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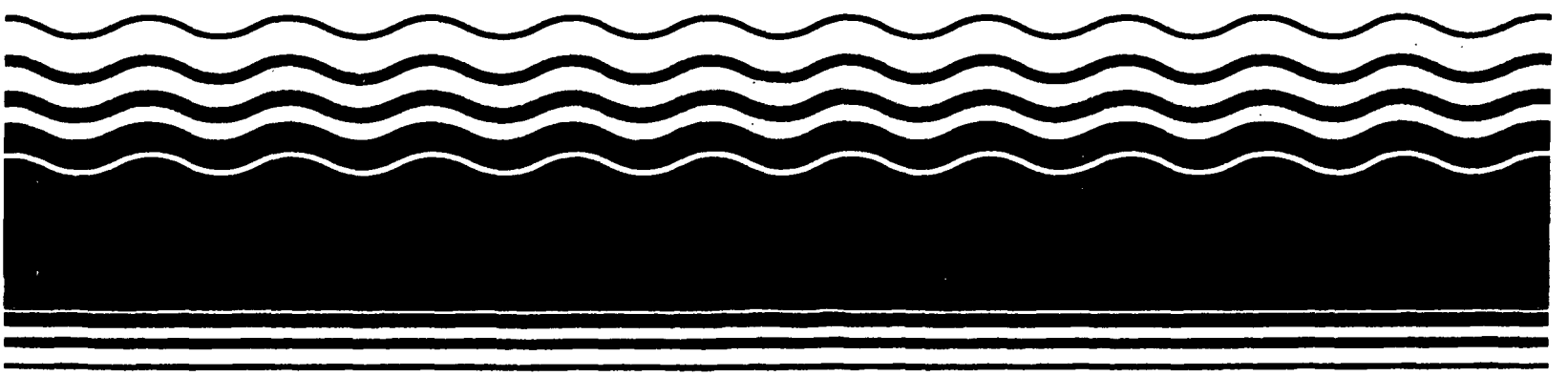
EPA Superfund Explanation of Significant Difference for the Record of Decision:

Western Processing Co., Inc., Kent, WA 12/11/1995



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

December 11, 1995

EXPLANATION OF SIGNIFICANT DIFFERENCES WESTERN PROCESSING SUPERFUND SITE

INTRODUCTION

Site Name And Location:
Western Processing
Kent, Washington

Lead And Support Agencies:
U.S. Environmental Protection Agency (EPA)
Washington Department of Ecology

Statutes That Require Explanation Of Significant Differences (ESD):
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 117(c) and National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Section 300.435(c)(2)(i)

Technical Impracticability (TI) Waiver Petition And Alternative Remedy:

On September 12, 1995, the Western Processing Trust Fund (Trust), on behalf of the consenting defendants, submitted a Petition to the U.S. Environmental Protection Agency (EPA) and the Washington Department of Ecology (Ecology) for a waiver of certain performance standards and the opportunity to shift the focus of the ongoing remediation from groundwater restoration to containment. Specifically, the Trust requested a TI waiver for certain performance standards because the standards could not be achieved in a reasonable time frame and at a reasonable cost. In addition to the waiver request, the Trust proposed to modify the remediation strategy.

Upon review of the Petition and our analysis of the Consent Decree and the applicable statutes, we have determined that the modifications to the remedy should be processed as an Explanation of Significant Differences (ESD). We have also determined that implementation of the alternative remedy does not require setting or waiving any additional performance standards at this time.

Application of the waiver provision in Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by SARA, necessarily assumes that applicable or relevant and appropriate requirements (ARAR's) were identified before the final remedy was selected. Since the Western Processing superfund site has a pre-SARA Record of Decision, there are no statutorily required ARAR's to waive.

On November 22, 1995, Ecology and EPA conceptually approved the Alternative Remedy presented in the Petition. The Alternative Remedy is fundamentally consistent with the Record of Decision and should significantly reduce remediation costs while still protecting human health and the environment.

Need For An ESD:

The new Alternative Remedy relies heavily upon several measures that were already selected in the Amended ROD including institutional controls, pumping and treating groundwater, a RCRA consistent CAP over the site, trans plume control, and long term monitoring.

