STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
*Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000*
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April 4, 2016

Mr. Simon Payne
Cardno ATC
6347 Seaview Avenue NW
Seattle, WA 98107

**Re: Opinion under WAC 173-340-515(5) on Feasibility Study with Disproportionate Cost Analysis for the Following Hazardous Waste Site:**

- **Site Name:** Harbour Pointe Cleaners Lynnwood
- **Site Address:** 13619 Mukilteo Speedway, Lynnwood, WA 98037
- **Facility/Site No.:** 41352598
- **Cleanup Site ID No.:** 12413
- **VCP Project No.:** NW2902

Dear Mr. Payne:

Thank you for submitting your Feasibility Study with Disproportionate Cost Analysis report as work progresses toward selecting an appropriate remedial technology to remediate the **Harbour Pointe Cleaners Lynnwood** 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 authority of 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 implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site:

- Tetrachloroethylene (PCE) and Trichloroethene (TCE) into the Soil.

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 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 action:

1. Cardno ATC, *Feasibility Study with Disproportionate Cost Analysis, Harbour Pointe Cleaners at Mukilteo Speedway Center, 13619 Mukilteo Speedway, Lynnwood, WA,* dated September 17, 2015.

2. Cardno ATC, *Limited Subsurface Investigation, Speedway Shopping Center - Harbour Pointe Cleaners, 13632 Highway 99, Lynnwood, WA,* dated April 3, 2014.

3. EBI Consulting, *Phase II Environmental Site Assessment, Speedway Shopping Center, CE Capital Loan #168-41, 13632 Highway 99, Lynnwood, WA,* dated March 18, 2013.

4. Buchanan Environmental Associates, *Mukilteo Speedway Center Limited Phase II Environmental Site Assessment, 13619 Mukilteo Speedway, Lynnwood, WA,* dated September 6, 2006.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO), for review by appointment only. You can make an appointment by calling the NWRO resource contact at (425) 649-7235, or via email at nwro_public_request@ecy.wa.gov.

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

- PCE and TCE into the Soil.

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 following releases at the Site, Ecology has determined:**

- The impacted area that comprises the Site, both on- and off-Property, and all media of concern, needed to be fully characterized. Complete Site characterization is a necessary prerequisite for determining an appropriate cleanup action and cleanup standards for the Site. Ecology requires current, representative data in order to evaluate Site conditions and make a determination as to the appropriateness and adequacy of cleanup actions. As a result, additional Site remedial investigation activities were conducted to better understand impacts potentially caused by releases from historic use of PCE on the Property. These activities included an assessment of preferential pathways, additional assessment of soil, soil vapor, an indoor air, as well as the disproportionate cost analysis (DCA) to assess the most appropriate remedial action for the Site.

- Your additional remedial assessment determined that:
    - Due to the previous use (between 1992 and 2007) of PCE in Harbour Point Cleaners dry cleaning operations, there are identified environmental issues and impacts.
    - Petroleum hydrocarbon-based cleaning solvent has been used for dry cleaning operations at the Site since 2007.
    - There is evidence of a release of PCE to soil above the MTCA Method A cleanup levels of 0.05 mg/kg in the western and eastern portion of the Site at a depth of approximately one foot bgs.
    - The maximum vertical extent of PCE-impacted soil is approximately three feet below ground surface (bgs).
    - PCE-impacted soil is present within the Harbour Point Cleaners tenant space, and extends to the west into the adjacent tenant space.
    - The greatest concentrations of PCE in soil are in the vicinity of the dry cleaning machine, with limited migration toward the west.
    - Ground water:
        - was encountered on the Site in 2006 at approximately nine to 14 feet bgs. Five monitoring wells were installed and sampled. There is no evidence of release of PCE to ground water based on the results of the five ground water monitoring wells installed and sampled in 2006.
        - The ground water encountered is presented as flowing toward the east-northeast.
        - No ground water was encountered in 2013 and in 2015 in soil borings that were up to 25 feet deep. **It is not clear why Site ground water was not encountered, which needs to be explained.**
        - Appendix B presents tables **but not** boring logs. **It is not clear exactly what was encountered in between 16 and 25 feet bgs.** This information needs to be presented.
        - Please provide boring logs.

- The information provided in the document concerning borings B-1 and B-2 is not clear. It appears a sample could have been taken at 25 feet bgs, but was not. **Is there ground water present at 25 feet bgs?** This information needs to be presented.

- Five temporary sub-slab vapor probes were installed in May 2015 in order to delineate and assess the presence of soil vapor at the Site.

- Vapor intrusion: sub-slab samples indicated the presence of PCE-impacted soil vapor below the slab.

- Soil vapor samples VE-1, VE-2, VE-3, Slab-1, Slab-2, and Slab-3 contained concentrations of PCE in excess of the MTCA Method B soil gas screening level for PCE was detected at a concentration of 320.5 ug/m3.

- Further analysis confirmed the presence of PCE in concentrations above the MTCA Method B indoor air cleanup level of 9.62 ug/m3 in samples collected from the Cleaners tenant space, as well as the tenant space west of the Cleaners.

  - Indoor air quality must be further assessed for the potential for vapor intrusion and vapor intrusion migration. (Refer to Ecology's Draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action,* dated October 2009, for addressing soil vapor issues.)

