jacky at Columbia Analytical Services will be the point of contact for laboratory PCB verification analyses. Valery Ivanof at Advanced Analytical will be the point of contact for laboratory TPH analysis.

Analytical Procedures

Soil samples will be screened for PCBs in the field using the PCB EnSys 12T Soil Test System (EPA Method 4020). For the areas within the ravine, once clean soil has been reached based on the results of the field screening analysis, soil verification samples will be collected and delivered to the contract laboratory for PCB analysis via EPA Method 8082. Select samples will be analyzed for Petroleum Hydrocarbons by NWTPH-Dx. Table A-1-1 and A-1-2 presents the PCB and petroleum hydrocarbon analytes, criteria, and reporting limit goals for this analysis, respectively.

Sampling Locations and Procedures

Detailed sampling procedures and locations are presented in Sections A.1.2 and A.2.2.

Sample Labeling, Custody, and Holding Times

Sample Labeling

Sample labels will clearly indicate the sample number, date, sampler's initials, parameters to be analyzed, and any pertinent comments.

Sample Custody

Sample custody procedures will be followed to provide a documented, legally defensible record that can be used to follow possession and handling of a sample from collection through analysis. A sample is considered to be "in custody" of it meets at least one of the following conditions:

- The sample is in someone's physical possession or view;
- The sample is secured to prevent tampering; or
- The sample is secured in an area restricted to authorized personnel.

A custody form will be completed in the field as each sample is collected. At a minimum, the information on the custody form shall include the sample number, date and time of sample collection, sampler, analyses, and number of containers. An example custody form is presented at the rear of this attachment. Two copies of the custody form will be placed in the cooler prior to sealing for delivery to the laboratory with the respective samples. The other copies will be retained and placed in the project files after review by the Project Chemist. Custody seals will be placed on the sample cooler to prevent tampering.

Upon receipt of samples at the laboratory, the sample custodian will sign the accompanying custody form upon opening the cooler. The sample custodian will examine samples to verify the information on the custody form. Any discrepancies, questions, or observations concerning sample integrity will be noted and Hart Crowser's Project Chemist will be contacted. The laboratory sample custodian will then log samples into the laboratory information management system (LIMS) and secure them in the appropriate storage refrigerators.

Holding Times

Sample container requirements vary according to analyte and sample matrix. Pre-cleaned sample containers will be obtained from the laboratory or a commercial vendor. The sample containers shall be cleaned following the procedure described in the Columbia Analytical Services (CAS) and Advanced Analytical (AAL) laboratory SOP.

Samples will be preserved according to the requirements of the specific analytical methods to be employed, and the samples will be extracted and analyzed within method-specified holding times. Required sample containers, preservatives, and holding times are summarized in Table A-1-2.

Quality Control Procedures

Field Quality Control Samples

Field quality control samples will include "blind" duplicate samples.

Field Duplicate Samples

Field duplicate samples are designed to monitor combined sampling and analytical precision. Field duplicates for soil are prepared by filling two identical containers with the homogenized sample.

Field duplicate sample frequency will be 5 percent. Samples will be assigned unique sample identification numbers and will not be identified to the laboratory as duplicates.

Laboratory Quality Control

The quality of analytical data generated is controlled by the frequency and type of internal quality control checks developed for analysis type. Laboratory results will be evaluated by reviewing results for analysis of method blanks, matrix spikes, duplicate samples, laboratory control samples, calibrations, performance evaluation samples, interference checks, etc., as specified in the analytical methods used. Quality control parameters, frequency, acceptance criteria, and corrective actions for laboratory analyses are discussed below.

Data Quality Indicators

The overall quality assurance objectives for field sampling and laboratory analysis are to produce data of known and appropriate quality to support the site

investigation. Appropriate procedures and quality control checks will be used so that known and acceptable levels of accuracy and precision are maintained for each data set. This section defines the objectives for accuracy and precision for measurement data. These goals are primarily expressed in terms of acceptance criteria for the quality control checks performed.

Precision

Precision measures the degree of reproducibility or agreement between independent or repeated measurements. Analytical variability will be expressed as the relative percent difference (RPD) between field or laboratory replicates and between matrix spike and matrix spike duplicate analyses. Blind field duplicate samples will be submitted to the laboratory at a frequency of five percent of the total samples. RPD will be used to measure precision for this investigation and is defined as follows:

$$RPD = \frac{(D_1 - D_2)}{(D_1 + D_2)/2} \times 100$$

Where:

D_1 = Sample value; and
D_2 = Duplicate sample value.

Accuracy

Accuracy measures the agreement between a measured value and its true or accepted value. While it is not possible to determine absolute accuracy for environmental samples, the analysis of standards and spiked samples provides an indirect assessment of accuracy.

Laboratory accuracy will be assessed as the percent recovery of matrix spikes, matrix spike duplicates, surrogate spiked compounds (for organic analyses), and laboratory control samples. Accuracy will be defined as the percentage recoverable from the true value and is defined as follows:

$$\%Recovery = \frac{(SSR\text{-}SR)}{SA} \times 100$$

Where:

SSR = spiked sample result;

SR = sample results (not applicable for surrogate recovery); and
SA = amount of spike added.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Care will be taken in the design of the sampling program to ensure sample locations are selected properly, sufficient numbers of samples are collected to accurately reflect conditions at the location(s), and samples are representative of the sampling location(s). A sufficient volume of sample will be collected at each sampling location to minimize bias or errors associated with sample particle size and heterogeneity.

Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. To ensure results are comparable, samples will be analyzed using standard EPA methods and protocols as described in Test Methods for Evaluating Solid Wastes Physical/Chemical Methods (EPA 1986). Data will also be reviewed to verify that precision and accuracy criteria have been achieved and, if not, that data have been appropriately qualified.

Completeness

Completeness is the percentage of measurements made that are judged to be valid. Completeness will be calculated separately for each analytical group. Results must also contain all quality control check analyses required to verify the precision and accuracy of results to be considered complete. Data qualified as estimated during the validation process will be considered complete. Non-valid measurements will be results that are rejected during the validation review or samples for which no analytical results were obtained. Completeness will be calculated for each analysis using the following equation:

$$\text{Completeness} = \frac{\text{valid data points obtained}}{\text{total data points planned}} \times 100$$

The target goal for completeness is a minimum of 95 percent. Completeness will be monitored on an on-going basis so that archived sample extracts can be re-analyzed, if required.

Data Reduction, Quality Review, and Reporting

This section describes the process for verifying (i.e., determining that project data were collected in a manner that meets the specified QC acceptance criteria) and validating (i.e., determining that project results are suitable for use in making the specified decision) project data.

The analytical data generated by the laboratory will undergo a QA validation by CAS and AAL with an independent review by Hart Crowser chemists. Data validation results will be documented in reports to be included as an appendix of the final design report. Data will be verified by the project QA chemist by reviewing and comparing results entered into the analytical database with validation report prior to subsequent data reduction and evaluation.

Validation and Verification Methods

A data review of data precision and accuracy will be performed on all results using quality control summary sheet results provided by the laboratory for each data package. The review will be based on CAS and AAL in-house (on-going control chart) quality control criteria following the format of the EPA National Functional Guidelines for Organic (EPA 1994) Data Review, modified to include specific criteria of individual analytical methods. The following items will be reviewed:

- Sample numbers and analyses match the chain of custody request;
- Sample preservation and holding times;
- Field and laboratory blanks were performed at the proper frequency and that no analytes were present in the blanks;
- Field and laboratory duplicates, matrix spikes, and laboratory control samples were run at the proper frequency and that control limits were met;
- Surrogate compound analyses have been performed and that results met the QC criteria; and
- Required limits of detection limits have been achieved.

Data validation qualifier flags, beyond any applied by the laboratory, will be added to sample results that fall outside the QC acceptance criteria presented in Table A-1-3. An explanation of data qualifiers to be applied during the validation review is provided below:

U. The compound was analyzed for but was not detected. The associated numerical value is the sample reporting limit.

J. The associated numerical value is an estimated quantity because quality control criteria were slightly exceeded or because reported concentrations were less than the practical quantitation limit (lowest calibration standard).

UJ. The compound was analyzed for, but not detected. The associated numerical value is an estimated reporting limit because quality control criteria were not met.

R. Data are not usable because of significant exceedance of quality control criteria. The analyte may or may not be present; resampling and/or re-analysis are necessary for verification.

Data Evaluation, Use, and Reporting

Once the field activities are complete, a report will be prepared including a summary of field observations and laboratory chemical testing results for samples submitted to the laboratory.

Table A-1-1 - PCB Analytes, Criteria, and Reporting Limit Goals

PCBs (Method 8082)	MTCA A in mg/kg	Soil in mg/kg[a]
		PQL
Aroclor 1016		0.033
Aroclor 1221		0.067
Aroclor 1232		0.033
Aroclor 1242		0.033
Aroclor 1248		0.033
Aroclor 1254		0.033
Aroclor 1260		0.033
Total Aroclors	1	

[a] - Reporting limit goals are based on the lowest calibration standard analysis of clean sample matrices assuming a method-specific sample volume or weight. Actual analyte reporting limits are matrix- and sample-dependent and may be higher depending upon sample weight or volume, moisture content, final extract volume, analytical interferences, and any required sample dilutions.

Table A-1-2 – Petroleum Hydrocarbon Analytes and Reporting Limit Goals

Petroleum Hydrocarbons (EPA Method 8015 mod)	Soil in mg/kg [a]	
	TPH-HCID	Specific Analysis
Gasoline	20	5
Stoddard Solvent	20	5
Kensol	20	20
Castor Oil	100	50
Kerosene/Jet A	20	20
Diesel/Fuel Oil # 2	20	20
Bunker C/Fuel Oil # 6	50	50
Oil	100	50

[a] - Reporting limit goals are based on the lowest calibration standard analysis of clean sample matrices assuming a method-specific sample volume or weight. Actual analyte reporting limits are matrix- and sample-dependent and may be higher depending upon sample weight or volume, moisture content, final extract volume, analytical interferences, and any required sample dilutions.

Table A-1-3 —Sample Containers, Preservation and Holding Times

Analysis	Matrix	Container	Preservation	Holding Time[a]
PCBs (EPA 8082)	Soil	One 8 oz. glass jar	Cool to 4°C	7 days (extraction) 40 days (analysis)
NWTPH-Dx	Soil	One 8 oz. glass jar	Cool to 4°C	14 days

[a] Holding times are from date of sample collection.

Table A-1-4 - Summary of Quality Control Procedures, Criteria, and Corrective Actions for PCB and TPH Analysis

PCBs EPA 8082 GC/ECD & NWTPH-Dx			
Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
Field Quality Control			
Duplicate	1 every 20 or fewer field samples	≤ 40% RPD (soil)	Evaluate data for usability
Laboratory Quality Control			
Method blank	1 per batch of every 20 or fewer samples	All analytes < reporting limit	Re-extract and reanalyze associated samples unless concentrations are > 5 x blank level
Initial calibration	5-point external calibration prior to analysis of samples	%RSD < 20%	Recalibrate instrument
Continuing calibration	Every 10 samples with mid-range standard	% Difference ≤ 20% of initial calibration	Recalibrate instrument and re-analyze affected samples
System monitoring compounds (surrogates)	Every lab and field sample	Laboratory control chart limits	Evaluate data for usability
Retention time windows	All samples and continuing calibration checks	±0.06 relative retention time units (sample and standard)	Reanalyze affected samples
Matrix spike (PCBs only)	1 per batch of every 20 or fewer samples	Laboratory control chart limits	Evaluate data for usability
Laboratory duplicate (TPH only)	1 per batch of every 20 or fewer samples	Laboratory control chart limits	Evaluate data for usability
Matrix spike duplicate (PCBs only)	1 per batch of every 20 or fewer samples	Laboratory control chart limits	Evaluate data for usability
Laboratory control sample	1 per batch of every 20 or fewer samples	Laboratory control chart limits	Evaluate data for usability

