

**Explanation of Significant Differences
for the 1992 Record of Decision
for the
Contingency Aquifer 2 Extraction and Treatment Action
at the
Queen City Farms Superfund Site,
Maple Valley, King County, WA**

CERCLIS ID Number: WAD980511745

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Introduction to the Site and Statement of Purpose

This decision document presents an Explanation of Significant Differences (ESD) for the Queen City Farms (QCF) Superfund Site (Site), King County, Washington, #WAD0980511745. The Record of Decision (ROD) addressed by this ESD sets forth the Final Remedial Action at the Site, signed on December 31, 1992.

The 324-acre Queen City Farms Superfund Site is located in a predominantly semi-rural, wooded and residential neighborhood approximately 2.5 miles northwest of Maple Valley in King County, Washington. Industrial and hazardous wastes including solvents were disposed of in unlined ponds on the Site during the 1950s and 1960s. In 1980, the ponds were sampled by the EPA and heavy metals and volatile organic compounds (VOCs) were found in the water, sludge and sediment. Later sampling by the Potentially Responsible Parties (PRPs) showed that VOCs (primarily trichloroethene (TCE)) had migrated into the ground water and contaminated Aquifer 1, Aquifer 2 and, more recently, Aquifer 3.

The remedial action objectives (RAOs) established for groundwater include prevention of the migration of the contaminant plume and restoration of groundwater for future use. These RAOs have not been met and are not expected to be met in a reasonable time, thus triggering the need to implement the selected contingent extraction and treatment remedial action.

This ESD is issued in accordance with § 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 C.F.R. § 300.435(c)(2)(i). The Boeing Company (Boeing) is the Potentially Responsible Party and the US Environmental Protection Agency is the lead regulatory agency.

In accordance with 40 C.F.R. § 300.825(a)(2), this ESD and supporting documents will become part of the Administrative Record file for the Site. The Administrative Record is available for review at the U.S. EPA Region 10 Superfund Records Center, 1200 Sixth Avenue, Seattle, WA 98101 (please call 206-553-4494 for an appointment).

Site History, Contamination, and Selected Remedy

The Site was listed on the National Priorities List (NPL) in 1984. Between 1983 and 1993, a series of Site investigations and removal actions were conducted by the PRPs. An Initial Remedial Measure (IRM) was performed at the Site in 1986 that included removal and containment measures that addressed sludge and liquid contamination at the Site. The IRM only partially addressed soil contamination, and did not address ground water contamination. On December 31, 1992, the U.S. Environmental Protection Agency issued a final ROD that selected remedial actions necessary to protect human health and the environment from hazardous substances released at the Site.

The Site was divided into three (3) areas in order to facilitate evaluation and selection of remedial measures – the IRM and associated ground-water contamination (IRM Area), the Buried Drum Area (BDA) and the 4-Tek Industries area. This ESD addresses one of six actions identified as components of the selected remedy for the IRM Area, specifically the contingent Aquifer 2 extraction and treatment

action. The remedial actions selected for this area have been and continue to be implemented under the terms of a September 9, 1994 Consent Decree between Boeing and the EPA.

The 1992 ROD established the following RAOs for ground water at the Site, including in the IRM Area:

- Prevention of exposure to contaminated ground water.
- Prevention of migration of contaminant plume.
- Restoration of ground water for future use.

The selected remedy for the IRM Area consists of isolating the primary contaminant source area within and above Aquifer 1, followed by monitored natural attenuation of the VOC plume in the underlying regional aquifer (Aquifer 2) and several contingent actions. The ROD outlined a contingent extraction and treatment system for the IRM Area if cleanup goals were not met in a reasonable time. The ROD states:

Contingent extraction of contaminated Aquifer 2 ground water in order to remove volatile organic contamination. Volatiles would most likely be removed by recirculation through the Main Gravel Pit Lake, or equivalent surface water body. Should the extracted volatile organic contamination exceed action levels, then the ground water may be treated via air stripping, or best available technology, prior to discharge to the Main Gravel Pit Lake or equivalent surface water body.

Section 10.1.6 of the 1992 ROD further defined goals and objectives for the Aquifer 2 Extraction and Treatment Contingent Action. Procedures were included to evaluate progress towards attainment of cleanup levels and the need to implement the contingent extraction and treatment action. It also required that technical data and information for such a system be gathered and a design plan be drafted during the general site remedial design phase and specified several additional requirements for the contingent action.

In 1995 and 1996, the contaminant source area was isolated through construction of a vertical barrier wall and other selected remedial actions in the IRM Area. A long-term groundwater monitoring program was established to document and evaluate VOC concentrations and natural attenuation in the defined groundwater plumes. Since 1997, VOC concentrations in Aquifer 2 have generally declined throughout the Site. However, TCE levels continue to be detected above the established cleanup levels.