- Your evaluation and comparison of remedial alternatives (in accordance with the criteria specified in WAC 173-340-360(3)(f) and WAC 173-340-360(4) determined that:

  - The proposed remedial action technologies included:

    - Natural attenuation with institutional controls and an Environmental Covenant.

    - Soil vapor extraction.

    - Soil excavation, removal and off-Site disposal

  - Details considered:

  - The building concrete floor prevents infiltration of surface water and may limit vapor intrusion into the building.

- The presence of the building precludes direct access to a defined, limited area of PCE-impacted soil in place beneath the floor.
- There is a need for protection against completion of potential future exposure pathways.
- The Site remedial alternative being considered:
  - Natural Attenuation (evaluation), Institutional Controls and
  - An Environmental Covenant with appropriate monitoring requirements to:
    - Ensure that natural attenuation is taking place.
    - Ensure that human health and the environment are appropriately protected.
    - Ensure continual assessment of vapor intrusion.
    - Installation of institutional controls such as vapor barriers and negative pressure air handling equipment.

- The cleanup action selected must meet the minimum requirements in WAC 173-340-360(2). It is important to note that Natural Attenuation is not considered a cleanup action option (must meet the criteria of a permanent solution as defined in WAC 173-340-200). Natural attenuation is recognized as a condition that occurs over time and can be utilized as a factor to determine whether a cleanup action will result in a reduction of risk in a reasonable restoration timeframe.

- For soil cleanup levels based on the protection of ground water, the point of compliance is defined as Site wide throughout the soil profile and may extend below the water table. This is the appropriate point of compliance for the Site.

- A Terrestrial Ecological Evaluation (TEE) still needs to be performed at this Site. The TEE is necessary to meet substantive requirements of MTCA, and to set cleanup levels that are protective of terrestrial species, and to determine an appropriate cleanup action. Additional information on satisfying this requirement can be found at the following link: www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm

- Under Washington State law (RCW Chapters18.43 and18.220), all hydrogeological and engineering work must be conducted by, or under the supervision of a Washington State licensed geologist, hydrogeologist or professional engineer qualified to conduct the work.

Any Site investigation/cleanup document containing geologic or engineering work must be submitted under the signature and seal of such an appropriately licensed professional. The previously submitted reports including the *Limited Subsurface Investigation Report dated April 3, 2014;* the *Phase II Environmental Site Assessment dated March 18, 2013; and* the *Limited Phase II Environmental Site Assessment dated September 6, 2006*, all lacked evidence of this required certification. The subsequent report received: *Feasibility Study with Disproportionate Cost Analysis dated September 17, 2015,* met this requirement as there was evidence of this required certification with signature and seal of the licensed individual.

- As stated previously in Ecology's October 2014 letter, electronic submittal of all sampling data into Ecology's Electronic Environmental Information Management (EIM) database is a requirement in order to receive a final Ecology opinion for this Site. Note that all data must be uploaded into the Ecology EIM system upon submission of each report to Ecology. This allows the Ecology Site Manger to access data to check results or perform additional analyses with those data. Jenna Durkee (email jedu461@ecy.wa.gov, or via telephone at 509-454-7865) is Ecology's contact and resource on entering data into EIM.

- Before Ecology can issue a final opinion concerning the Site, the selected cleanup action must be conducted and evaluated, and the required cleanup action report must be submitted to Ecology. An annotated outline of a Cleanup Action Report (CAR) is presented in **Enclosure B** to provide an understanding of Ecology's expectations for conducting and documenting the cleanup actions. At that time, Ecology may consider an Environmental Covenant and appropriate monitoring/assessment as part of an overall cleanup remedy.

**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 also 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 feel free to contact me at (425) 649-4422 or via email at glynis.carrosino@ecy.wa.gov.

Sincerely,

Glynis A. Carrosino
Project Manager
Toxics Cleanup Program

Enclosures: A: Site Description and Diagrams
B: Cleanup Action Report Outline

By Certified Mail [7012 3460 0000 2587 2708]

cc: Charles Gurney, Weingarten Realty
Jahan Moslehi, B33 Mukilteo LLC
Sonia Fernandez, Ecology

# Enclosure A

# Description and Diagrams of the Site

# Site Description

*This enclosure provides Ecology's understanding and interpretation of Site conditions and forms the basis for the opinions expressed in the letter.*

**Site Definition:** The Site is defined by the extent of contamination due to releases to soil and of PCE and related by-product TCE associated with 13619 Mukilteo Speedway in Lynnwood, WA (the Property). The Property and the Site are shown on the attached Site Diagrams.

**Area Description:** The Property is located in Snohomish County, at the Mukilteo Speedway Center, a shopping center located on six irregularly-shaped parcels encompassing a total of 7.80 acres of land. The Property is bordered to the west by the Mukilteo Speedway, (a four-lane highway), to the south by Lincoln Way, and to the east by and State Highway 99. The Property is bordered to the north by a residential development. The area comprises commercial businesses and industrial properties. The Snohomish County Assessor tax parcel number for the Property is 00373300801204, with a description of Township 28 North; Range 04 East; Section 34; NE Quarter of the NE Quarter. The Property coordinates are: Latitude 47.87393 degrees; Longitude -122.27674 degrees.