APPENDIX B
HEALTH AND SAFETY PLAN

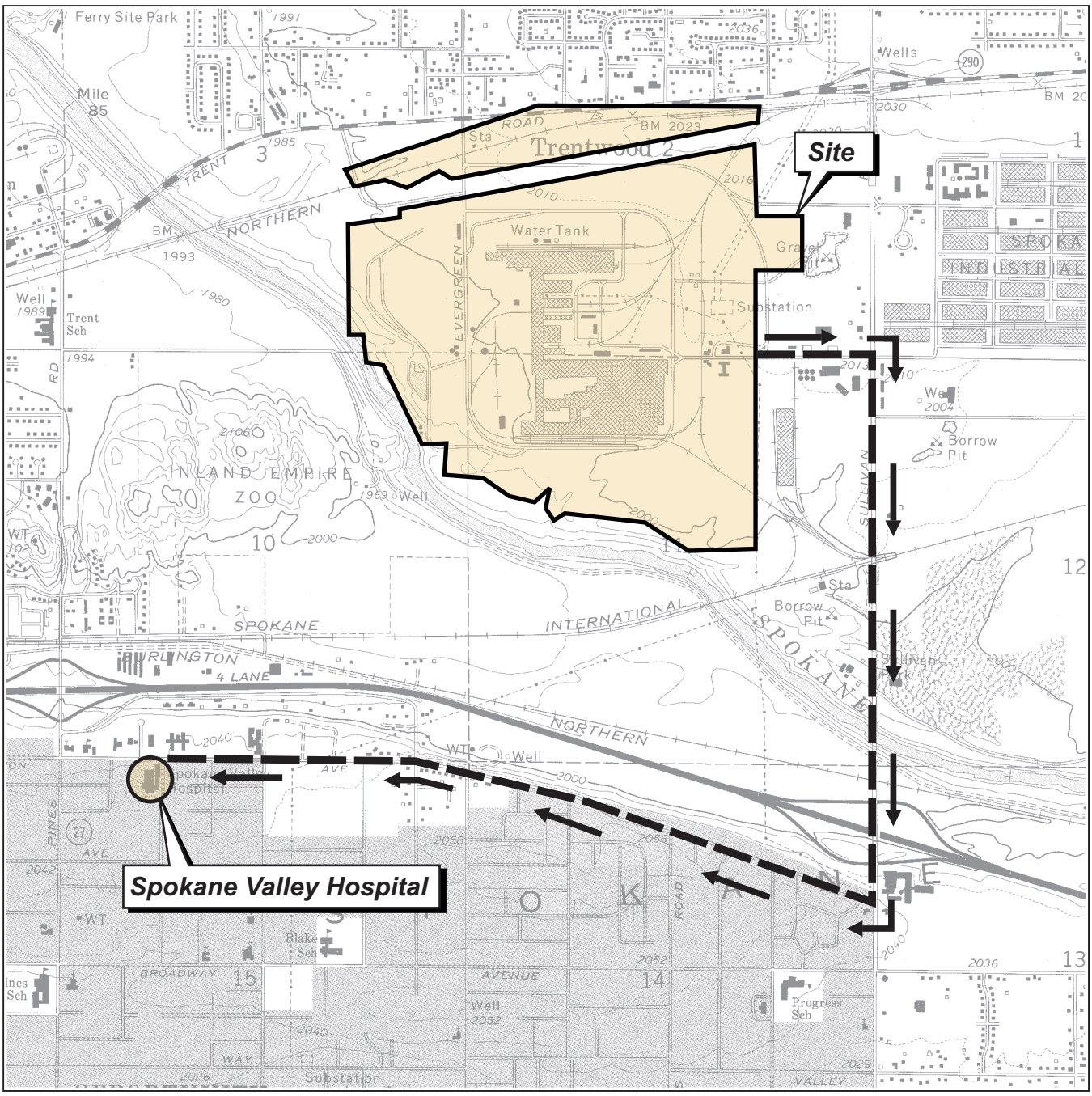
APPENDIX B
HEALTH AND SAFETY PLAN
KAISER ALUMINUM FABRICATED PRODUCTS, LLC
TRENTWOOD WORKS
SPOKANE VALLEY, WASHINGTON

DATE PREPARED: MAY 21, 2007

EMERGENCY CONTINGENCY INFORMATION

SITE LOCATION	Kaiser Aluminum Fabricated Products, LLC Trentwood Works East 15000 Euclid Avenue Spokane Valley, Washington 99215
NEAREST HOSPITAL	Valley Hospital and Medical Center East 12606 Mission Spokane Valley, Washington (509) 922-9466 The route from the facility to the hospital is depicted on Figure B-1.
EMERGENCY RESPONDERS	Police Department ..... 911 Fire Department ..... 911 Ambulance 911
EMERGENCY CONTACTS	Hart Crowser, Seattle Office ..... (206) 324-9530 Facility Contact, Dave Rickman ..... Desk (509) 927-6159 Cell (509) 981-6896 East Gate Guard House ..... (509) 927-6111
IN EVENT OF EMERGENCY, CALL FOR HELP AS SOON AS POSSIBLE	Give the following information: ➔ **Where You Are**. Address, cross streets, or landmarks ☎ **Phone Number** you are calling from ?? **What Happened**. Type of injury, accident # **How many persons** need help ?? **What is being done** for the victim(s) !! **You hang up last.** Let whomever you called hang up first

Route to Hospital Map



2644105-AA.cdr JMK 4/13/07

Note: Base map prepared from USGS 7.5 minute quadrangle map of Greenacres, Washington, dated 1973.

0 2000 4000

Approximate Scale in Feet

N

HARTCROWSER

2644-105 ***4/07***

Figure B-1 ***Page B-2***

SITE HEALTH AND SAFETY PLAN SUMMARY

SITE NAME: Kaiser Trentwood

LOCATION: Spokane Valley, Washington

CLIENT: Kaiser Aluminum Fabricated Products, LLC.

PROPOSED DATES OF ACTIVITIES: July to September 2007.

TYPE OF FACILITY: Aluminum Rolling Mill.

LAND USE OF AREA SURROUNDING FACILITY: Industrial, some residential.

SITE ACTIVITIES: Contaminated soil excavation, surface and stockpile soil sampling, soil screening and disposal, fill and grade excavated areas, site restoration.

POTENTIAL SITE CONTAMINANTS: Polychlorinated biphenyls (PCBs), Total Petroleum Hydrocarbons (TPH), and Semivolatile Organic Compounds (SVOCs).

ROUTES OF ENTRY: Airborne vapors and dust; skin contact with soil, free phase product, and incidental ingestion of soil.

PROTECTIVE MEASURES: Engineering controls, safety glasses, safety boots, hard hat, gloves, protective clothing, and respirators.

MONITORING EQUIPMENT: MultiRAE Photoionization Detector (PID) with 10.6 eV lamp.

B.1 INTRODUCTION

B.1.1 Purpose and Regulatory Compliance

This Site-Specific Health and Safety Plan (H&S Plan) addresses procedures to minimize the risk of chemical exposures, physical accidents to on-site workers, and environmental contamination. The H&S Plan covers each of the 11 required plan elements as specified in 29 CFR 1910.120 or equivalent state regulations. Table B-1 lists the sections of this plan which apply to each of these required elements. When used together with the Hart Crowser General H&S Plan, this site-specific plan meets all applicable regulatory requirements.

Table B-1 - Location of Required Health and Safety Plan Elements in This Site-Specific H&S Plan

Required H&S Plan Element	Section in this Health and Safety Plan
Confined space entry	B.2.6 Other Physical Hazards
Decontamination	B.7 Decontamination
Emergency response plan	B.11 Emergency Response Plan
Medical surveillance	B.12 Medical Surveillance
Monitoring program	B.2.3 Air Monitoring and Action Levels
Names of key personnel	B.1.3 Chain of Command
Personal protective equipment	B.3 Protective Equipment, B.4 Safety Equipment List
Safety and hazard analysis	B.2 Hazard Evaluation and Control Measures
Site control	B.5 Exclusion Areas, B.9 Site Security and Control
Spill containment	B.10 Spill Containment
Training	B.13 Training Requirements

B1.2 Distribution and Approval

This H&S Plan will be made available to all Hart Crowser personnel involved in field work on this project. It will also be made available to subcontractors and other non-employees who may need to work on the site. For non-employees, it must be made clear that the plan represents minimum safety procedures and that they are responsible for their own safety while present on site. The plan has been approved by the Hart Crowser Corporate Health and Safety (H&S) Manager. By signing the documentation form provided with this plan (Table B-5 located at the end of plan), project workers also certify their approval and agreement to comply with the plan.

B.1.3 Chain of Command

The chain of command for health and safety on this project involves the following individuals:

Project Manager: William Abercrombie

The Project Manager has overall responsibility for the successful outcome of the project. The Project Manager, in consultation with the Corporate H&S Manager, makes final decisions regarding questions concerning the implementation of the

site-specific H&S Plan. The Project Manager may delegate this authority and responsibility to the Project and/or Field H&S Managers.

Corporate H&S Manager: Mike Ehlebracht

The Hart Crowser Corporate H&S Manager has overall responsibility for preparation and modification of this H&S Plan. In the event that health and safety issues arise during site operations, he will attempt to resolve them in discussion with the appropriate members of the project team.

Project H&S Manager: To be determined

The Project H&S Manager has overall responsibility for health and safety on this project. This individual ensures that everyone working on this project understands this H&S Plan. This individual will maintain liaison with the Hart Crowser Project Manager so that all relevant health and safety issues are communicated effectively to project workers.

Field H&S Manager: To be determined

The Field H&S Manager is responsible for implementing this H&S Plan in the field. This individual also observes subcontractors to verify that they are following these procedures, at a minimum. The Field H&S Manager will also assure that proper protective equipment is available and used in the correct manner, decontamination activities are carried out properly, and that employees have knowledge of the local emergency medical system should it be necessary.

B.1.4 Site Work Activities

The following work tasks will be accomplished for the WDR Interim Action:

- Excavation of contaminated soil in the ravine;
- Surface soil sampling;
- Soil stockpile sampling;
- Soil screening and disposal; and
- Site restoration.

B.1.5 Site Description

The site is an active aluminum rolling mill. The work will be performed in a natural ravine located west of the rolling mill, adjacent to the Spokane River. This work area is outside of the mill operation area.

B.2 HAZARD EVALUATION AND CONTROL MEASURES

B.2.1 Toxicity of Chemicals of Concern

Based on previous site information and knowledge of the types of activities conducted at the Kaiser Trentwood Facility, the following chemicals may be present at this site: PCBs and TPH. Additionally, SVOCs including polycyclic aromatic hydrocarbons (PAHs), may be present.

Health hazards of these chemicals are discussed below. This information covers potential toxic effects which might occur if relatively significant acute and/or chronic exposure were to happen. This information does not mean that such effects will occur from the planned site activities. In general, the chemicals, which may be encountered at this site, are not expected to be present at concentrations that could produce significant exposures. The types of planned work activities and use of monitoring procedures and protective measures will limit potential exposures at this site.

These standards are presented using the following abbreviations:

PEL Permissible exposure limit.

TWA Time-weighted average exposure limit for any 8-hour work shift.

STEL Short-term exposure limit expressed as a 15-minute time-weighted average and not to be exceeded at any time during a work day.

PCBs

PCBs is a generic term for a range of polychlorinated biphenyl compounds used commercially in heat transfer media and in the chemical/coatings industry. PCBs have been marketed commercially under the trade names Askarel© and Aroclor©, with a designation referring to the percent weight of chlorine. Prolonged skin contact with PCBs may cause acne-like symptoms, known as chloracne. Irritation to eyes, nose, and throat may also occur. Acute and chronic exposure can cause liver damage, and symptoms of edema, jaundice,

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anorexia, nausea, abdominal pains, and fatigue. If pregnant women accidentally ingest PCBs, stillbirth or infant skin and eye problems may occur. PCBs are a suspect carcinogen. The EPA currently classifies PCBs as a Class B2, or probable, human carcinogen. The PEL-TWA for PCBs with 54 percent chlorine content is 0.5 milligrams per cubic meter (mg/m^3), while the PEL-TWA for PCBs with 42 percent chlorine is 1 mg/m^3. Skin exposure may contribute significantly to uptake of these chemicals, and therefore all skin exposure should be strictly avoided.

Total Petroleum Hydrocarbons

Total petroleum hydrocarbons (TPH) is a generic term based on analytical test procedures for the range of hydrocarbon materials from gasoline through heavier fuel oils. These materials typically consist of n-paraffins, isoparaffins, naphthenes, and aromatics in the boiling point range from approximately 50 to 250°C. Based on materials such as gasoline and fuel oils, TPH can be expected to typically act as a central nervous system depressant, resulting in slurred speech and mental confusion. Higher doses can result in unconsciousness and possibly death from respiratory failure. Skin contact can result in irritation, dermatitis, and defatting. Liver and kidney damage can also result following acute or chronic exposure. No PEL has been established for TPH.

Semivolatile Organic Compounds (SVOCs)

The class of chemicals referred to as SVOCs includes a wide range of chemicals, including chlorinated solvents, pesticides, and herbicides. SVOCs have a lower vapor pressure than VOCs, but may still be inhaled, as well as being absorbed by skin or accidentally ingested. Contact with SVOCs may result in acute irritations of the skin, eyes, and mucous membranes. Central nervous system effects may include irritability, dizziness, tremor, and convulsions. Symptoms may occur several hours after exposure. Chronic exposures may damage major organs, primarily the kidneys and liver. Several chemicals classified as SVOCs are also listed as confirmed animal carcinogens (e.g. DDT, 1,2-Dichlorobenzene, etc.).

B.2.2 Potential Exposure Routes

Inhalation

Exposure via this route could occur if volatile chemicals become airborne during site activities, especially upon exposure to open air, warm temperatures, and sunlight. This release of vapors may occur during sampling or excavation

activities. Air monitoring and control measures specified in this plan will minimize the possibility for inhalation of volatile site contaminants.

Inhalation of dusts contaminated with site chemicals such as metals is also a possibility, especially upon exposure to low moisture and high wind conditions. Excavation and screening activities performed as part of this work could produce noticeable amounts of airborne dust. Visual air monitoring and engineering control measures specified in this plan will minimize the possibility for inhalation of site contaminants.

Skin Contact

Exposure via this route could occur if contaminated soil, water or product contacts the skin or clothing. Dusts generated during soil movement may also settle on exposed skin and clothing of site workers. Protective clothing and decontamination activities specified in this plan will minimize the potential for skin contact with the contaminants.

Ingestion

Exposure via this route could occur if individuals eat, drink or perform other hand-to-mouth contact in the contaminated (exclusion) zones. Decontamination procedures established in this plan will minimize the inadvertent ingestion of contaminants.