The reason for this ESD is to address the hot spot remediation, slurry wall, and the change from mass removal pumping to containment pumping. The 1986 Amended ROD did mention that new remedies may be considered and addressed in additional ROD amendments, however EPA has now determined that an ESD is more appropriate for this type of action.

It should be noted that the site has been remediated consistent with the amended ROD and the Consent Decree for the past several years and that a significant amount of contamination has been removed as documented in the Trust's Petition. With the implementation of the alternative remedy, the remedial action will continue to be protective of human health and the environment and consistent with the NCP.

Administrative Record:

This ESD will become part of the Administrative Record for the Western Processing Superfund site, which is available to the public at the following location:

U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

SITE BACKGROUND

From 1961 to 1983, approximately 300 businesses transported industrial wastes to the Western Processing Company, where they were stored, reclaimed, or buried. Spills and the improper storage or disposition of reclamation by-products caused heavy contamination of the site soils, the shallow groundwater beneath the site, and the adjacent Mill Creek. Investigations identified more than 90 of EPA's priority pollutants at the site, most in the categories of volatile and semivolatile organic compounds and heavy metals.

The Western Processing site cleanup began with an EPA emergency removal of large quantities of the most hazardous substances in the spring and fall of 1983. The state of Washington also implemented storm water control measures. Immediately after these actions, a court order closed the Western Processing facility. Phase I of the two-part remediation, the surface cleanup conducted by PRPs under a Consent Decree, began in 1984 with the removal of all surface materials and buildings and continued in 1986 with on-site treatment and off-site incineration of approximately 6,000 gallons of dioxin-contaminated oily liquid.

EPA signed the ROD in 1985 and signed an amended ROD in 1986 to account for a newly discovered off-property contamination plume. Phase II of the remediation, the subsurface cleanup, also conducted by the PRPs under a consent decree, began in 1986 and included 1) extensive soil and waste sampling, 2) excavation and off-site disposal of approximately 25,000 cubic yards of highly contaminated subsurface wastes; 3) installation of infiltration trenches, extraction and monitoring wells, and a slurry wall; and 4) construction of an air stripping system and a metals treatment plant. The treatment plant began continuously operating at 100 gallons per minute (gpm) in October 1988 and increased to approximately 200 gpm in November 1989. The consent decree requires operation for at least 5 to 7 years and until cleanup standards are met, followed by monitoring for approximately 30 years.

In April 1990 the cleanup achieved interim goals for Mill Creek. EPA issued an Interim Close Out Report for the site in December 1991. In 1992, EPA reached cost recovery settlements with three PRPs. During the summer of 1993 the PRPs excavated contaminated soil and sediment from Mill Creek and the East Drain.

In late 1993 several new extraction wells were installed to improve the removal rate efficiency. An infiltration enhancement program was also initiated. Also, the PRPs submitted a petition to cease operation of the groundwater extraction and treatment

system. EPA and the Washington Department of Ecology provided extensive comments and determined that the request was premature.

In 1994 the PRPs began to conduct bioremediation and soil fixation tests to determine the feasibility of implementing these supplemental controls on a few hot spot areas. Additional work was done in Mill Creek including the placement of pea gravel in certain reaches. A shallow well extraction system was constructed along the East Drain to control potential releases of contaminants to the drain.

In 1995 the PRPs finished the bioremediation and soil fixation tests. Additionally, they examined the effects of rebound to determine what will happen to the remaining contamination when they turn off the extraction system. The PRPs are continuing to monitor on and off-site contamination.

REMEDY SELECTED IN THE ROD

EPA signed the original ROD in September 1985. The ROD was then amended in September 1986 to account for a newly discovered off-site contamination plume commonly referred to as the trans plume.