**Property History and Current Use:** The shopping center was built in 1992 and consists of four structures designated as Buildings A through D. Harbour Pointe Cleaners is located in tenant space B6 in Building B, (reference Site Diagrams), and has operated as a dry cleaning facility at the Property since approximately 1992. Tenant space B6 has a main entrance off the Shopping Center parking lot, and a back door entrance behind the main structure. Between 1992 and 2007 the facility utilized the chlorinated volatile organic compound PCE in their dry cleaning operations. In 2007, the operators switched from PCE to a petroleum hydrocarbon-based dry cleaning solvent. The Property is currently a tenant space within the Speedway Shopping Center.

**Contaminant Sources and History of Releases:** The potential contaminant sources for this Site result from improper disposal of filters, waste, separator water, still bottoms, and solvent leaks from the dry cleaning machine and the waste collection vessels. It is possible that untreated separator water went into the sanitary sewer system based on information presented in previous reports.

**Storm Water/Surface Water:** The nearest surface water body to the Site is Serene Lake, which is located approximately 2000 feet to the southwest.

**Ecological Setting:** There is little terrestrial habitat on or in the immediate vicinity of the Property. The area is developed as industrial and commercial properties. Most of the Site and the surrounding area are paved with asphalt and concrete, or covered by the building.

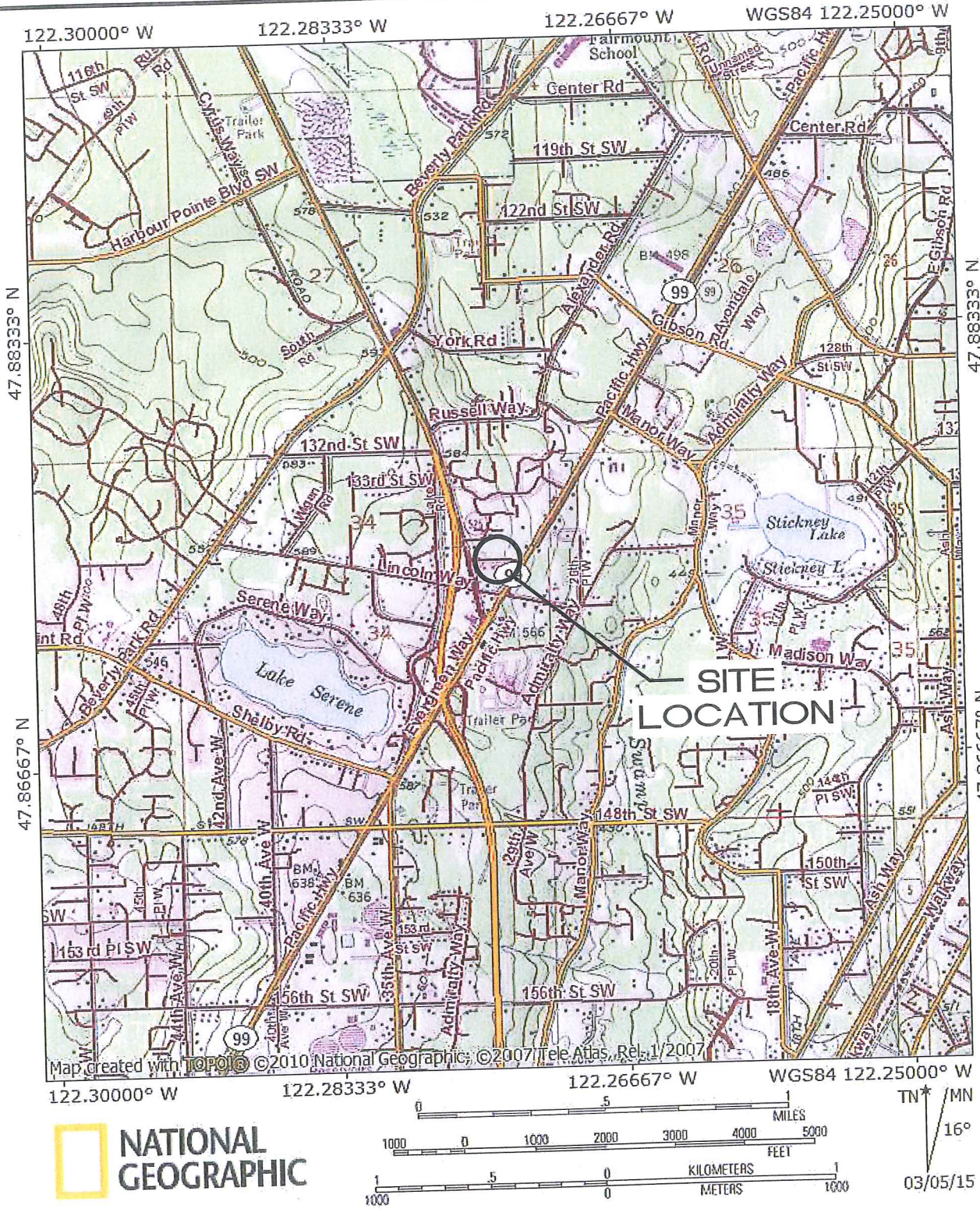
**Geology:** The Site is in the Puget Sound Lowland Physiographic Province. The Puget Lowland is composed of Tertiary volcanic and sedimentary bedrock, which has been filled to the present day land surface with Pleistocene-aged glacial (till) and non-glacial sediments. Subsurface soil

on the Site was generally characterized as fine-grained and consisting of brown to olive-brown silt with gravel and sand of strong induration to 13 feet bgs or shallower. Coarse-grained sediments consisting of sand and gravel underlay the fine-grained sediments. Coarse-grained sediments are underlain by dominantly fine-grained glacial till material to 25 feet bgs, the maximum depth explored.