B.2.3 Air Monitoring and Action Levels

As shown in Table B-2, air monitoring will be conducted to determine possible hazardous conditions and to confirm the adequacy of PPE. The results of the air monitoring will be used as the basis for specifying PPE and determining the need to upgrade protective measures.

Air monitoring for dust generation will be performed initially using visual observations. If dusty conditions are observed, respirable airborne dusts will be monitored using an MIE Miniram Real-Time Aerosol Monitor. This device uses the principle of light scattering nephelometry to measure aerosols in the respirable (0.1 to 10 micrometers) size range. As shown in Table B-2, Miniram readings will be used as the basis for specifying PPE and determining the need for additional protective measures such as engineering controls (e.g. applying water for dust suppression).

During excavation activities, a MultiRAE PID will be used to determine when VOCs may be present at unacceptable levels. As shown in Table B-2, air

monitoring will be conducted to determine possible hazardous conditions and to confirm the adequacy of personal protection equipment. The results of the air monitoring will be used as the basis for specifying personal protective equipment (PPE) and determining the need to upgrade protective measures.

The specific monitoring equipment item(s) to be used on this project will be indicated by Hart Crowser Unit Number on the project Field Equipment & Supplies form. This form is included in this plan by reference. The Unit Number ties each specific piece of equipment to the records maintained in the Equipment Log Books by the Equipment Technician. As detailed below, calibration, maintenance, and repair activities are performed or arranged for each air monitoring equipment item by the Equipment Technician. These activities are conducted at the frequency specified by the manufacturer or more frequently as required by use conditions, and all such calibration/repair records are documented in the Equipment Log Books by the Equipment Technician.

Table B-2 - Air Monitoring Action Levels

Monitoring, Device	Result	Action Required	Notes
MultiRAE Plus	<5 Units above Background	Continue Monitoring	a
	5 to 10 Units above Background	Use Half-Mask Respirator	a,b
	>10 Units above Background	Stop Work; Contact Project H&S Manager	a,b
MIE Miniram for Dust	<5 mg/m^3	Continue Monitoring	
	5 to 25 mg/m^3	Use Half-Mask Respirator with particulate filter	c
	>25 mg/m^3	Stop Work; Contact Corporate H&S Manager	

Notes:
a. Use appropriate lamp and calibrate unit.
b. Air-purifying respirators must be used only when use criteria are met and when appropriate cartridges are available.
c. Half-mask respirators generally acceptable up to 10 times the PEL.

Air monitoring will generally be conducted by the Field Health and Safety Manager or other designated individual. The Project Manager is responsible for ascertaining that each designated operator is properly trained in the use of the monitoring equipment. The results of all air monitoring will be recorded on the project Field Health and Safety Report and will be used as the basis for specifying personnel protective equipment and determining the need to upgrade/downgrade protective measures. When completed, these data reports will be filed with the project records.

The following sections describe the types of monitoring equipment which are available for use on Hart Crowser projects. Monitoring procedures and calibration/maintenance are discussed separately for each equipment item.

Photoionization Detector

The PID will be used when volatile organic chemicals may be present during site activities at unacceptable concentrations. This detector is non-specific, meaning that is does not identify the chemicals present. In addition, since it is calibrated using only a single reference chemical, the PID provides only an estimate of the actual vapor concentration present. If chemical-specific information is necessary, this device must be backed up with other types of sampling equipment.

Monitoring Procedures. Where applicable, air monitoring will be conducted with a MultiRAE Plus, or equivalent, with 10.6 eV lamp, to measure organic vapor concentrations during site work activities.

The 10.6 eV lamp will be specified for general hydrocarbon survey measurements for chemicals having an ionization potential up to 10.6 eV.

The Field Health and Safety Manager or other designated project individual is responsible for verifying that the equipment is calibrated and working properly before on-site use. For the MultiRAE, this will include zeroing the instrument prior to start of work. Records of these activities will be maintained in the Field Health and Safety Report. If there are any problems with the equipment, the item will be removed from use until repair or replacement can be coordinated with the Equipment Technician.

Action Levels. PID monitoring will be conducted prior to the start of work at each individual work area where volatile chemicals may be present.

- **If PID measurements are less than 5 units above ambient background levels**, work can proceed without respiratory protection. In this case, monitoring will be repeated at 15- to 30-minute intervals, or more frequently, if odors or signs of irritation are noted.

- **If PID measurements are between 5 and 10 units above ambient background** levels in the worker's breathing zones for five consecutive minutes, then site workers exposed to these levels will use air purifying respirators as specified in Table B-2 Repeat monitoring at least every 15 minutes, or sooner, if any odors or signs of irritation are noted.

- **If PID measurements exceed 10 units** in employee breathing zones, site work will cease and employees will evacuate the work area pending re-evaluation of the situation by the Corporate H&S Manager. Action will be taken, including plan modification, if required, to address any situations where such results are observed.

Calibration and Maintenance. Calibration and maintenance of the MultiRAE (or equivalent) monitor will be accomplished as follows.

All PID monitors returned to the Equipment Room will be accompanied with a completed Notice of Returned Equipment form, indicating the equipment condition. The Equipment Technician will perform maintenance/repair as required to correct any problems indicated on this form.

Each time a PID monitor is returned to the office, the Equipment Technician will check the probe connector pins for damage, verify that the selector switch is operating properly, and ensure that the unit is properly charged. As recommended by the manufacturer, cleanliness of the 10.6 eV lamp will be verified by checking for a negative needle deflection on exposure to water vapor. Any repairs will be documented in the Equipment Log Book.

Each PID currently in service will be calibrated using isobutylene calibration gas cylinder and regulator as recommended by the manufacturer. Actual calibration gases may be purchased from local vendors. Calibration will consist of a response check and instrument adjustment using a 100 ppm isobutylene standard. Calibration will be performed at least monthly, or more frequent if required by specific project needs. Calibration results will be documented in the Equipment Log Book.

MIE Miniram

Operation. Where applicable, air monitoring for respirable airborne dusts will be conducted with an MIE Miniram Real-Time Aerosol Monitor. This device uses the principle of light scattering nephelometry to measure aerosols in the respirable (0.1 to 10 micrometers) size range.

The Field H&S Manager or other designated project individual is responsible for verifying that the equipment is calibrated and working properly before on-site use. The Miniram is factory calibrated and should not require field calibration. However, the instrument must be zeroed on a regular basis as follows:

- **If on-site Miniram measurements are < 1 mg/m^3**, the Miniram must be zeroed on a weekly basis. Zeroing is accomplished by placing the instrument inside the zero-air bag and performing the auto-zeroing function.

- **If on-site Miniram measurements are > 5 mg/m^3**, the Miniram must be zeroed on a daily basis. Zeroing is accomplished as described above.

Records of these activities will be maintained on the Field Health and Safety Report form or in the project field notebook. If there are any problems with the equipment, the item will be removed from use until repair or replacement can be coordinated with the Equipment Technician.

Action Levels. MIE Miniram monitoring will be conducted for a period of at least 5 minutes prior to the start of work at each individual work area where airborne dusts may be present.

If the TWA Miniram measurement is below 5 mg/m^3 for this monitoring period, work can proceed without respiratory protection. In this case, monitoring will be repeated for at least a 5-minute period at 30-minute intervals or sooner, if any signs of dust exposure are noted. If all measurements remain at background level over a period of 1 hour, monitoring may be discontinued, but must be resumed if any indications of dust exposure are observed.

If the TWA Miniram measurement is between 5 and 25 mg/m^3 for the initial or subsequent 5-minute monitoring period, site workers exposed to these levels will use particulate filter respirators as specified in Table B-2. In this case, monitoring will be repeated for at least a 5-minute period at 30-minute intervals or sooner, if any visible signs of increasing dust exposure are noted. If all readings remain at background level for a minimum period of 1 hour, monitoring may be discontinued, but must be resumed if any indications of volatile chemicals (odor, irritation, etc.) are observed.

If the TWA Miniram measurement exceeds 25 mg/m^3, site work will cease and employees will evacuate the work area pending re-evaluation of the situation by the Project or Field H&S Manager. This plan will be modified as required to address any situations where such results are observed.

Calibration and Maintenance. Calibration and maintenance of the MIE Miniram Monitor will be accomplished as follows:

- All Miniram monitors returned to the Equipment Room will be accompanied with a completed Notice of Returned Equipment form, indicating the equipment condition. The Equipment Technician will perform or arrange maintenance/ repair as required to correct any problems indicated on this form.

- Each time a Miniram monitor is returned to the office, the Equipment Technician will check the instrument to ensure that it is functional and that the unit is properly charged. Any repairs will be documented in the Equipment Log Book.

B.2.4 Fire and Explosion Hazard

Potentially explosive conditions may be encountered where petroleum hydrocarbons or other flammable gases or vapors have accumulated. Care will be exercised at all times during field activities where flammables are known or suspected to be present. Field monitoring equipment will be used to determine the percent of the lower explosive limit (LEL) present whenever flammable chemicals are encountered.

An ABC dry chemical fire extinguisher with a minimum charge of 10 pounds shall be a part of the sampling equipment brought to the site. If flammable chemical products are encountered as a separate phase or as vapors, constant attention to readings obtained from the combustible gas indicator (MSA 361 or equivalent) will be necessary to avoid exceeding the lower explosive limit. Observe basic precautions such as no smoking or creation of sparks or open flames.

B.2.5 Heat and Cold Stress

Use of impermeable clothing reduces the cooling ability of the body due to evaporation reduction. This may lead to heat stress. Cold stress, or hypothermia, can result from abnormal cooling of the core body temperature.

Signs of Heat Stress

"Heat stress" is a term that is used to describe progressively more serious symptoms, as follows:

- An initial rise in skin temperature due to increased blood flow to the skin (skin redness);
- Increase in heart rate, to more than 30 beats/minute above the resting level;
- Collapse, or heat exhaustion, due to inadequate blood flow to the brain;
- Dehydration, due to excessive sweating;
- Hyperventilation, resulting in a reduction of the normal blood carbon dioxide concentrations;
- Tingling around the lips, dizziness, cramping of muscles of hands and feet, and blackout; and finally
- "Heat stroke," characterized by unconsciousness, hot dry skin, and absence of sweating.

Control of Heat Stress

On hot, sunny days (high radiant heat load), if using impermeable work clothing, maintain appropriate work-rest cycles (progressively longer rest breaks in a cool location or the shade as temperature and work tasks increase) and drink water or electrolyte-rich fluids (Gatorade or equivalent) to minimize heat stress effects. Impermeable clothing will only be worn when absolutely necessary for control of hazardous chemicals.

Also, when ambient temperatures exceed 70°F, employees will conduct monitoring of their heart (pulse) rates, as follows:

- Each employee will check his or her own pulse rate at the beginning of each break period;
- Take the pulse at the wrist for 6 seconds, and multiply by 10; and
- If the pulse rate exceeds 110 beats per minute, then reduce the length of the next work period by one-third.

Example: After a one-hour work period at 80 degrees, a worker has a pulse rate of 120 beats per minute. The worker must therefore shorten the next work period by one-third, resulting in a work period of 40 minutes until the next break.

Treatment of Heat Stress

Individuals affected by mild forms of heat stress (heat exhaustion, dehydration, or cramping) should take a break in a cool or shaded location, drink liquids, and sit or lay down until feeling better. Shorter work periods should be used until temperature cools off.

Individuals affected by heat stroke are in critical condition. Summon emergency aid immediately, remove clothing, and bathe individual in cool water continually to bring down body temperature.

Signs of Hypothermia

Hypothermia can result from abnormal cooling of the core body temperature. It is caused by exposure to a cold environment, and wind-chill as well as wetness or water immersion can play a significant role. The following discusses signs and symptoms as well as treatment for hypothermia.

Typical warning signs of hypothermia include fatigue, weakness, incoordination, apathy, and drowsiness. A confused state is a key symptom of hypothermia. Shivering and pallor are usually absent, and the face may appear puffy and pink.

Body temperatures below 90°F require immediate treatment to restore temperature to normal.

Treatment of Hypothermia

Current medical practice recommends slow rewarming as treatment for hypothermia, followed by professional medical care. This can be accomplished by moving the person into a sheltered area and wrapping with blankets in a warm room. In emergency situations where body temperature falls below 90°F and heated shelter is not available, use a sleeping bag, blankets and/or body heat from another individual to help restore normal body temperature.

B.2.6 Other Physical Hazards

Trips/Falls

As with all field work sites, caution will be exercised to prevent slips on rain slick surfaces, stepping on sharp objects, etc. Work will not be performed on elevated platforms without fall protection. All excavations will be temporarily enclosed during work with barrier tape, or similar measures will be used to prevent workers from accidentally falling into an excavation.

Confined Spaces

Confined space entry is not anticipated for this project. Personnel will not enter any confined space, such as excavations, tanks, or trenches, without specific approval of the Project Manager and Corporate H&S Manager. In addition, no entry into a confined space will be attempted until the atmosphere of the confined space is properly tested and documented by the Field H&S Manager or designated representative and a self contained breathing apparatus is available on site. A confined space entry permit must also be issued and followed. All specified precautions must be carefully followed, including upgrading of PPE as directed by the Field H&S Manager or designated representative.

Noise

Appropriate hearing protection (ear muffs or ear plugs with a noise reduction rating of at least 25 dB) will be used for individuals working near an active drill rig or other high-noise generating equipment.