Basis of ESD and Description of Significant Differences from ROD

The selected remedy requires that a contingent extraction and treatment of contaminated Aquifer 2 ground water be implemented if a “historical and statistical analysis of Aquifer 2 contaminant concentrations” ... “indicates that contaminant concentrations in Aquifer 2 are not likely to decline to cleanup levels within 10 years after construction of the vertical barrier wall” or “if at any time in the future plume expansion is detected.” The vertical barrier wall was completed in 1996 and the Preliminary Close-Out Report for the Remedial Action was completed in 1997.

In 2008, the EPA formally evaluated progress at the Site relative to the Aquifer 2 extraction and treatment trigger conditions and determined that, in the S well area (southwest of the IRM area), the Aquifer 2 plume had expanded and cleanup levels had not been attained despite the fact that more than 10 years had passed since completion of construction of the vertical barrier wall. As such, in a

December 8, 2008 letter to Boeing, the EPA notified Boeing that the contingent Aquifer 2 extraction and treatment action identified in the ROD was to be implemented. This letter can be found in the Administrative Record.

The December 8, 2008 letter, requested that Boeing initiate “implementation of the Contingent Ground Water Extraction and Treatment plan” or “provide a conceptual outline for implementation of an alternative plan” to address the Aquifer 2 TCE plume. In response, Boeing has prioritized the S well area for the contingent action and has completed the remedial design for construction of an Aquifer 2 groundwater extraction and treatment (GET) system.

Boeing submitted a Conceptual Design Report for the Aquifer 2 Contingent Action on June 21, 2013. The proposed design prioritized extraction and treatment in the S well area located in the southwest corner of the Site. This area was prioritized due to the plume expansion identified in the EPA’s December 2008 letter and the presence of TCE concentration above cleanup levels in relatively close proximity (approximately 500 feet) of the southern property line. A Final Remedial Action Work Plan and Engineering Design Report for the GET system was submitted to the EPA on May 6, 2014 and approved by the EPA on May 20, 2014. The design calls for installation of seven Aquifer 2 extraction wells and the assembly of a Caronair Stat 80 six-tray air stripper groundwater treatment system in an on-site building during the summer of 2014. System startup and testing is scheduled for September and October, 2014. Effluent will be discharged on-Site to Main Gravel Pit Lake at levels consistent with State discharge requirements and all applicable ARARs. Air emissions have been evaluated and designed to be well below State and local air discharge limits. A plan for monitoring groundwater drawdown, influent water quality, effluent water quality, air emissions and groundwater quality in the vicinity of the system has been established. In addition, groundwater conditions will continue to be monitored throughout the Site under the existing long-term groundwater monitoring program.

The purpose of this ESD is to modify the Aquifer 2 Extraction and Treatment action so that it becomes a selected, not a contingent, action. This action is to be implemented as identified in the ROD and Consent Decree.

As part of EPA’s review of the Remedial Action Work Plan and Engineering Design Report, the EPA has reviewed whether this action will modify the scope, performance or costs identified in the ROD. As outlined below, the EPA has determined that the actions outlined in this ESD do not change the scope, performance or costs identified in the 1992 ROD.

- This ESD does not change the scope of the remedial action selected in the 1992 ROD as the contingent remedy was included as a component of the selected remedy.
- The level of protection provided by, and the performance standards used for, the design of the Contingent GET system are consistent with those presented in the 1992 ROD.
- Costs associated with the implementation of the remedy were included in the cost evaluation presented in the ROD. The EPA acknowledges that construction costs associated with this action have likely increased since the ROD was signed in 1992. All costs for the implementation of this contingent action will be borne by The Boeing Company under the 1994 Consent Decree. Boeing has not raised costs as an impediment to this action and is currently in the process of moving forward with implementing the required actions.

- Implementation of the contingent remedy is expected to result in attainment of the cleanup levels and RAOs. RAOs were not met in the first 10 years following construction of the vertical barrier wall as specified in the ROD nor in the seven (7) years subsequent to that. RAOs would likely not be met in a reasonable time without implementation of this contingent action.

Support Agency Acceptance

The Washington Department of Ecology (Ecology) has reviewed and provided input on the design for this contingent action, including review of the Conceptual Design Report and the Engineering Design Report. While a few questions regarding proposed extraction well and discharge locations were raised during the conceptual and preliminary design phases, Ecology had no comments on the final Engineering Design Report.

Statutory Determinations

The remedy for the Site, as modified by this ESD, continues to satisfy the statutory requirements of CERCLA § 121, 42 U.S.C. 9621 to protect human health and the environment, comply with federal and state requirements that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Public Participation Compliance

The public participation requirements set out in the NCP, 40 C.F.R. § 300.435(c)(2), have been met by adding the ESD and supporting information to the administrative record established under § 300.815 and making it available to the public on EPA's website and in the Administrative Record located at the Superfund Record Center, Seattle, WA 98101. Phone 206-553-4494. In addition, when the ESD is issued, a public notice of its availability will be published in the *Voice of the Valley*.