**Ground Water:** Subsurface investigations conducted in 2006 identified that ground water is located at approximately nine to 14 feet bgs and ground water flow is toward the east-northeast. The maximum depth explored was 25 feet bgs.

**Release and Extent of Contamination – Soil:** PCE and TCE are the known contaminants present in soil at the Site. There is evidence of a release of PCE to soil above the MTCA Method A cleanup level of 0.05 mg/kg in the western and eastern portions of the Site at a depth of the approximately one foot bgs. The maximum vertical extent of PCE-impacted soil is approximately three feet below ground surface (bgs) based on the results of the subsurface investigation conducted in 2014.

**Release and Extent of Contamination – Ground Water:** Between June and August 2006, a total of five ground water monitoring wells were installed between 15 and 25 feet bgs, designated as MW-1 through MW-5. Laboratory results from ground water samples collected from the five monitoring wells identified the presence of TCE and 1,1-dichloroethane at concentrations below MTCA Method A cleanup levels. No PCE degradation compounds have been detected in ground water.




SOURCE: USGS TOPO MAP, EDMONDS EAST, WA, 1981

## SITE LOCATION MAP

SPEEDWAY SHOPPING CENTER
13632 HIGHWAY 99
LYNWOOD, WA

| | | | |
|---|---|---|---|
| PROJECT NUMBER: 282EM00018 | | DATE: 9/17/15 | FIGURE 1 |
| APPROVED BY: SP | | DRAWN BY: BK | |

Cardno Shaping the Future
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

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# Enclosure B

# Cleanup Action Report Outline

# FOCUS

## Cleanup Action Report Outline

July 2012

## Goals

*The elements below are to assist the author to prepare Cleanup Action Reports that are complete and concisely present information about the site to facilitate Ecology's review and decision regarding the appropriateness of No Further Action for the site. It is recognized that each site is different and not all elements may be appropriate for a site and in some cases additional information may be needed. In order to provide a clear and concise picture of site conditions and cleanup actions that have been implemented the report shall meet the requirements specified in Model Toxics Control Act (MTCA) [WAC 173-340-515(4)(b)] and Guidelines for Property Cleanups under the Voluntary Cleanup Program [Publication No. 08-09-044].*

*Information included in the CAR is a summary of information in the RI/FS/DCA with a conclusion focusing on cleanup performed at the Site. If all contaminated media were remediated to cleanup levels and standard points of compliance, a combined RI and CAR may be sufficient. In this case, a FS/DCA may not be needed.*

## Cleanup Action Report (CAR) Outline

INTRODUCTION
(*Concise, bulleted if possible*)

- Site name, Ecology Facility Site number, Ecology Cleanup ID, VCP number, Name, address, and phone number of project consultant, Current owner/operator
- Purpose of document *(very brief restatement of what a CAR is for, reference the WAC)*

SITE IDENTIFICATION AND DESCRIPTION
(*Focus on defining the site in the context of its location.*)

- Site discovery and regulatory status (*describe how the site was identified and where it is in the MTCA process)*
- Site and property location/definition (*define actual MTCA site location relative to property or study area, include size of site and property*)
- Neighborhood setting
- Physiographic setting/topography

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Figure – Vicinity Map (*preferably with topography*)
Figure – Property/Site Map (*preferably with topography*)
Appendix – Legal description of property, present owner and operator, chronological listing of past owners and operators

PROPERTY DEVELOPMENT AND HISTORY

(*This section focuses on the built environment, both current and historical, and presents the sources of contamination and release mechanisms.*)

- Past site uses and facilities
- Current site use and facilities
- Proposed or potential future site uses
- Zoning (*if appropriate)*
- Transportation/roads
- Utilities, water supply
- Potential sources of site contamination *(identification of release)*
- Potential sources of contamination from neighboring properties (*discuss nearby sources if known)*

Figure – Historical site features (*may be combined with Figure 2*)
Figure – Potential contaminant sources
Figure – Utilities (*may be combined with Figure 2*)
Table – Potential Contaminants

NATURAL CONDITIONS

- Geology
  (*focus on interpretation*)
  - Regional Setting (*brief*)
  - Property Geologic Conditions (*synthesis, not repeating information in boring logs*)
  - Physical Properties (*unlikely to need this section, but in some cases may be useful to present data on soil adsorptive capacity, organic content, strength, etc.)*

  Figure – Plan view of geologic unit distribution (*if helpful*)
  Figure - Cross section A-A' *(show borings, wells, screened intervals, water levels)*
  Figure – Cross section B-B' (*if necessary*)

- Surface Water
  (*brief description of the surface water system*)

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- Property drainage
- Area surface water/floodplain issues
- Regulatory classifications, if any (*e.g. surface water classification)*

Figure – Surface water Conditions *(only if information not already in a prior figure)*

- Ground Water
  (*focus on interpretation*)
  - Occurrence (*aquifers, water levels, confinement, geometry, continuity, physical properties*)
  - Movement (*directions, gradient if important, seasonal fluctuations, tidal influence*)
  - Discharge
  - Recharge (*if significant for site*)
  - Regulatory classifications, if any (*e.g. sole source aquifer*)