B.2.7 Hazard Analysis and Applicable Safety Procedures by Task

The work tasks and associated hazards, which may be anticipated during the operations described elsewhere in this work plan, and suitable control measures are presented in Table B-3.

Table B-3 - Hazard Analysis by Task

Work Task	Hazards	Protective Measures[a,b]
Site reconnaissance	None anticipated	Level D PPE
Soil Excavation and screening	Splashes, skin contact, moving equipment, inhalation, fire/explosion risk	Level C PPE, caution around moving equipment, air monitoring
Sample collection	Splashes, skin contact, inhalation	Level C PPE

[a]Protection levels are defined in Table B-4. Level C is typically modified to include respiratory protection only as warranted by contaminants.
[b]Protection levels may require upgrade based on site monitoring or other information.

In addition, special task requirements include the following.

Excavations

Excavation will be accomplished with similar precautions and employees will be cautioned to stand clear of all equipment and open excavations. Employees will not enter any excavations of 4 feet or greater depth without proper shoring or sloping.

Soil Sampling

All soil sampling activities will be conducted under the assumption that the media is contaminated and appropriate PPE will be required.

B.3 PROTECTIVE EQUIPMENT

Table B-4 presents a summary of minimum personnel protection requirements based on the potential route of contact and the potential contaminants. These requirements are classified in the designated Level D and C categories as discussed below. In this plan, Level C is presented as a modified protection level, incorporating respiratory protection only where required by site conditions or as specified under the previous discussion of drums. Situations requiring Level A or B protection are not anticipated for this project. As noted previously, should they occur, work will stop and the H&S Plan will be amended as required prior to resuming work.

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Table B-4 - Minimum Personnel Protection Level Requirements

Potential Route of Contact: Types of Contaminants	Required Protection Level	Required Equipment								
		Safety Glasses	Hard Hat	Safety Boots	Tyvek	Poly Tyvek	Nitrile Gloves	Neoprene Gloves	Respirator	
									Half-Face	Full-Face
None Anticipated	Level D(a)	X	b	X						
Minor Skin Contact Possible	Level D(a)	X	b	X	X		X			
Skin Contamination Possible:	Level C(c)									
Organics		X	b	c		X	X			
Inhalation Possible:	Level C(c)									
Organics		X	b	c	X		X		d,e	f

Notes:

a. Level D protection required when atmosphere contains no known hazard and work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.
b. Hard hat is required where risk of striking overhead objects exists.
c. Level C protection required when the atmospheric contaminants, liquid splashes or other direct contact will not adversely affect any exposed skin; the types of air contaminants have been identified, concentrations measured, an appropriate respirator cartridge is available; and all air-purifying respirator criteria are met.
d. Appropriate respirator cartridges include: organic vapor (MSA GMA or equivalent), combination (MSA GMC-H or equivalent), and others as required by contaminants.
e. Half-face respirator required when PID concentrations range from 5 to 10.
f. Full-face respirators will not be used unless field representative has been recently fit tested for a full-face respirator. In general, engineering controls (e.g., brush fans) will be used to address exposure to vapor concentrations in excess of 10 units.

B.3.1 Level D Activities

Workers performing general site activities where skin contact with free phase product or contaminated materials is not likely and inhalation risks are not expected will wear regular work clothes or regular or polyethylene-coated Tyvek®, eye protection, hard hat (as required), nitrile or neoprene-coated work gloves (as required), and safety boots.

B.3.2 Level C Activities

Workers performing site activities where skin contact with free phase product or contaminated materials is possible will wear chemical-resistant gloves (nitrile, neoprene, or other appropriate outer gloves, surgical inner gloves) and polyethylene-coated Tyvek® or other chemical-resistant suits or rain gear. Make sure the protective clothing and gloves are suitable for the types of chemicals which may be encountered on site. Use face shields or goggles as necessary to avoid splashes in the eyes or face.

When performing activities in which inhalation of chemical vapors and dusts is a concern, wear half-mask air-purifying respirators as specified in Table B-4. If respirators are used, cartridges should be changed on a daily basis, at minimum. They should be changed more frequently if chemical vapors are detected inside

the respirator or other symptoms of breakthrough are noted (irritation, dizziness, breathing difficulty, etc.).

B.4 SAFETY EQUIPMENT LIST

The following Safety Equipment must be available on site:

- Fire Extinguisher - 10 lb ABC
- First Aid Kit
- Eye Wash Kit
- Mobile Telephone
- Half-face APR - GME Super Cartridge
- Hard Hat
- Polycoated Tyvek® Coveralls
- PVC (or similar) rainsuit
- Neoprene Steel-Toed Boots
- Nitrile Outer Gloves/Nitrile Inner Gloves
- Neoprene Outer Gloves/Nitrile Inner Gloves

B.5 EXCLUSION AREAS

If migration of chemicals from the work area is a possibility, or as otherwise required by regulations or client specifications, site control will be maintained by establishing clearly identified work zones. These will include the exclusion zone, contaminant reduction zone, and support zone, as discussed below.

B.5.1 Exclusion Zone

Exclusion zones will be established around each hazardous waste activity location. Only persons with appropriate training and authorization from the Field H&S Manager will enter this perimeter while work is being conducted there. Traffic cones, barrier tapes, and warning signs will be used as necessary to establish the zone boundary. Plastic stanchions will be placed as required to prevent unauthorized access to within a minimum of 10 feet from open excavations or hazardous waste activity locations. Danger signs will be posted in plain view of approach from any direction.

B.5.2 Contamination Reduction Zone

A contamination reduction zone will be established just outside each temporary exclusion zone to decontaminate equipment and personnel as discussed below.

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B.5.2 Contamination Reduction Zone

A contamination reduction zone will be established just outside each temporary exclusion zone to decontaminate equipment and personnel as discussed below.

This zone will be clearly delineated from the exclusion zone and support zone using the means noted above. Care will be taken to prevent the spread of contamination from this area. Drums will be filled with spent decontamination fluids and used protective clothing on a daily basis. The drums, after labeling, will be moved to central storage location(s) on site pending disposal.

B.5.3 Support Zone

A support zone will be established outside the contamination reduction area to stage clean equipment, don protective clothing, take rest breaks, etc. This zone will be clearly delineated from the contaminant reduction zone using the means noted above.

B.6 MINIMIZATION OF CONTAMINATION

To make the work zone procedure function effectively, the amount of equipment and number of personnel allowed in contaminated areas must be minimized. In addition, the amounts of soil, water, or other media collected should not exceed what is needed for laboratory analysis and record samples. Do not kneel on contaminated ground, stir up unnecessary dust, or perform any practice that increases the probability of hand-to-mouth transfer of contaminated materials. Use plastic drop cloths and equipment covers where appropriate. Eating, drinking, chewing gum, smoking, or using smokeless tobacco are forbidden in the exclusion zone.

B.7 DECONTAMINATION

Decontamination is necessary to limit the migration of contaminants from the work zone(s) onto the site or from the site into the surrounding environment. Figure B-2 presents a layout for conducting decontamination within the sites zones discussed previously. Equipment and personnel decontamination are discussed in the following sections, and the following types of equipment will be available to perform these activities:

- Boot and Glove Wash Bucket and Rinse Bucket
- Scrub Brushes - Long Handled
- Spray Rinse Applicator
- Plastic Garbage Bags
- 5-Gallon Container Alkaline Decon Solution

This zone will be clearly delineated from the exclusion zone and support zone using the means noted above. Care will be taken to prevent the spread of contamination from this area. Drums will be filled with spent decontamination fluids and used protective clothing on a daily basis. The drums, after labeling, will be moved to central storage location(s) on site pending disposal.

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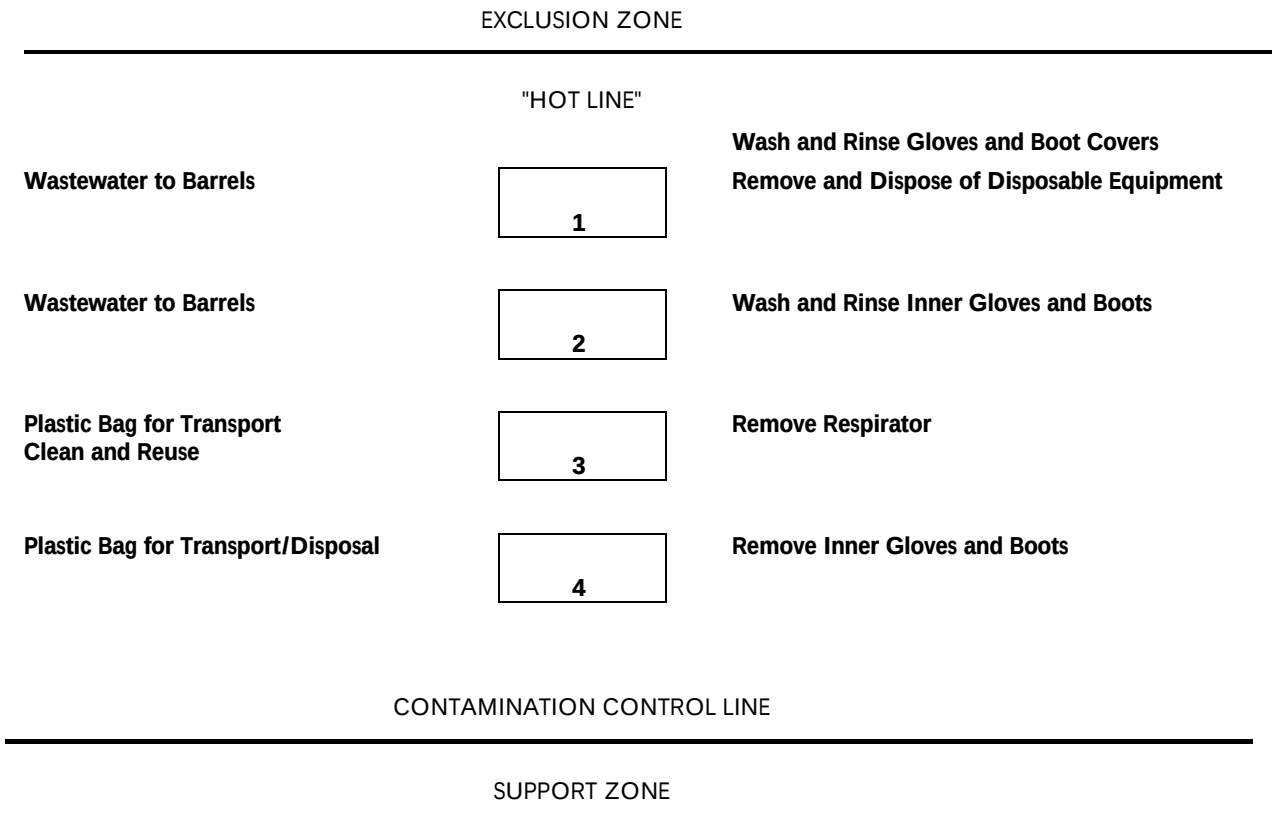
Figure B-2 - Decontamination Layout



B.7.1 Equipment Decontamination

Proper decontamination (decon) procedures will be employed to ensure that contaminated materials do not contact individuals and are not spread from the site. These procedures will also ensure that contaminated materials generated during site operations and during decontamination are managed appropriately.

All non-disposable equipment will be decontaminated in the contamination reduction zone. Prior to demobilization, all contaminated portions of heavy equipment should be thoroughly cleaned. Heavy equipment may require steam cleaning. Soil and water sampling instruments should be cleaned with detergent solutions in portable buckets.

B.7.2 Personnel Decontamination

Personnel working in exclusion zones will perform a mini-decontamination in the contamination reduction zone prior to changing respirator cartridges (if worn), taking rest breaks, drinking liquids, etc. They will decontaminate fully before eating lunch or leaving the site. The following describes the procedures for mini-decon and full decon activities.

Mini-decon Procedure

1. In the contamination reduction zone, wash and rinse outer gloves and boots in portable buckets.

2. Inspect protective outer suit, if worn, for severe contamination, rips, or tears.

3. If suit is highly contaminated or damaged, full decontamination as outlined below will be performed.

4. Remove outer gloves. Inspect and discard if ripped or damaged.

5. Remove respirator (if worn) and clean off sweat and dirt using premoistened towelettes. Deposit used cartridges in plastic bag.

6. Replace cartridges and outer gloves, and return to work.

Full Decontamination Procedure

1. In the contamination reduction zone, wash and rinse outer gloves and boots in portable buckets.

2. Remove outer gloves and protective suit and deposit in labeled container for disposable clothing.

3. Remove respirator, and place used respirator cartridges (if end of day) in container for disposable clothing.

4. If end of day, thoroughly clean respirator and store properly.

5. Remove inner gloves and discard into labeled container for disposable clothing.

6. Remove work boots without touching exposed surfaces, and put on street shoes. Put boots in individual plastic bag for later reuse.

7. Immediately wash hands and face using clean water and soap.

8. Shower as soon after work shift as possible.

B.8 DISPOSAL OF CONTAMINATED MATERIALS

All disposable sampling equipment and materials will be placed inside of 10 mil polyethylene bags or other appropriate containers and placed in trash receptacles as directed by the client.

B.9 SITE SECURITY AND CONTROL

Site security and control will be the responsibility of the Project Manager. The "buddy-system" will be used when working in designated hazardous areas. Any security or control problems will be reported to appropriate authorities.

