



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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October 15, 2015

MR. WILLIAM CARROLL  
PACIFIC CREST ENVIRONMENTAL LLC  
P.O. BOX 952  
NORTH BEND, WA 98045

**Re: Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site:**

- **Name:** Penthouse Drapery Cleaners
- **Address:** 1752 Rainier Avenue South
- **Facility/Site No.:** 23408
- **VCP No.:** NW2278
- **Cleanup Site ID No.:** 3184

Dear Mr. Carroll:

Thank you for submitting documents regarding your proposed remedial action for the **Penthouse Drapery Cleaners** facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site:

- Total petroleum hydrocarbons in the gasoline range (TPH-G) and tetrachloroethene (PCE) in Soil
- PCE, trichloroethylene (TCE), cis-1,2-dichloroethene (DCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, and 1,4-dioxane in Ground Water
- PCE in Air

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does



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not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial actions:

1. Pacific Crest Environmental, LLC, 2015. *Draft Cleanup Action Plan – Site Area 1, Former Penthouse Drapery, 1752 Rainier Avenue South, Seattle, Washington.* July 9.
2. Pacific Crest Environmental, LLC, 2015. *Response to Ecology's Opinion Letter dated October 27, 2014, Former Penthouse Drapery, 1752 Rainier Avenue South, Seattle, Washington.* April 3.
3. Pacific Crest Environmental, LLC, 2014. *Draft Remedial Investigation Feasibility Study Report, Former Penthouse Drapery, 1752 Rainier Avenue South, Seattle, Washington.* July 28.
4. Pacific Crest Environmental, LLC, 2011. *Remedial Investigation-Feasibility Study Report, Former Penthouse Drapery, 1752 Rainier Avenue South, Seattle, Washington.* May 13.
5. Pacific Crest Environmental, LLC, 2010. *Sampling and Analysis Plan, Former Penthouse Drapery, 1752 Rainier Avenue South, Seattle, Washington, Ecology VCP # NW2278.* August 3.
6. Pacific Crest Environmental, LLC, 2010. *Data Summary Report, Former Penthouse Drapery, 1752 Rainier Avenue South, Seattle, Washington.* July 30.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an email to: [nwro\\_public\\_request@ecy.wa.gov](mailto:nwro_public_request@ecy.wa.gov).

The Site is defined by the extent of contamination caused by the following releases:

- TPH-G and PCE in Soil
- PCE, trichloroethylene (TCE), cis-1,2-dichloroethene (DCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, and 1,4-dioxane in Ground Water
- PCE in Air

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the releases at the Site, Ecology has determined:**

- The April 3, 2015 response letter to Ecology's opinion letter dated October 27, 2014 generally clarified the questions and issues raised in the opinion letter. The draft Remedial Investigation/Feasibility Study (RI/FS) should be finalized with the additional information and revised tables and figures provided with the response letter.
- The response to Comment No. 11 in the April 3, 2015 response letter states that attempts to generate potentiometric surface elevation contour maps have produced anomalous results. Synoptic water level data should continue to be collected including rounds with the nine new wells proposed in the Cleanup Action Plan. Additional attempts to contour the water level elevation data should continue as well in an effort to resolve the anomalous data. The direction of the hydraulic gradient in all water-bearing zones is needed to confirm adequate characterization and remediation of the Site.
- The Site-specific cleanup levels for soil, ground water and air provided in the Feasibility Study (FS) are appropriate for the Site.
- The remediation of Site Area 1 (SA-1) will include the following elements:
  - Nine existing monitoring wells constructed of PVC will be decommissioned.
  - Nine new monitoring wells will be installed to replace the decommissioned PVC wells. The nine monitoring wells will be installed as three well nests, each comprised of a shallow, intermediate and deep water-bearing zone well. The well casings will be carbon steel; the well screens will be stainless steel.
  - Combination electrode/soil vapor extraction (SVE) wells will be installed in single nominal 13-inch diameter boreholes in twenty locations within a grid. Within each borehole, a screen for the electrical resistance heating (ERH) electrode and a screen for an SVE system component will be placed:
    - Two deep electrode/SVE wells will be installed inside the Seattle Collision Center (SCC) building.



- Three angled electrode/SVE wells will be installed under the SCC building from locations adjacent to and south of the building.
  - Five temperature monitoring probes are proposed however Figure 7 shows only three temperature monitoring probes. Temperature monitoring probes will be constructed of 1.5-inch diameter chlorinated polyvinyl chloride (CPVC) housing thermocouples installed at approximately 5-foot vertical intervals.
  - Conveyance piping constructed of CPVC will connect the SVE wells.
- The ERH mechanical and electrical system components include an SVE blower, a steam condenser unit and a control panel.
  - Recovered vapors and ground water will be treated using GAC. Treated vapors will be discharged to the atmosphere and treated ground water will be discharged to the sanitary sewer. Soil vapor will be discharged through a 3-inch diameter stack extending above the SCC Building roof-line.
  - The ERH system will operate until the design remediation energy of 1,790,000 kWh has been input.
  - The ERH system will be shut down when post-ERH performance sampling indicates that concentrations of CVOCs at SA-1 are below Method A cleanup levels in soil and the Site-specific remediation levels in ground water.
  - The ERH system components will be decommissioned when the cleanup is complete and will not be removed until post-ERH performance sampling demonstrates that there is no need for further operation.
  - Volatile organic compounds remaining in ground water at concentrations below Site-specific remediation levels but exceeding Site-specific cleanup levels following ERH will be degraded by enhanced in-situ anaerobic bioremediation. The remaining VOCs will be degraded in place by biodegradation, hydrolysis and reductive dehalogenation by zero valent iron. Additional enhancements may be needed.
  - Performance monitoring will be conducted in indoor and ambient air, ground water, soil and the ERH system effluent (air and water).
  - Confirmational monitoring will be conducted to confirm the long-term effectiveness of the cleanup action. A minimum of four consecutive quarters of ground water

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monitoring data below the Site-specific cleanup levels will be obtained from all wells in SA-1.

- The above list confirms Ecology's understanding of the implementation of FS Alternative 1 in SA-1. Ecology agrees with the approach.

**This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action.** To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (425) 649-7064 or hvic461@ecy.wa.gov.

Sincerely,



Heather Vick, LHg  
NWRO Toxics Cleanup Program

cc: David Raubvogel, AECOM  
Sonia Fernandez, VCP Coordinator, Ecology