  Figure – Cross section with ground water information *(if not already included above)*
  Figure – Water table/potentiometric surface maps *(ground water rose diagram, include seasonal or tidal conditions, show surface water)*
  Appendix – Ground water elevation data *(a table)*

- Natural Resources and Ecological Receptors
  (*preparatory to a TEE*)
  - Greenbelts and other natural habitat
  - Wildlife
  - Other Information required to conduct evaluations under –WAC 173-340-7491 and 7492, or if necessary -7493

  Figure – Depict natural areas, as appropriate

ENVIRONMENTAL INVESTIGATION/INTERIM ACTION SUMMARY

(*Concise summary presentation of the investigations that have been done at the site, along with prior remedial actions. Focused mostly on figures and tables. Details of and methods used in former investigations and remediation in appendices*)

- Constituents of Concern (*brief discussion about which specific compounds were chosen for analysis and why)*
- Soil
- Surface water

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- Ground water
- Sediment
- Air/soil vapor
- Natural resources/wildlife
- Cultural history/archeology
- Interim actions (*brief intro to prior remediation activities*)

Figure – Soil investigation data points (*show potential source areas*)
Figure – Surface water/groundwater investigation data points (*show potential source areas*)
Figure – Air investigation data points (*show potential source areas*)
Figure – Prior remediation activities
Table – Exploration Summary
Table – Analytical Schedule per media (*include analytical methods and reporting limits, as possible)*
Appendix – Previous Investigations (*detailed discussion goes here)*
Appendix – Exploration and sampling methodology (*may combine with Previous Investigations)*
Appendix – Boring/ Well logs
Appendix – Prior Interim Actions

CONTAMINANT OCCURRENCE AND MOVEMENT

(*This section succinctly describes where contamination occurs and relies on figures and tables, transport modeling if needed to present the information. The main focus of this section is to provide easy-to-understand figures showing the depth and breadth of contamination*)

- Waste Material (*sludges, fluids, stockpiles)*
- Soil
- Surface Water
- Ground Water
- Sediment
- Air/Soil Vapor

Figures – Cross sections showing soil contamination with depth
Figures – Plan views showing soil contamination across site (*relative to releases if known*)
Figures – Cross section showing ground water contamination with depth (*if appropriate*)

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Figures – Plan views showing ground water contamination in each aquifer (*relative to soil contamination and P-head map*)
Figures – XY plots of specific contaminants with time (*as appropriate*)
Figures – Others as appropriate to show the distribution of surface water, ground water, or air data
Tables – All of the analytical data against final cleanup levels (*exceedances highlighted, no need to develop screening levels*)
Tables – Summary of exceedances (*if helpful*)
Appendix – QA report
Appendix – Analytical lab reports

CONCEPTUAL MODEL

(*putting the whole story together, graphic illustrations are best*)

- Contaminant release/fate and transport/potential or actual receptors
- Data gaps (*is anything missing)*

CLEANUP STANDARDS

*(Presenting the appropriate cleanup standards based on receptors and pathways. Include the basis for the cleanup standards including Method B calculations.)*

- Soil
  - Reasonable maximum exposure
  - Cleanup levels protective of contact, ground water, inhalation, terrestrial species, surface water, sediment
  - Points of compliance
  - Regulatory classifications *(classification of soil as dangerous or solid waste)*
- Ground Water
  - Highest beneficial use/reasonable maximum exposure
  - Cleanup levels protective of potable use, inhalation, surface water, sediment
  - Points of compliance
- Other Media as appropriate
  - Cleanup levels protective of ….
  - Points of compliance

Table – Cleanup Levels (*all potentially applicable values with final selected cleanup level noted*)

SELECTION OF CLEANUP REMEDY FOR THE PROPERTY

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*(Provide sufficient information for Ecology to determine whether your selected cleanup meets the substantive requirements of MTCA.*

- Summarize the Feasibility Study and Disproportional Cost Analysis conducted.
- Briefly describe the cleanup selected and why it was the preferred remedy.

## CLEANUP OF THE PROPERTY

*(In this section provide sufficient information for Ecology to determine whether your cleanup meets the substantive requirements of MTCA.)*

- Soil
- Surface Water
- Ground Water
- Sediment
- Air/Soil Vapor
- Waste Material (*sludges, fluids, stockpiles)*

For each of the media above you may need to provide the following information:

- The cleanup conducted, including the design, construction, and operation of the cleanup.
- The results of the cleanup conducted, including plans for and results of all performance monitoring.
- The results of compliance samples demonstrating that contaminated is now below the cleanup levels specified for the site.
- If modeling was conducted to demonstrate compliance with cleanup levels then provide documentation of the model which may include:
  - Model assumptions and limitations.
  - Results of model iterations used to calibrate the model.
  - Model results (relevant base graph outputs).
  - Confirmation that the model was correct.