B.10 SPILL CONTAINMENT

Sources of bulk chemicals subject to spillage are not expected to be encountered in this project. Accordingly, spill containment plan is not required for this project.

2. Remove outer gloves and protective suit and deposit in labeled container for disposable clothing.

3. Remove respirator, and place used respirator cartridges (if end of day) in container for disposable clothing.

4. If end of day, thoroughly clean respirator and store properly.

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B.11 EMERGENCY RESPONSE PLAN

The Hart Crowser Emergency Response Plan outlines the steps necessary for appropriate response to emergency situations. The following paragraphs summarize the key Emergency Response Plan procedures for this project.

B.11.1 Plan Content and Review

The principal hazards addressed by the Emergency Response Plan include the following: fire or explosion, medical emergencies, uncontrolled contaminant release, and situations such as the presence of chemicals above exposure guidelines or inadequate PPE for the hazards present. However, to help anticipate potential emergency situations, field personnel shall always exercise caution and look for signs of potentially hazardous situations, including the following as examples:

- Visible or odorous chemical contaminants;
- Drums or other containers;
- General physical hazards (traffic, moving equipment, sharp or hot surfaces, slippery or uneven surfaces, etc.);
- Possible sources of radiation;
- Live electrical wires or equipment;
- Underground pipelines or cables; and
- Poisonous plants or dangerous animals.

These and other potential problems should be anticipated and steps taken to avert problems before they occur.

The Emergency Response Plan shall be reviewed and rehearsed, as necessary, during the on-site health and safety briefing. This ensures that all personnel will know what their duties shall be if an actual emergency occurs.

B.11.2 Plan Implementation

The Field H&S Manager shall act as the lead individual in the event of an emergency situation and evaluate the situation. He/she will determine the need to implement the emergency procedures, in concert with other resource personnel including client representatives, the Project Manager, and the Corporate H&S Manager. Other on-site field personnel will assist the Field H&S Manager as required during the emergency.

In the event that the Emergency Response Plan is implemented, the Field H&S Manager or designee is responsible for alerting all personnel at the affected area

by use of a signal device (such as a hand-held air horn) or visual or shouted instructions, as appropriate.

Emergency evacuation routes and safe assembly areas shall be identified and discussed in the on-site health and safety briefing, as appropriate. The buddy-system will be employed during evacuation to ensure safe escape, and the Field H&S Manager shall be responsible for roll call to account for all personnel.

B.11.3 Emergency Response Contacts

Site personnel must know whom to notify in the event of Emergency Response Plan implementation. The following information will be readily available at the site in a location known to all workers:

- Emergency Telephone Numbers: see list at the beginning of this plan;
- Route to Nearest Hospital: see Figure B-1 at the beginning of this plan;
- Site Descriptions: see the description at the beginning of this plan; and
- If a significant environmental release of contaminants occurs, the federal, state, and local agencies noted in this plan must be immediately notified. If the release to the environment includes navigable waters also notify:
    - National Response Center at (800) 424-8802
    - EPA at (908) 321-6660

In the event of an emergency situation requiring implementation of the Emergency Response Plan (fire or explosion, serious injury, tank leak or other material spill, presence of chemicals above exposure guidelines, inadequate personnel protection equipment for the hazards present, etc.), cease all work immediately. Offer whatever assistance is required, but do not enter work areas without proper protective equipment. Workers not needed for immediate assistance will decontaminate per normal procedures (if possible) and leave the work area, pending approval by the Field H&S Manager for restart of work. The following general emergency response safety procedures should be followed.

B.11.4 Fires

Hart Crowser, Inc., personnel will attempt to control only very small fires. If an explosion appears likely, evacuate the area immediately. If a fire occurs which cannot be controlled with the 10-pound ABC fire extinguisher located in the field

equipment, then immediate intervention by the local fire department or other appropriate agency is imperative. Use these steps:

- Evacuate the area to a previously agreed upon, upwind location;
- Contact fire agency identified in the site specific plan; and
- Inform Project Manager or Field H&S Manager of the situation.

B.11.5 Medical Emergencies

Contact the agency listed in the site-specific plan if a medical emergency occurs. If a worker leaves the site to seek medical attention, another worker should accompany the patient. When in doubt about the severity of an accident or exposure, always seek medical attention as a conservative approach. Notify the Project Manager of the outcome of the medical evaluation as soon as possible. For minor cuts and bruises, an on-site first aid kit will be available.

- If a worker is seriously injured or becomes ill or unconscious, immediately request assistance from the emergency contact sources noted in the site-specific plan. Do not attempt to assist an unconscious worker in an untested or known dangerous confined space without applying confined space entry procedures or without using proper respiratory protection, such as a self contained breathing apparatus (SCBA).
- In the event that a seriously injured person is also heavily contaminated, use clean plastic sheeting to prevent contamination of the inside of the emergency vehicle. Less severely injured individuals may also have their protective clothing carefully removed or cut off before transport to the hospital.

B.11.6 Uncontrolled Contaminant Release

In the event of a tank rupture or other material spill, attempt to stop and contain the flow of material using absorbents, booms, dirt, or other appropriate material. Prevent migration of liquids into streams or other bodies of water by building trenches, dikes, etc. Drum the material for proper disposal or contact a spill removal firm for material cleanup and disposal, as required. Observe all fire and explosion precautions while dealing with spills.

B.11.7 Potentially High Chemical Exposure Situations/Inadequate Protective Equipment

In some emergency situations, workers may encounter localized work area where exposure to previously unidentified chemicals could occur. A similar hazard includes the situation where chemicals are present above permissible exposure levels and/or above the levels suitable for the PPE at hand on-site. If these situations occur, immediately stop work and evacuate the work area. Do not reenter the area until appropriate help is available and/or appropriate PPE is obtained. Do not attempt to rescue a downed worker from such areas without employing confined space entry procedures. Professional emergency response assistance (fire department, HAZMAT team, etc.) may be necessary to deal with this type of situation.

B.11.8 Other Emergencies

Depending on the type of project, other emergency scenarios may be important at a specific work site. These scenarios will be considered as part of the site-specific plan and will be discussed during the on-site safety briefing, as required.

B.11.9 Plan Documentation and Review

The Field H&S Manager will notify the Project H&S Manager as soon as possible after the emergency situation has been stabilized. The Project Manager or H&S Manager will notify the appropriate client contacts, and regulatory agencies, if applicable. If an individual is injured, the Field H&S Manager or designate will file a detailed Accident Report with the Corporate H&S Manager within 24 hours.

The Project Manager and the Field, Project, and Corporate H&S Managers will critique the emergency response action following the event. The results of the critique will be used in follow-up training exercises to improve the Emergency Response Plan.

B.12 MEDICAL SURVEILLANCE

A medical surveillance program has been instituted for Hart Crowser employees having exposure to hazardous substances. Exams are given before assignment, annually thereafter, and upon termination. Content of exams is determined by the Occupational Medicine physician in compliance with applicable regulations and is detailed in the General H&S Plan.

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Each team member will have undergone a physical examination as noted above to verify that he/she is physically able to use protective equipment, work in hot environments, and not be predisposed to occupationally induced disease. Additional exams may be needed to evaluate specific exposures or unexplainable illness.

B.13 TRAINING REQUIREMENTS

Hart Crowser employees who perform site work must understand potential health and safety hazards. All employees potentially exposed to hazardous substances, health hazards, or safety hazards will have completed 40 hours of off-site initial hazardous materials health and safety training or will possess equivalent training by past experience. They will also have a minimum of three days of actual field experience under the direct supervision of a trained supervisor. All employees will have in their possession evidence of completing this training. Employees will also complete annual refresher, supervisor, and other training as required by applicable regulations.

Prior to the start of each work day, the Field H&S Manager will review applicable health and safety issues with all employees and subcontractors working on the site, as appropriate. These briefings will also review the work to be accomplished, with an opportunity for questions to be asked.

B.14 REPORTING, REPORTS, AND DOCUMENTATION

The Field Health and Safety Report (Figure B-3) will be completed daily by the Hart Crowser Field Health and Safety Manager or designated individual. In the event that accidents or injuries occur during site work, the Project Manager will be informed, who will notify the client immediately. Hart Crowser staff and subcontractors on this site will sign the Record of H&S Communication document (Table B-5), which will be kept on site during work activities and recorded in the project files.

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SUBSTANTIVE PERMIT REQUIREMENTS
WEST DISCHARGE RAVINE INTERIM ACTION

KAISER TRENTWOOD SITE
CITY OF SPOKANE VALLEY, WASHINGTON

EASTERN REGIONAL OFFICE
TOXICS CLEANUP PROGRAM
MAY 2007

I. INTRODUCTION

This Model Toxics Control Act (MTCA) cleanup Site is the Trentwood Works of Kaiser Aluminum Fabricated Products, LLC (Kaiser) facility referred to as the Kaiser Trentwood Site. This 512- acre facility is located in the City of Spokane Valley with its western boundary in close proximity to the Spokane River.

The Kaiser Trentwood Site (the Site) is undergoing cleanup under MTCA Agreed Order No. DE 2692 (the Order). Under the Order, Kaiser is required to complete a Remedial Investigation/Feasibility Study (RI/FS) and to conduct interim actions, as necessary. The RI is to determine the extent of soil and ground water contamination, and the FS is to evaluate remedial alternatives for the Site. Phase I of the RI has already been completed. Preparation to start the Phase II RI is underway.

Phase I RI data show that soils from a former drainage ravine, referred to as the West Discharge Ravine, is contaminated with Polychlorinated Biphenyls (PCBs) and Total Petroleum Hydrocarbons (TPH). Waste water from the facility was, until 1973, previously discharged to the Spokane River through the West Discharge Ravine. Kaiser is proposing to conduct an interim action to remove these soils from this ravine.

The interim action includes:

- Removal and disposal of soils contaminated with PCBs and TPH.
- Backfilling the ravine.
- Bank restoration and revegetation.

Details of the different elements of the cleanup action are described in the Interim Action Work Plan.

A State Environmental Policy Act (SEPA) Determination of Non-Significance (DNS) for the proposed cleanup is being issued by Ecology, the lead agency.

Under RCW 70.105D.090, remedial actions conducted under an Agreed Order are exempt from the procedural requirements of Chapters 70.94 [Air], 70.95 [Solid Waste], 70.105 [Hazardous Waste], 75.20 [Hydraulic Permit], 90.48 [Water Quality], and 90.58 [Shorelands] RCW, and the procedural requirements of any laws requiring or authorizing local government permits or approvals for the remedial action. Ecology shall establish procedures for ensuring that such remedial actions comply with the substantive requirements adopted pursuant to such laws, and shall consult with the state agencies and local government charged with implementing these laws. The procedures shall provide an opportunity for comment by the public and by the state agencies and local governments that would otherwise implement these laws. This law does not prohibit state and local agencies from charging a fee to the persons conducting the remedial action to defray the cost of services rendered relating to the substantive requirements for the remedial action.

II. REQUIRED PERMITS

The proposed interim action requires the following permits:

Federal

- **Corps of Engineers Section 404 Permit [under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act]**

State

- **Washington Department of Fish and Wildlife Hydraulic Project Approval, [under Chapter 75.20 RCW, Chapter 220.110 WAC]**

- **Washington Department of Ecology 401 Water Quality Certification (WQC) [under Section 401 of the Federal Clean Water Act, Chapter 173-225]**

Local

- **City of Spokane Valley Shoreline Permit**

Kaiser has filed an application for a Corps of Engineers 404 Permit. A Nationwide Permit (NWP) is expected.

State and local permits listed above are exempt from the procedural requirements of the permits under RCW 70.105D.090. Ecology had consulted with the appropriate state and local agencies for determination of required permit approvals and substantive requirements.

III. SUBSTANTIVE REQUIREMENTS

Attached are correspondences that identify the substantive requirements from the following:

- Mr. Mike Maher of Ecology's Shorelines and Environmental Assistance Program.

- Ms. Karen Divens of the State of Washington Department of Fish and Wildlife.

- Ms. Nicki Harnois of the City of Spokane Valley.

The Interim Action Work Plan includes these elements in general. Additional details of these requirements will be included in the Construction Plans that will be submitted upon approval of the Interim Action Work Plan. Ecology will ensure that these requirements are complied with during implementation of the interim action.

Bala, Teresita F. (ECY)

From: Maher, Michael W (ECY)
Sent: Monday, April 23, 2007 3:51 PM
To: Bala, Teresita F (ECY)
Subject: RE: Kaiser Trentwood MTCA Interim Action

Hey Taresita,

Thanks for the reminder. I have reviewed of the Joint Aquatic Resources Permit Application Form (JARPA), SEPA Checklist and West Ravine Interim Action Project Summary for the proposal at the Kaiser Trentwood Site. I offer the following.

The application states that approximately 90 cubic yards of fill material will be placed below the ordinary high water mark (ohwm) of the Spokane River. I note that bmp's including working in the summer, working in the dry, appropriate sediment barriers and other methods of silt management will be used to insure minimal impacts to the environment. Work below the ohwm should be done in the dry. If the fill area cannot be isolated from the river than appropriate measures must be taken to insure that state turbidity standards are met.

As you know, the process of avoidance, minimization and compensatory mitigation is used for projects impacting both shoreline and wetlands areas. Strict adherence to this process will reduce impacts to the resource and costs for the proponent while improving the chance of successful site restoration after cleanup has been completed.