The remedy selected in the amended ROD consisted of the following major elements:

1. Conduct extensive soil and waste sampling.

2. Excavation and off-site disposal of highly contaminated subsurface wastes.

3. Excavate or cover all remaining contaminated soils outside the Western Processing property that are above background.

4. Construct and operate, for a minimum of 5 to 7 years, a groundwater extraction system for the shallow zone.

5. Construct and operate a groundwater extraction and treatment system for the trans plume in the deep zone.

6. Construct, operate, and maintain a groundwater treatment plant.

7. Construct, operate and maintain a stormwater control system.

8. Excavate contaminated Mill Creek and East Drain sediments which may have been affected by Western Processing.

9. Extensive monitoring of Mill Creek, the East Drain, groundwater, and the groundwater extraction system performance.

10. Construct and maintain a RCRA consistent cap over Area I after the pumping is completed.

11. Long-term surface water and groundwater monitoring for approximately 30 years after the cap is placed.

12. Perform conditionally required actions if the performance standards are not achieved, or if it appears that more than 20 years of groundwater extraction will be necessary.

13. Apply institutional controls such as deed restrictions as needed to limit groundwater extraction in the general vicinity of the site and maintain the integrity of the cap and slurry wall.

All of the major elements were implemented except for items 10 through 13 which are future action events. These future action items are included in the Alternative Remedy.

ALTERNATIVE REMEDY

The new Alternative Remedy outlined in the Trust's Petition includes the following elements:

1. Apply institutional controls for purposes of protecting the cap and slurry wall and limiting groundwater usage on site and in the immediate area.

2. Containment pumping and treatment of extracted groundwater from inside the slurry wall. The current extraction rates will be significantly reduced.

3. Containment pumping and treatment of extracted groundwater from the trans plume area.

4. Construction of a RCRA consistent cap over the site after the existing extraction and treatment systems are removed.

5. Long-term surface water and groundwater monitoring for 30 years after the cap is constructed unless the time frame is modified. There will be five year reviews to assess the effectiveness of the remediation and the continued need for monitoring.

6. Retain the current slurry wall and construct a cut-off wall parallel to South 196th Street.

7. Hot spot remediation of targeted areas using bioremediation, thermal desorption, and stabilization techniques.

8. Site maintenance for 30 years after the cap is constructed unless the time frame is modified.

9. Development of a contingency plan for mitigating potential releases from the site if containment pumping is not effective.

SIGNIFICANT DIFFERENCES IN THE ALTERNATIVE REMEDY

The Alternative Remedy is fundamentally consistent with the selected remedy contained in the amended ROD. The new remedy's control measures are basically the same as those contained in the amended ROD including enforcement of institutional controls, continued pumping and treating of groundwater, construction of a RCRA consistent cap and long term monitoring. Significant differences between the new and old remedy, or changes in operating philosophy, are addressed below.

Existing Slurry Wall And New Cutoff Wall

The original slurry wall was installed by the Trust in 1988 as a field modification to the remedial action. The slurry wall is a 4,400-ft long vertical barrier that is 40 to 50 feet deep, and 30 inches thick. Although the slurry wall was not specifically included in the selected remedy contained in the amended ROD, this remedial option was considered and evaluated in the Feasibility Study and again in the original ROD.

The slurry wall provides horizontal flow control in the upper aquifer. By blocking contaminated water from leaving the site, the pumping and cleanup efficiency is improved. The wall also provides extra protection for Mill Creek and East Drain.

The Alternative Remedy retains the current slurry wall intact and includes the construction of a supplemental cutoff wall immediately south of the S. 196th Street right-of-way. This will continue to help protect Mill Creek and East Drain from the remaining site contamination and reduce the amount of groundwater pumping necessary to maintain containment.

With the cutoff wall, the area north of South 196th Street called Cell 7, will be segregated from the remaining hot spot

areas of contamination. Because of the cutoff wall and low levels of contamination now found in Cell 7, a RCRA type of cap will not be necessary for this area.

Hot Spot Remediation

The Mill Creek standards defined in the Consent Decree have been attained and the cis 1,2-dichloroethene (cis) standard nearly attained in the trans plume area. However, higher levels of contamination called "hot spots" remain in certain locations primarily inside the slurry wall. The ROD states that if the performance standards are not achieved, or if it appears that more than 20 years of groundwater extraction will be necessary, then conditionally required actions should be implemented. Figures 4-20 through 4-24 of the Petition identify hotspot areas where this may occur.