At complex sites with many environmental investigations through the years, it may be best to present the confirmation data in a table (see table below) that clearly identifies the method used and associated confirmation samples to confirm cleanup standards were met.

| Sample above Cleanup Levels | Method used to demonstrate compliance | Sample(s) used to confirm compliance |
|---|---|---|
| Soil SB-4 at 5' | Confirmation sample | Soil SB-12 at 5' |
| Ground water MW-3 | 2 years of ¼ sampling | NA |
| Soil SB-2 at 10' | Empirical demonstration | Ground water at MW-1 |

## REFERENCE

DRAFT

# Environmental Covenant Outline

# Environmental Covenant Checklist

**Contaminants of concern**

**Site discovery and regulatory status** – *fully describe sites cleanup history and provide a description of previous interim actions and identify if they were reviewed by Ecology*

**Site and Property location/definition** – *define actual MTCA site location relative to property or study area*

- Physiographic setting/topography
- Past site uses and facilities
- Current site use and facilities
- Proposed or potential future site uses
- Zoning
- Utilities, water supply (describe how they do or do not impact the Site)
- Identify potential sources of site contamination
- Identify potential sources of contamination from neighboring properties if known
- Describe Natural Resources and Ecological Receptors
- Provide description of the contaminations proximity to surface water and groundwater based upon the investigation
- Figures
    - Vicinity Map (*preferably with topography*)
    - Property/Site Map (*preferably with topography*)
    - Legal description of property, present owner and operator
    - Soil and Ground water investigation data points
    - Plan views showing soil contamination across Site relative to releases if known
    - Ground water elevation contour map with rose diagram
    - Plan views showing ground water contamination in each aquifer
    - Cross section illustrating soil and ground water contamination data

- Plan view and cross sections of areas meeting MTCA cleanup levels and areas where contamination will be left in place

- Table(s) – a table should be submitted for each contaminant of concern and all contaminated media which includes all historical data with (should include final cleanup levels, all detections should be bolded, all exceedances including results in which the laboratory detection level exceeded the cleanup level should be highlighted).

- Appendix – should include all historic soil boring and ground water monitoring well construction logs

## SELECTION AND DESCRIPTION OF CLEANUP ALTERNATIVES (Outline)

*Here is where distinct alternatives are established and described only – no comparison. Some text is useful, but the bulk of the description is best put into a table with accompanying figures.*

MTCA requires:

- A reasonable number and type of alternatives
- Alternatives that protect human health and the environment by eliminating, reducing, or otherwise controlling risks
- Alternatives that have the standard point of compliance for all affected media, unless they are not technically possible or are disproportionately costly for the benefit obtained.
- At least one permanent cleanup action alternative, unless it is not technically possible or is disproportionately costly for the benefit obtained.

*Ecology expectations for cleanup (WAC 173-340-370) should also be considered in formulating the alternatives, even though these expectations are not explicit evaluation criterion.*

**DETAILED EVALUATION OF ALTERNATIVES (Outline)** – *Best put into tabular format with numerical values for weighting criteria, important to have figure showing cost versus environment benefit for disproportionate cost analysis.*

A cleanup action must meet these minimum requirements [WAC 173-340-360(2)(a)]:

Threshold requirements
- *Protect human health and the environment*
- *Comply with cleanup standards*
- *Comply with applicable state and federal laws*
- *Provide for compliance monitoring*

Other requirements
Use permanent solutions to the maximum extent practicable
- *Provide for a reasonable restoration time frame*
- *Consider public concerns*

*Project-specific requirements*

- *Engineering criteria established for the specific project, as appropriate)*

**Describe Comparison with Threshold Criteria** – *Determine if alternatives meet threshold requirements. Only alternatives that meet these requirements advance to the next stage of comparison.*

**Comparison with "Use Permanent Solutions to the Maximum Extent Practicable" (PMEP) Criterion** – *Ecology prefers permanent solutions, which are essentially those in which cleanup standards can be met without further action at the site.*

Procedure:

- *The alternatives are compared with the evaluation criteria listed below. The comparison may be quantitative or qualitative and require the use of best professional judgment.* ***However, at this time Ecology's northwest regional office favors a quantitative analysis. Quantitative factors should be applied to both weighting of the evaluation criteria and to the ranking of alternatives for each criterion. The basis for the criteria weighting and the alternative rankings should be clearly explained and supported.***

- *The most practicable permanent alternative is the baseline against which other alternatives are compared. The results of the comparison are best displayed in a graph which shows relative environmental benefit on one axis and cost on another.*