In a nutshell, any disturbed area within 50 feet of the ordinary high water mark of the Spokane River will have to be returned to its pre-project state. This includes both below the ohwm and the uplands. The site is on the south-southwest facing slope of the river with sand-gravel-cobble soils that are not generally conducive to restoration Intense sunlight on very to excessively rapid draining sloped soils - it will be tough.

There are a number of large woody and shrub species, both upland and riparian, along the shoreline. Damage to these trees and shrubs should be avoided to the greatest extent possible Where possible these plants should be salvaged and kept viable for replanting upon project completion. I saw ponderosa pine, black cottonwood, river alder, red-osier dogwood, serviceberry, and oregon grape on the site or in the immediately adjacent areas. A professional landscaper familiar with native plants should be engaged to asses and document the existing vegetation on site. He should locate, mark and direct the salvaging of any of the plants that can be salvaged. Where plant salvage is not possible, the largest available replacement plants must be used.

In addition to the woody and shrub species a mixture of native grasses and forbs must be planted as soon as possible after project completion.

Revegetation and restoration will have the greatest chance of success if undertaken in the late fall and will need irrigation during the summer for at least the first few years.

As built reports should be submitted on project completion. Monitoring reports should be submitted yearly with the goal and intent of a success rate of 90% species survival Contingency plans and funds for replanting dead or dying plants should be developed.

I would be glad to review any planting plans or species lists prepared by the landscaper Please let me know if there is anything else I can do

-mike

Michael W Maher
Permit Review/Compliance Coordinator

Department of Ecology Shorelands Program
Eastern Regional Office
(509) 329-3584
(509) 329-3529 FAX
mmah461@ecy.wa.gov

From: Bala, Teresita F. (ECY)
Sent: Friday, April 20, 2007 1:48 PM
To: Maher, Michael W. (ECY)
Subject: Kaiser Trentwood MTCA Interim Action

Mike - You asked me to remind you. . .so, is it possible to get your written response on our request for a 401 Water Quality Certification substantive requirements for the Kaiser Trentwood interim action project by the end of the month? Thanks so much for your help. Let me know if you have questions

Teresita Bala
Toxics Cleanup Program
Eastern Regional Office

State of Washington
Department of Fish and Wildlife
Region 1 Address: 2315 North Discovery Place, Spokane WA, (509) 892-1001, TDD (360) 902-2207
Main Office Location: Between Evergreen and Pines off Mirabeau Parkway

April 27, 2007

Washington Department of Ecology
Dr. Teresita Bala
4601 N Monroe Street
Spokane, WA 99205-1295

SUBJECT: Substantive Requirements PCB/Peteroleum Cleanup Kaiser, Spokane Valley

The Washington Department of Fish and Wildlife (WDFW) received your request for review of the proposed cleanup of the draw on the Kaiser property. WDFW has one major concern with the proposed project.

"If necessary to meet permit requirements, bank restoration near the river could include placement of "vegetated riprap/live stake planting of native species.."

The main concern that WDFW has with this proposal is the use of riprap and live stake plantings. When riprap is proposed on projects, it is extremely common for these plantings to fail. If it is necessary to work close to the river that streambank stabilization is needed, WDFW would appreciate the opportunity to assist in developing a bioengineered option that is appropriate for the site.

The following information provides a list of substantive requirements.

WORK WINDOW:
Work below the ordinary high water line shall only occur between June 15 and August 15 of the same calendar year.

BANK PROTECTION:
Bank protection work shall be restricted to work necessary to protect the eroding bank.

Placement of bank protection material waterward of the ordinary high water line shall be restricted to the minimum amount necessary to protect the toe of the

bank or for installation of mitigation features approved by the Washington Department of Fish and Wildlife.

The toe shall be installed to protect the integrity of bank protection material.

Bank sloping shall be accomplished in a manner that avoids release of overburden material into the water. Overburden material resulting from the project shall be deposited so it will not re-enter the water.

Bank protection and filter blanket material shall be placed from the bank or a barge. Dumping onto the bank face shall be permitted only if the toe is established and the material can be confined to the bank face.

Bank protection material shall not constrict the flow and cause any appreciable increase (not to exceed 0.2 feet) in backwater elevation (calculated at the 100-year flood) or channel-wide scour, and shall be aligned to cause the least effect on the hydraulics of the stream.

Geotextile cloth or filter blanket material shall be placed prior to placement of bank protection material.

Bank protection material shall be placed in a manner to avoid damage to existing vegetation.

EQUIPMENT

The use of equipment below the ordinary high water line shall be limited to that necessary to gain position for work.

Equipment used for this project shall be free of external petroleum-based products while working around the stream. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to its working below the ordinary high water line. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities along the stream.

WATER QUALITY

If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to the Washington Department of Ecology at 1-800-258-5990, and to the Area Habitat Biologist listed below.

Erosion control methods shall be used to prevent silt-laden water from entering the stream. These may include, but are not limited to, straw bales, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas.

All waste material such as construction debris, silt, excess dirt or overburden resulting from this project shall be deposited above the limits of flood water in an approved upland disposal site.

If high flow conditions that may cause siltation are encountered during this project, work shall stop until the flow subsides.

Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the river.

VEGETATION
Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to effectively complete the project. Within seven calendar days of project completion, all disturbed areas shall be protected from erosion using vegetation or other means. Within one year of project completion,the banks, including riprap areas, shall be revegetated with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center) and maintained as necessary for three years to ensure 80 percent survival.

Thank you for the opportunity to provide this information. If you have questions or comments, please feel free to contact me at : (509) 892-1001 x 323.

Sincerely,

Karin A. Divens

Karin A. Divens
Area Habitat Biologist

Cc: Mark Wachtel, RHPM
Mike Maher, Ecology

Bala, Teresita F. (ECY)

From: Micki Harnois [mharnois@spokanevalley.org]
Sent: Monday, April 30, 2007 2:55 PM
To: Bala, Teresita F (ECY)
Cc: Marina Sukup
Subject: RE: Kaiser Trentwood MTCA Interim Action

-----Original Message-----
From: Micki Harnois
Sent: Monday, April 30, 2007 2:38 PM
To: Greg McCormick
Subject: FW: Kaiser Trentwood MTCA Interim Action

Teresita,

For clarification, the shoreline designation for the portion of the Spokane River is "Pastoral" as Spokane Valley did not adopt Spokane County's updated Shoreline Management Plan. The Spokane River is also classified as a Type I stream which requires a 250 foot buffer area pursuant to the Interim Spokane Valley Critical Areas Ordinance.
Compliance with the Interim Spokane Valley Critical Areas Ordinance would include the submittal of the following required reports: a) Buffer Enhancement Plan; b) Habitat Management Plan; c) Monitoring Plan including Performance bonds.

I hope this email is sufficient for your required response Please contact me if you need more information

Thank you,

Micki Harnois

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:
   West Ravine Interim Action

2. Name of applicant:
   Kaiser Aluminum Fabricated Products, LLC

3. Address and phone number of applicant and contact person:
   15000 E Euclid Ave, Spokane Valley, WA 99215
   Bernard P (Bud) Leber, Jr.
   (509) 927-6554

4. Date checklist prepared:
   March 23, 2007

5. Agency requesting checklist:
   Department of Ecology

6. Proposed timing or schedule (including phasing, if applicable):
   Begin project implementation by July 15, 2007

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
Under Ecology Order No. 2692, Progress Reports that contain analytical data generated to date related to this ravine have been submitted to the Department of Ecology. In addition, an Interim Action Work Plan, for Ecology review and approval, and an Interim Action Completion Report will be prepared.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
No

10. List any government approvals or permits that will be needed for your proposal, if known.
Interim Action Work Plan
Corps of Engineers Permit
Substantive Requirements for HPA, 401, and Shorelines

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Removal of contaminated soils from a former drainage ravine as an Interim Action under Ecology Order No. 2692 is proposed. An estimated 1,500 cubic yards of soil will be removed from the ravine through the use of an excavator, front-end loader, and a dump truck. This material will be moved to an upland area for screening and stockpiling. Stockpiled material will be characterized and will be properly disposed of based upon the characterization data.

To minimize/avoid potential offsite erosion it is proposed to work only in dry areas, work during the summer months, place appropriate barriers to sediment movement (appropriate BMPs from 2004 Ecology Eastern Washington Stormwater Manual) in the work area, stabilize slopes, place rock, and re-vegetate disturbed areas as appropriate.

Planned ravine backfilling would utilize clean coarser gravel to cobble size material in the base. Plans are considering using clean finer grained soil (<2mm size) within voids between larger gravel/cobbles near the river to provide additional long term means to minimize potential for possible residual suspect material from migrating toward the river, if any remains after excavation. Gravel and sand would be placed on ravine sides with topsoil to fill in between larger particles close to the river to promote revegetation.

If necessary to meet permit requirements, bank restoration near the river could include placement of "vegetated riprap"/live stake planting of native species in joints between larger rock (as in USDA Streambank and Shoreline Protection Engineering Field Handbook or WDFW Integrated Streambank Protection Guidelines).

Planned revegetation includes hydroseeding ravine slopes after backfilling. Large trees would be left in place to the extent practicable, especially in areas without impacted soil. If it is necessary to meet permit requirements, 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). It is anticipated that this would be more important near the river to preserve riparian habitat.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Kaiser Aluminum Fabricated Products, LLC
15000 E Euclid Ave
PO Box 15108
Spokane Valley, WA 99215

Southern half Section 3, Township 25N, Range 44 EWM

A vicinity map (USGC Greenacres Quadrangle Map) is provided in Figure #1.
A site map of the facility is provided in Figure #2.
A topographic map of the ravine project work area is provided in Figure #3.
A design drawing of the unused discharge line and underwater diffuser is provided in Figure #4.

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (highlight one): Flat, rolling, hilly, steep slopes, mountainous, other

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slopes in the work area are about 0.6 horizontal to 1.0 vertical (i.e., 0.6H:1V) in localized areas. Typical side slopes are about 1.0 to 1.5H:1.0V. The existing side slopes may have to be cut back to flatter side slopes in steeper areas to avoid upper non-suspect soils from raveling down on to suspect soils. Note that earthwork activities are not planned on slopes that would impact the river.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.
Sand and gravel

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
No

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
See Attachment #1 for project details

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Yes, see Attachment #1 for project details

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?
Project will not generate any new impervious surfaces

h Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
See Attachment #1 for project details

2. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.
Exhaust from heavy earthmoving equipment such as excavators, front-end loaders, and trucks during the removal, screening, segregation, and restoration activities.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
No

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
None

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
Yes, Spokane River

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
Yes, see Attachment #1 for project details

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
None

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.
No surface water withdrawals or diversions.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
Based upon Figure #5, the Flood Insurance Rate Map for this segment of the Spokane River, a portion of the lower end of the ravine would be in the floodplain.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
No

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.
See 3.c.1

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . .; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.
None

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Due to the pervious site soils outside and inside the limits of work, significant surface stormwater is not anticipated since work is to be completed during the dry summer months. Any construction surface stormwater will be contained on site using appropriate BMPs and infiltration on site.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

See Attachment #1 for project details

4. **Plants**

a. Check or circle types of vegetation found on the site:

☒ deciduous tree: alder, maple, aspen, other
☒ evergreen tree: fir, cedar, pine, other
☒ shrubs
☒ grass
☐ pasture
☐ crop or grain
☐ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
☐ water plants: water lily, eelgrass, milfoil, other
☒ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

See Attachment #1 for project details

c. List threatened or endangered species known to be on or near the site

None are known of in the immediate area of the West Ravine.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

See Attachment #1 for project details

5. **Animals**

a. List any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds:	**hawk, heron, songbirds, pheasant, chucker**
mammals:	**deer, coyote, moose, rabbit, beaver**
fish:	**bass, trout, shellfish, largescale sucker**

b. List any threatened or endangered species known to be on or near the site

None are known of in the immediate area of the West Ravine.

c. Is the site part of a migration route? If so, explain.

Unknown.

d. Proposed measures to preserve or enhance wildlife, if any:

Once soil has been completed, the site will be backfilled with clean soil, graded, and revegetated using native plants.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

None.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Not applicable.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Yes, West Ravine soil contains PCB and petroleum hydrocarbons. The work will be accomplished by trained workers under a Health and Safety Plan that is approved by Ecology. The worker Health and Safety Plan will be designed to conform with State and Federal requirements for worker health and safety.

1) Describe special emergency services that might be required.

Existing emergency response agreements are in place for the facility.

2) Proposed measures to reduce or control environmental health hazards, if any:

These measures will be addressed in the site specific Health and Safety Plan to be approved by Ecology.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Project area is located on an existing industrial site.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Heavy earthmoving equipment will be operating during daylight hours during the cleanup project. No noise would be generated by the project on a long-term basis.

3) Proposed measures to reduce or control noise impacts, if any:

Most of the equipment will be operating down within a drainage ravine.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?

Existing heavy industrial operations.

b. Has the site been used for agriculture? If so, describe.

Plant site was an agricultural area prior to facility construction in the 1940s.

c. Describe any structures on the site.

Approximately 60 acres of the 505-acre site is covered by existing manufacturing buildings with an approximate building height of 40 feet.

d. Will any structures be demolished? If so, what?

Yes, a portion of the unused diffuser pipe will be removed.

e. What is the current zoning classification of the site?