* Bioremediation of VOC Contamination

The Alternative Remedy requires the use of in-situ bioremediation for remediating three hot spot areas in the shallow aquifer identified in Figures 4-22 and 4-24. The bioremediation will be conducted by applying a sodium acetate nutrient to the VOC contaminated areas. Field tests have demonstrated that the bioremediation will break the trichloroethylene (TCE) down to cis 1,2 dichloroethene which in turn will biodegrade to vinyl chloride.

Test results suggest that the vinyl chloride would then biodegrade to harmless ethene. Even if the biodegradation to ethene doesn't occur immediately, there will be a reduction in the total VOC mass and any remaining contamination would still be captured inside the slurry wall.

* Thermal Desorption and Stabilization of Treated Soils

One shallow area in the center of the site that contains both heavy metals and VOC's will be excavated (approximately 5,000 cubic yards). Most likely a portable thermal desorption treatment unit will be brought onto the site and the excavated material will be processed to remove the VOC's. The treated material will then be stabilized, to reduce the mobility of the heavy metals, and placed back in the excavated hole. The thermal desorption process would not be necessary if an effective means to stabilize both the VOC's and metals can be found. Since the pre-SARA ROD effectively precluded ARAR's when it was signed, the new Land Disposal Regulations would not apply.

CHANGE FROM MASS REMOVAL PUMPING TO CONTAINMENT PUMPING

The Trust requested that the present mass removal extraction pumping be changed to containment pumping. Although this represents a major change in the operation of the pump and treat system at Western Processing, it remains fundamentally consistent with the amended ROD.

Containment pumping within the slurry wall will be conducted with a new extraction and treatment system that is significantly smaller than the existing system. The new wells will be constructed with an individual adjustable positive displacement pump similar to the existing U-wells rather than the current vacuum extraction system. Treatment of VOC's will be by air stripping and vapor phase carbon adsorption. Treatment for heavy metals is not expected to be necessary because of the location of the wells, but will be conducted as necessary to meet the appropriate discharge limits. Treated groundwater will be discharged to either Mill Creek or the publicly owned treatment works (POTW).

Vinyl Chloride And Future Additional Cleanup Standards

In subparagraphs XIX.D.4 through XIX.D.6 of the Consent Decree, the Governments reserve the right to require the consenting defendants to remedy or abate conditions when previously unknown or undetected conditions arise or additional information on health effects becomes available that indicates the presence of "an imminent and substantial endangerment to the public health or welfare or the environment."

Vinyl chloride in the trans wells could present such an endangerment. The risk analysis shows that vinyl chloride is the most hazardous substance at the site. While cis 1,2 dichloroethene concentrations have been decreasing in the trans plume area, vinyl chloride concentrations are generally increasing or staying level.

While EPA and Ecology are not setting vinyl chloride standards at this time, we will revisit the need to set standards during future five year reviews, or sooner if necessary. It is likely that containment pumping in the trans plume area will be required for the next several years even if the cis 1,2 dichloroethene performance standards are attained. Additional containment pumping is necessary to ensure that the Zone B aquifer is not further degraded by releases of vinyl chloride into the surrounding area.

SUPPORT AGENCY COMMENTS

Consistent with EPA guidance, the Washington State Department of Ecology reviewed this ESD and had no suggested changes to the text. Ecology supports this action and the implementation of the described Alternative Remedy.

AFFIRMATION OF STATUTORY DETERMINATIONS

Considering the new information developed during the remedial action and the resulting changes made to the selected remedy, EPA and Ecology believe that the Alternative Remedy remains protective of human health and the environment. The Amended Remedy utilizes permanent solutions to the maximum extent practicable for this site and is cost-effective. It complies with the NCP and other federal and state requirements that were identified as applicable, relevant or to be considered for this remedial action at the time the original ROD Amendment was signed.

PUBLIC PARTICIPATION ACTIVITIES

This ESD and supporting information will become a part of the Administrative Record for the site. For additional information regarding this ESD, please contact the Superfund Site Manager for the Western Processing site:

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(206) 553-4903

Loren McPhillips 12-11-95
Loren McPhillips, Superfund Site Manager Date

Approved by:

12-11-95
Michael F. Gearheard Date
Associate Director
Environmental Cleanup Office