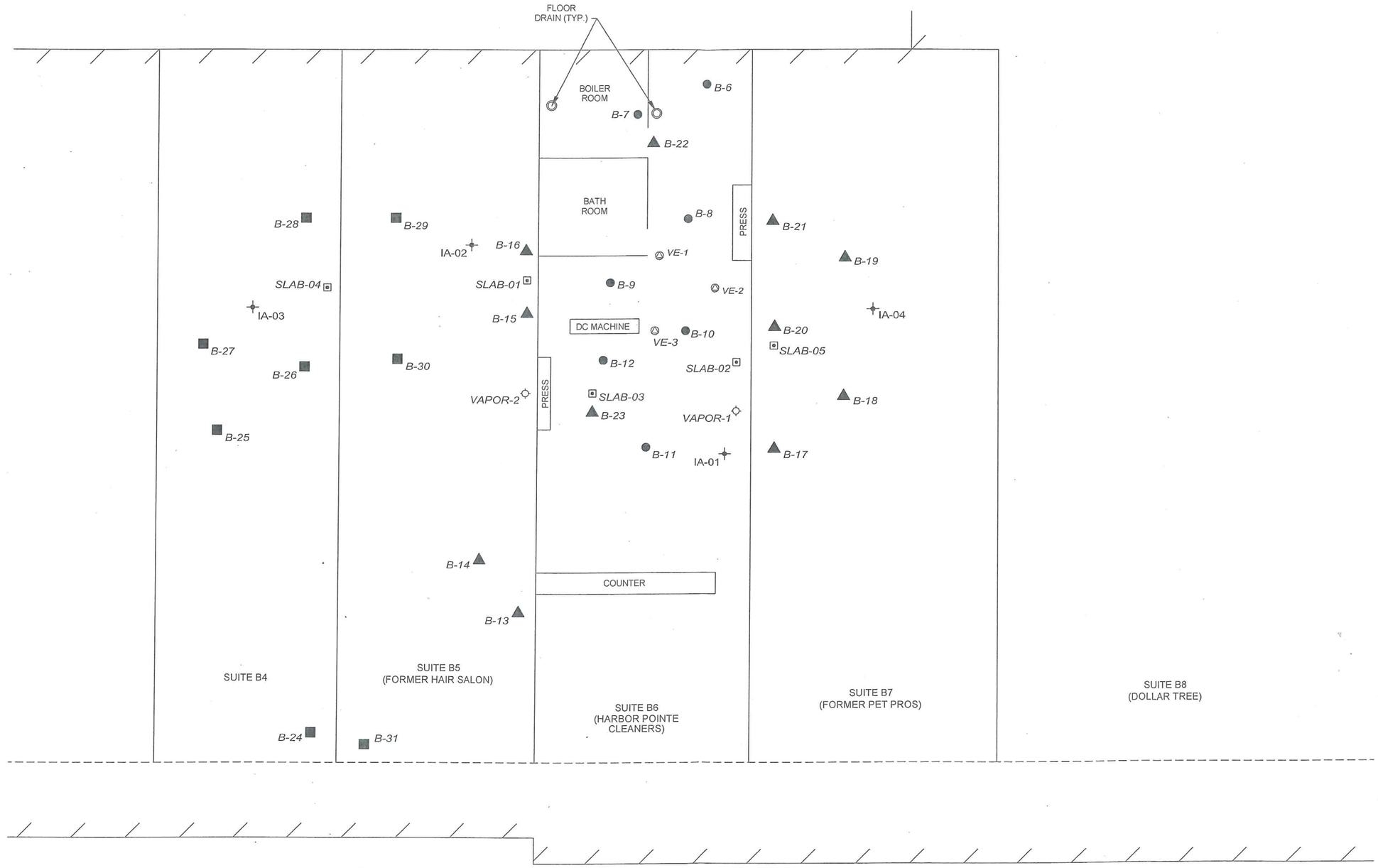
Evaluation Criteria:

The following are the required comparison criteria for the DCA. Cost is not listed since it is an obvious criterion:

- Protectiveness
- Permanence
- Effectiveness over the long term
- Management of short-term risks
- Technical and administrative implementability
- Comparison with "Reasonable Restoration Time Frame" criterion
- Potential risk – *How risky is the existing situation based on type, extent and toxicity of contamination, and sensitivity of surrounding land uses now and in the future.*
- Practicality of achieving shorter time frame
- Availability of alternate water supplies
- Likely effectiveness and reliability of institutional controls
- ability to control and monitor contaminant migration
- Potential for contaminant degradation over time