Heavy Industrial

f. What is the current comprehensive plan designation of the site?

Unknown.

g. If applicable, what is the current shoreline master program designation of the site?

Urban Conservancy

The City of Spokane Valley has informed Ecology that the shoreline designation is "Pastoral".

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Unknown

i. Approximately how many people would reside or work in the completed project?

None

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Not applicable

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing

Not applicable

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Not applicable

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Not applicable.

b. What views in the immediate vicinity would be altered or obstructed?

Not applicable.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Not applicable.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Not applicable

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Not applicable

c. What existing off-site sources of light or glare may affect your proposal?

None

d. Proposed measures to reduce or control light and glare impacts, if any:

Not applicable

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Mirabeau Park (across the river) and State of Washington Parks Department property.

b. Would the proposed project displace any existing recreational uses? If so, describe.

Yes, there will be short-term access restrictions while cleanup activity is in progress.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None, there will only be short term access restrictions while cleanup activities are in progress.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

Unknown

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

The subject ravine existed prior to the construction of the facility in the early 1940s. The water discharge line from the northern end of the facility was routed into the drainage ravine. In approximately 1970, a drainage line with an underwater diffuser was installed. Construction drawings show that the 30-inch diameter pipe was installed in at least the last 75 feet of the ravine in an excavation and then covered with 24 inches of fill. We are not aware of any facility records that indicate the discovery of any artifacts. There are no known landmarks or evidence that such exist in the project area.

c. Proposed measures to reduce or control impacts, if any:

Only minimal disturbance beyond the areas requiring cleanup is planned.

13.b. As requested by the Spokane Tribes of Indians and Couer d'Alene Tribes of Indians, a cultural resource assessment was conducted on May 1, 2007.

13.c. In the event archaeological or historic materials are discovered during project activities, work must stop, the area secured, and the tribes' cultural departments and the Department of Archaeology and Historic Preservation notified.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Existing industrial site served by Euclid Avenue and Sullivan Road.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No, nearest transit stop is approximately six blocks away.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Not applicable.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

None.

g. Proposed measures to reduce or control transportation impacts, if any:

Not applicable.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Not applicable.

16. **Utilities**

a. Highlight utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, on-site steam generation.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Not applicable.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Bimal C. Jha

Date Submitted: March 23, 2007

TO BE COMPLETED BY APPLICANT

EVALUATION FOR
AGENCY USE ONLY

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

TO BE COMPLETED BY APPLICANT

EVALUATION FOR
AGENCY USE ONLY

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

ATTACHMENT #1

Soils Removal Activity

The soils removal activity would begin in the western end of the lower stretch of the West Ravine nearest the river. To minimize/avoid potential erosion impacts, it is proposed to work only in dry areas during the summer months. A portion of the unused discharge line would be uncovered and removed. The entrance to the remainder of the discharge line would be plugged with concrete at least three feet thick. The soil and discharge line removal would then proceed up the ravine. Appropriate temporary runoff controls/best management practices (appropriate BMPs from the 2004 Ecology Eastern Washington Stormwater Manual) would be put in place at the end of the ravine. The existing side slopes may have to be cut back to flatter side slopes in steeper areas to avoid upper non-suspect soils from raveling down on to suspect soils. An excavator would remove the soil and place it in a front-endloader. The front-end loader would then fill a truck at the eastern end of the lower reach of the ravine. The truck would then take the soil to the Materials Screening and Stockpile Area. Soils would be removed in one-foot lifts. Field screening samples would be taken and used to estimate extent and depth of PCBs with immunoassay methods. As areas are deemed to meet cleanup goals based on field screening techniques, verification samples would be submitted to an approved laboratory for confirmation analysis. Once achievement of the cleanup standard has been verified, backfilling with the appropriate materials would be performed. This process would be continued in the upper reach of the West Ravine.

Backfilling

Planned ravine backfilling would utilize coarser gravel to cobble size material in the base. Plans are considering the feasibility of using finer grained soil (<2mm size) within voids between larger gravel/cobbles near the river to provide additional long term means to minimize potential for possible residual suspect material, if any remains, from migrating toward the river. Clean gravel and sand are planned to be placed on ravine sides with topsoil to fill in between larger particles close to the river to promote revegetation.

Restoration

Once all removal and backfilling activities have been completed, the ravine side slopes and bottom (except where backfilled with rock) will be revegetated by hydroseeding with native seed mix. Large trees would be left in place to the extent practicable, especially in areas without impacted soil. If it is necessary to meet permit requirements, 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). It is anticipated that this would be more important near the river to preserve riparian habitat.

If necessary to meet permit requirements, bank restoration near the river could include placement of "vegetated riprap"/live stake planting of native species in joints between larger rock (as in USDA Streambank and Shoreline Protection Engineering Field Handbook or WDFW Integrated Streambank Protection Guidelines). However, this is not anticipated since work is not anticipated so close to the river that streambank stabilization would be needed.

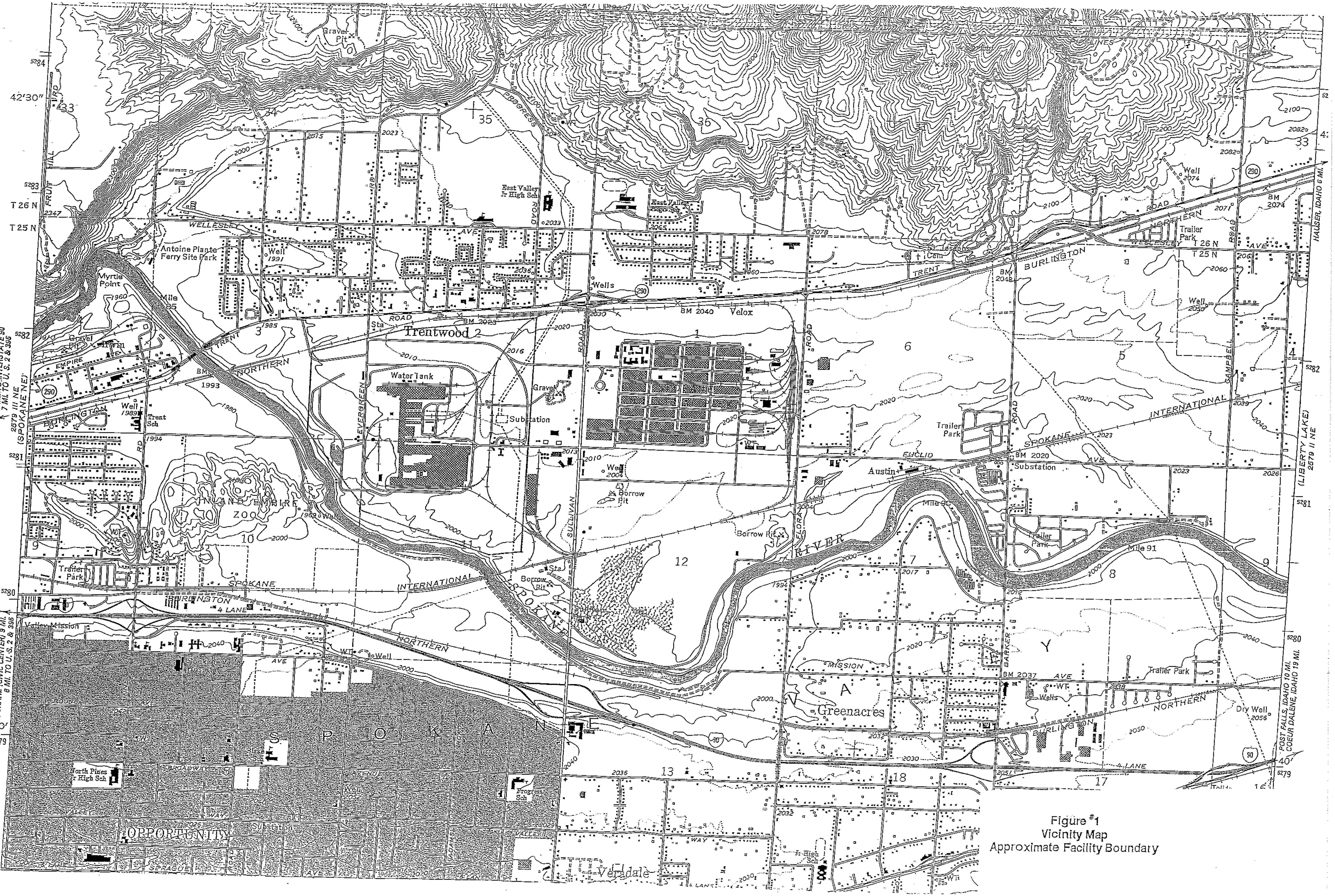
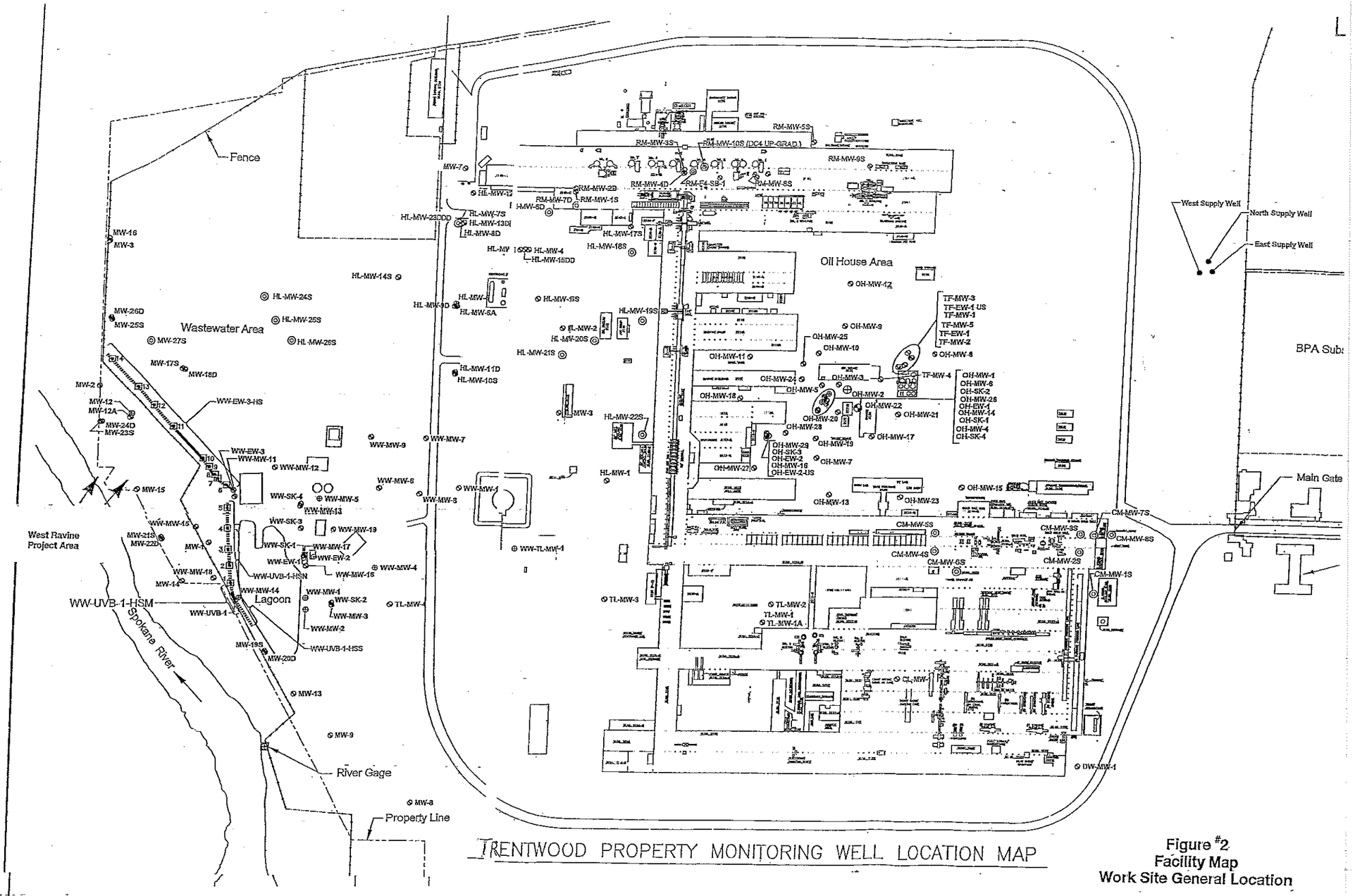


Figure #1
Vicinity Map
Approximate Facility Boundary



TRENTWOOD PROPERTY MONITORING WELL LOCATION MAP

Figure #2
Facility Map
Work Site General Location

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

Exploration Location and Number		Potential New Well Locations	
OH-EW-1 ⊙	Extraction Well	◎	Cold Mill Wells
OH-MW-4 ⊙	Monitoring Well	◎	Hot Line Plume Well
WW-TL-MW-1 ⊙	Abandoned Monitoring Well	◎	Oil Rec. Transfer Line Well
OH-SK-1 ⊙	Skimming Well	◎	SPCC Well
TF-EW-1-US ⊙	Upper Screen Well	◎	DC4 Restart Evaluation Well and Boring
North Supply Well ●	Supply Well	S	Shallow Water Table Completion
East Supply Well ●	Abandoned Supply Well	D	Deep Well Completion (~100 Ft)
		DD	Deep Well Completion (~150 Ft)

