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TECHNICAL MEMORANDUM

Date: March 31, 2009

To: Ching-Pi Wang, P.E.
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From: Mike Warfel, LG, LHG
Project Manager

Subject: Updated Work Plan for 1929 Third Avenue Site, Seattle, WA

cc:

Project Number: 555-4693-001

Project Name: 1925 Third Avenue

This Technical Memorandum summarizes the history and solvent release at the referenced site, discusses the remedial measures completed to date, and proposes a proposed updated Work Plan to address the residual PCE contamination at the site.

Site History

- The north bay of the ground floor (1925 Third Avenue address) was occupied by Barg French Dry Cleaners from 1951 until 2000.
- Leaks or spills of perchloroethylene (PCE), a dry cleaning solvent, contaminated soil beneath the former dry cleaning machine and groundwater beneath the north and center bays of the building. The extent of contamination was defined by multiple field investigations conducted between 1999 and 2003.
- The site was placed on Department of Ecology (Ecology) Confirmed and Suspected Contaminated Sites List (with the reference address of the south bay of the building, 1929 Third Avenue).
- A Prospective Purchaser Consent Decree was approved by Ecology and executed on January 15, 2004, which specified limited soil excavation and soil/groundwater treatment

with air sparging and soil vapor extraction as the selected remedial alternatives, per the appended Cleanup Action Plan.

Remediation Summary

- Pre-existing soil vapor extraction probes and monitoring wells were supplemented with additional probes and air sparging wells in April 2004, followed by pilot vacuum and air sparging testing.

- Per Ecology approvals, soil beneath the former dry cleaning machine was excavated and disposed at a licensed facility as dangerous waste. Additional soils beneath the north and center bays of the building were excavated to a depth of 2 feet to allow installation of the horizontal piping of the vapor extraction system. Soil excavation and disposal was completed in December 2004.

- The air sparging and soil vapor extraction system installation and break-in testing was completed in early 2005. System operation and monitoring began on April 27, 2005.

- Initial system performance data collected in late June 2005 indicate a time to cleanup on the order of a year. System performance is expected to improve when the temporary plastic ground cover is replaced with the permanent cement floor slab.

- The sequence of air sparging/soil vapor extraction completed April 2006 through June 2007. Significant overall reduction in PCE concentrations. Rebound documented between AS/SVE operations, to levels above the site cleanup level for PCE of 196 µg/L, which is based on a scenario in which the building would be demolished, and excavation created, and potential exposure to workers.

- A plan for treatment of residual PCE was prepared in December 2007, which Ecology reviewed and approved. Injection of permanganate was completed May 6 through May 8, 2008.

- Groundwater sampling conducted in July and October 2008 indicated similar rebound and redistribution of PCE in groundwater, to levels exceeding the PCE cleanup level at the same magnitude or pre-injection sampling. TCE has not been detected since the system was installed; therefore, PCE is the contaminant of concern. These results, along with historical data, are shown in Table 1. Probe locations are shown on Figure 2.

Conclusions

- Parametrix concludes that the AS/SVE and permanganate injection, one of the most aggressive forms of in-situ remediation, has removed as much residual PCE as technically feasible from site soils and groundwater, that the fine-grained and heterogeneous fill material beneath the building will not likely yield much more PCE, and that some residual will remain in the shallow soil and perched groundwater zone beneath the building.

- Prior site reports prepared by Parametrix have demonstrated that the perched aquifer is isolated horizontally and vertically from any current or future source of drinking water, and that groundwater with PCE above the site cleanup level is contained within the site boundary.

- The design of the AS/SVE system provides passive venting of soil gas from beneath the building slab (and the underlying plastic membrane). This system feature prevents soil gas from entering the indoor air of the building. Indoor air sampling conducted over a 5-day period in September 2006 (after the AS/SVE system was shut down) showed PCE concentrations in air below detection limits (0.2 ppm) and below the NIOSH Time-Weighted Average (TWA) limit of 100 ppm.

- No current human health or environmental exposure pathways for PCE transport exist at the site.

Propose Future Work Plan

- Collect groundwater samples at the site (probes 2, 5, 6, and 7) every 2 years in October. The last samples were collected in October 2008; the next samples would be collected in October 2010.

- If sample results exceed 1,000 µ/L PCE, then turn on the AS/SVE system for the first 5 days of each month until the next sampling occurs. The system should be shut down after running the first 5 days of September prior to sampling, to allow the subsurface to stabilize.

- Continue monitoring and intermittent system operation until PCE concentrations are below the site cleanup level of 196 µ/L.

- Prepare a Restrictive Covenant for the site.

- Amend the Consent Decree to reflect these changes.

References

Parametrix 2007. 1925 Third Avenue Liquid Permanganate Treatment of Residual Subsurface PCE and TCE, Washington State Department of Ecology Site ID 22254391. Prepared for 1925 Third LLC. December 2007.

Parametrix 2006. Operations and Maintenance Plan for the Third Avenue Site. Prepared for 1925 Third LLC. April 2006.

Parametrix 2005. As-Built Report for the Soil and Groundwater Remediation System for the Third Avenue Site. Prepared for 1925 Third LLC. July 2005.

Parametrix 2005. Soil and Groundwater Remediation System Engineering Design Report for the Third Avenue Site. Prepared for 1925 Third LLC. January 2005.