CONTRACT NO.	
DRAWN BY	DATE
HC	04/04/04

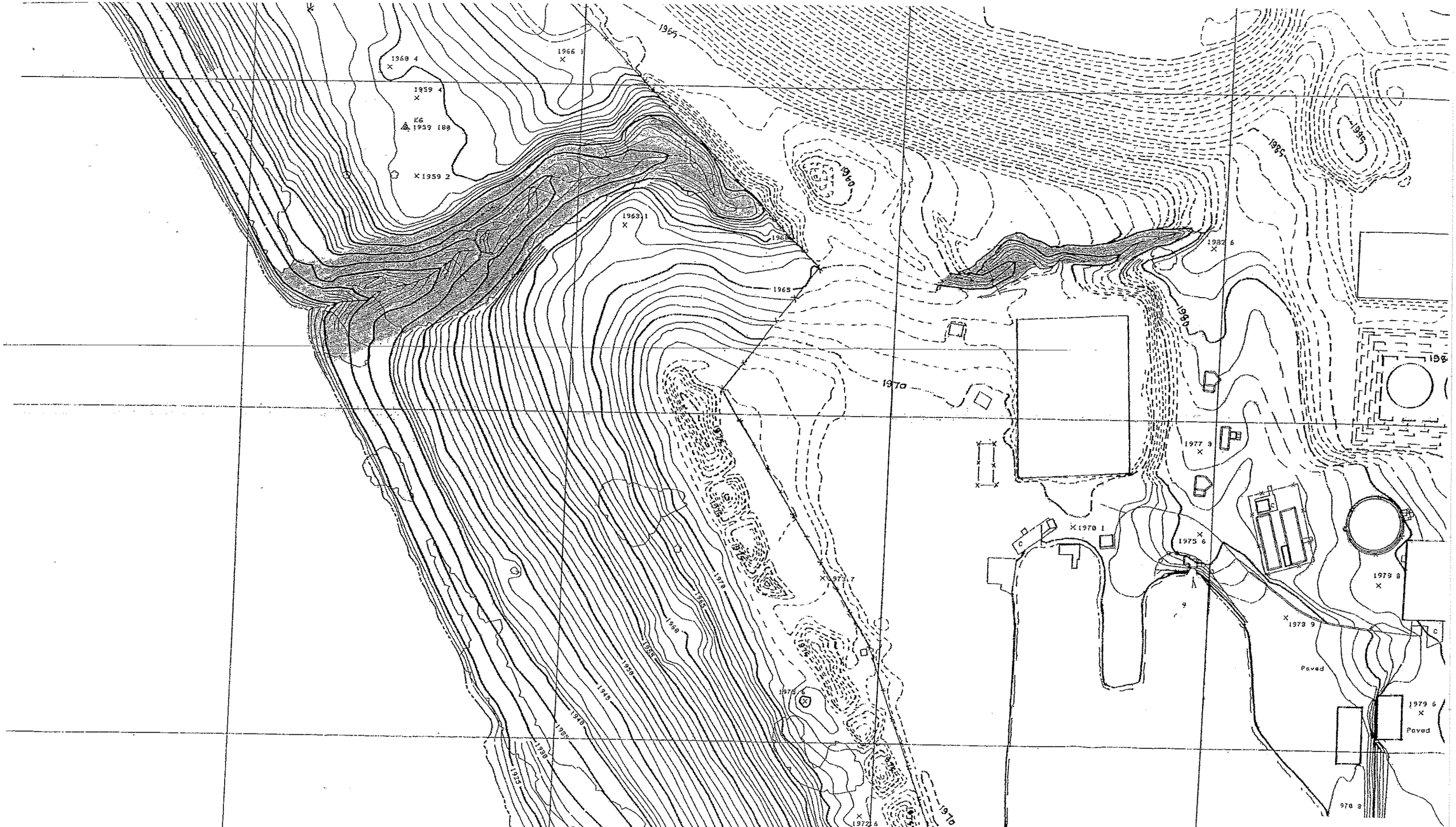


Figure #3
Work Site Vicinity Map
Approximate Work Area

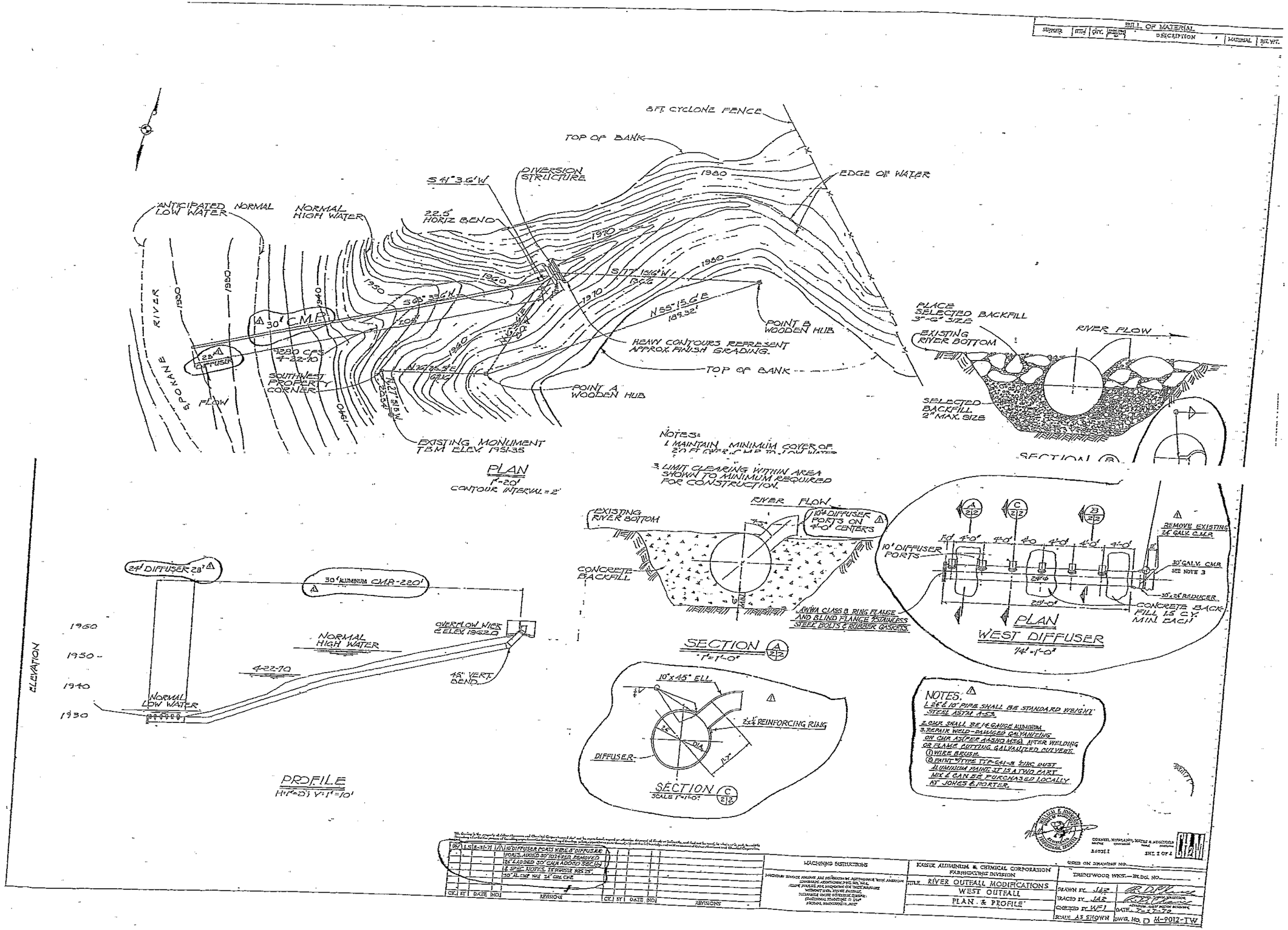
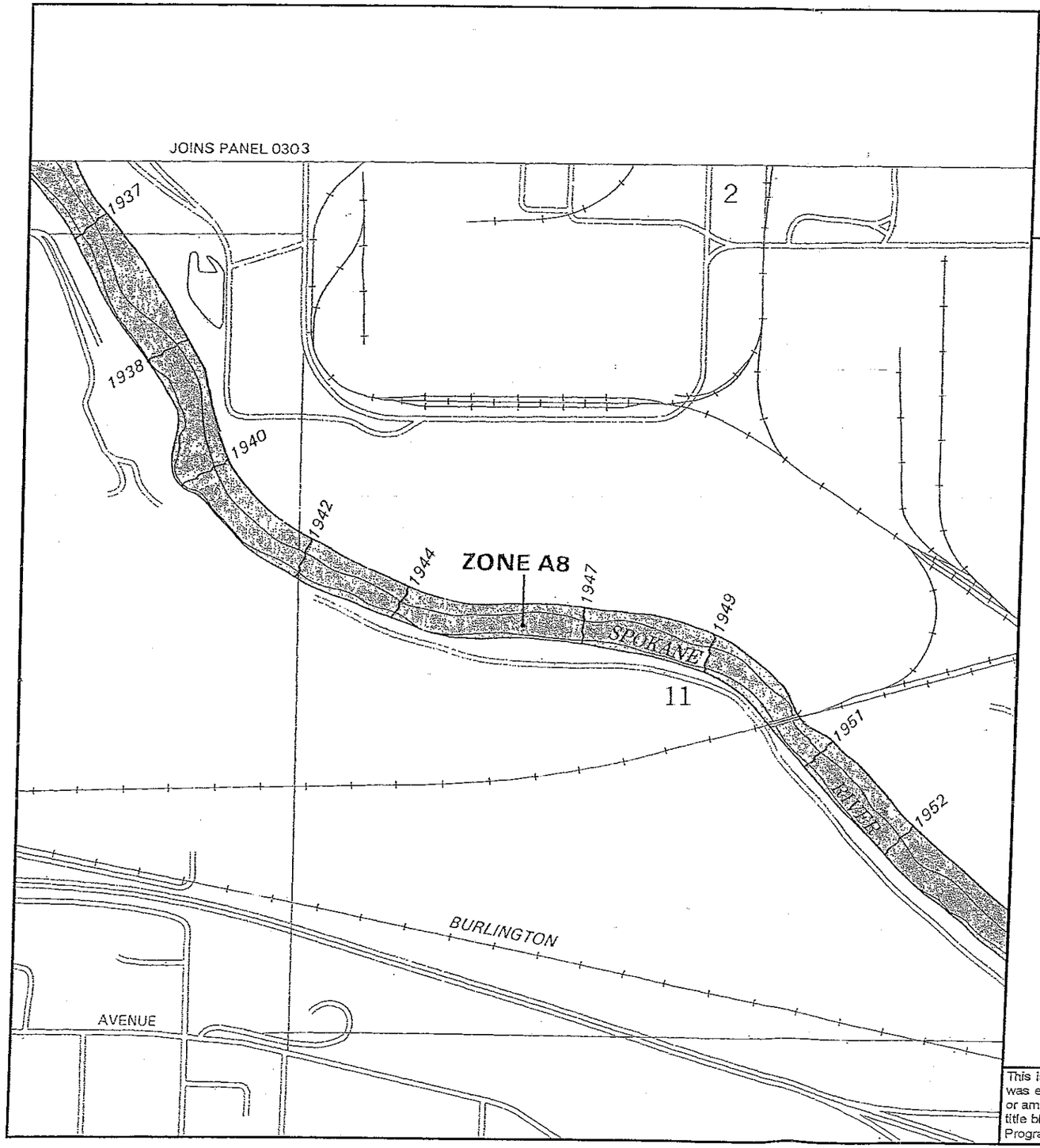


Figure #4
Unused Diffuser Line
Design Drawing



APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

SPOKANE COUNTY, WASHINGTON
(UNINCORPORATED AREAS)

PANEL 315 OF 625
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
530174 0315 C
MAP REVISED:
SEPTEMBER 30, 1992

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Figure #5
Flood Insurance Rate Map

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DETERMINATION OF NONSIGNIFICANCE

Description of proposal: The proposal is to conduct an interim action at the Kaiser Trentwood cleanup Site (the Site) under Model Toxics Control Act (MTCA) Agreed Order No. DE 2692. The interim action involves removal and off-site disposal of soils contaminated with Polychlorinated Biphenyls (PCBs) and Total Petroleum Hydrocarbons (TPH) in a former drainage ravine referred to as the West Discharge Ravine. Waste water from the facility was, until 1973, previously discharged to the Spokane River through this ravine.

Proponent: Kaiser Aluminum Fabricated Products, LLC

Location of proposal, including street address if any:

The Site is Kaiser's 512 –acre facility located at 15000 E. Euclid Ave. in the City of Spokane Valley, WA with its western boundary in close proximity to the Spokane River. The West Discharge Ravine is located in the vicinity of the western boundary and trends north and west towards the Spokane River.

Lead agency: Washington State Department of Ecology

The lead agency for this proposal has determined that it does not have a probable significant impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

☐ **There is no comment period for this DNS.**

☐ **This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.**

☒ **This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by** 6/27/07.

Responsible official: Flora Goldstein

Position/title: Section Manager, Toxics Cleanup Program

Address: 4601 Monroe Street **Phone:** (509) 329-3568

Date May 29, 2007 **Signature** Flora Goldstein