**A copy of the compliance monitoring plan needs to be provided**

**The Environmental Covenant Checklist requires consultant signature and LHG stamp**

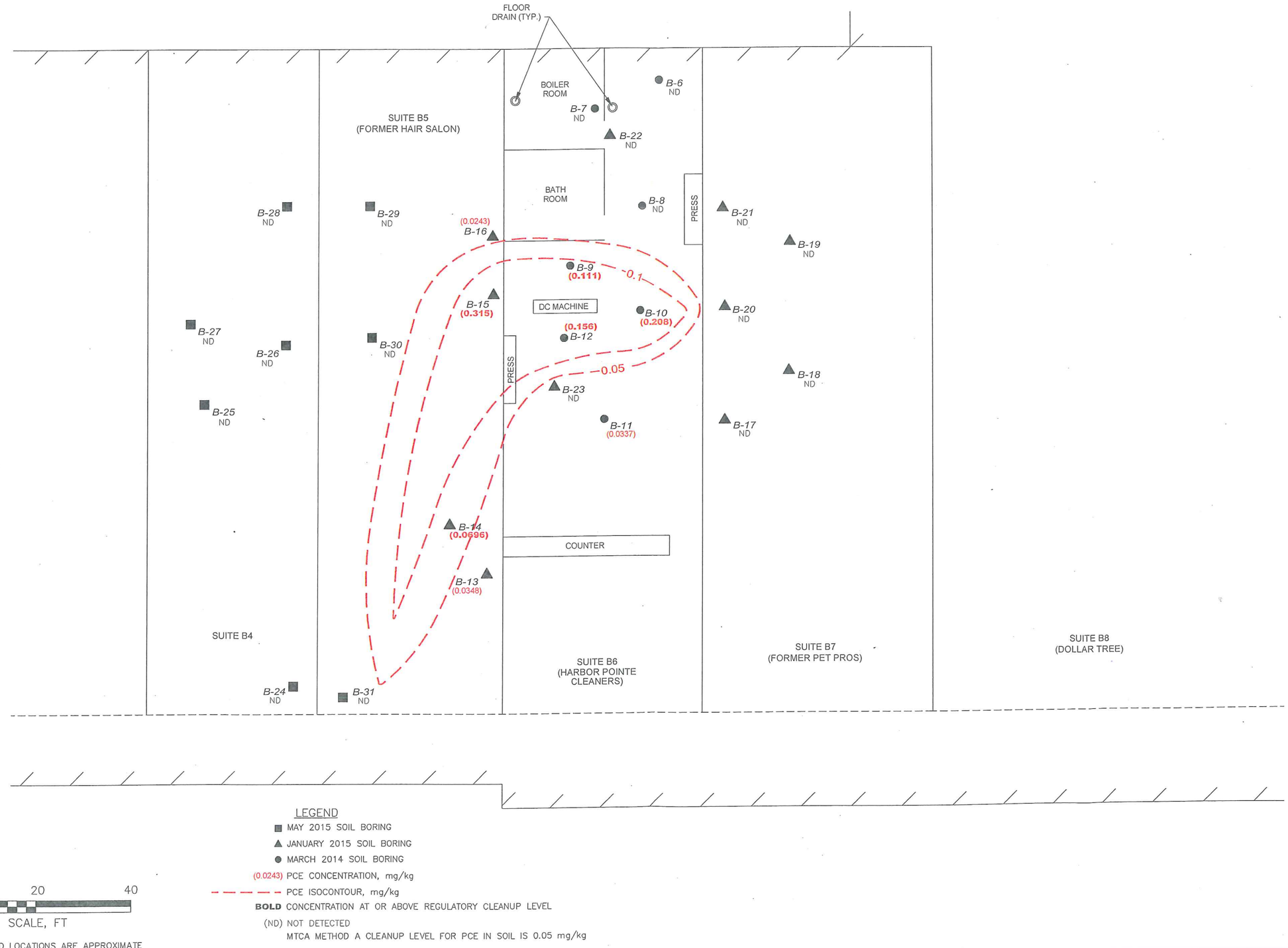



**SAMPLE LOCATIONS**
SPEEDWAY SHOPPING CENTER
13632 HIGHWAY 99
LYNWOOD, WA

PROJECT NUMBER: 282EM00078 | DATE: 9/17/15 | FIGURE 2
APPROVED BY: SP | DRAWN BY: BK

Cardno Stepping the Future
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

S:\Projects-BST\WEINGARTEN\HARBOR POINT CLEANERS 282EM00018\SAMPLLOCS_071615.dwg

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PROJECT NUMBER: 282EM00078
APPROVED BY: SP
DATE: 9/17/15
DRAWN BY: BK
FIGURE 3

Cardno Shaping the Future
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

**PCE CONCENTRATIONS IN SOIL AT 1 FOOT BELOW GROUND LEVEL ISOCONTOURS**
SPEEDWAY SHOPPING CENTER
13632 HIGHWAY 99
LYNWOOD, WA

FLOOR DRAIN (TYP.)

BOILER ROOM

BATH ROOM

PRESS

PRESS

DC MACHINE

COUNTER

| | |
|---|---|
| PCE | 10,000 |
| TCE | 66.10 |

VE-1

| | |
|---|---|
| PCE | 4,740 |
| TCE | 8.42 |

VE-2

| | |
|---|---|
| PCE | 3,230 |
| TCE | 5.12 |

VE-3

| | |
|---|---|
| PCE | 60.2 |
| TCE | 0.288 |

SLAB-04

SLAB-01

| | |
|---|---|
| PCE | 1,950 |
| TCE | 7.73 |

SLAB-02

| | |
|---|---|
| PCE | 632 |
| TCE | 1.21 |

SLAB-03

| | |
|---|---|
| PCE | 523 |
| TCE | 0.907 |

SLAB-05

| | |
|---|---|
| PCE | 0.544 |
| TCE | <0.0914 |

SUITE B4

SUITE B5
(FORMER HAIR SALON)

SUITE B6
(HARBOR POINTE CLEANERS)

SUITE B7
(FORMER PET PROS)

SUITE B8
(DOLLAR TREE)

LEGEND

- ⊙ JANUARY 2015 SUB-SLAB SOIL VAPOR SAMPLE
- ⊡ JULY 2015 SUB-SLAB SOIL VAPOR SAMPLE
- PCE | 0.544 PCE CONCENTRATION, µg/m³
- TCE | <0.0914 TCE CONCENTRATION, µg/m³

**BOLD** CONCENTRATION AT OR ABOVE REGULATORY CLEANUP LEVEL
MTCA METHOD B SUB-SLAB SOIL VAPOR CLEANUP LEVEL FOR
PCE = 320.5 µg/m³, TCE = 12.3 µg/m³

0 20 40
SCALE, FT

NOTE: SCALE AND LOCATIONS ARE APPROXIMATE

S:\Projects-BST\WEINGARTEN\HARBOR POINT CLEANERS 282EM00018\SUBSLAB_SAMP.dwg

PROJECT NUMBER: 282EM00018 | DATE: 9/17/15 | FIGURE 4
APPROVED BY: SP | DRAWN BY: BK

# SUB-SLAB SOIL VAPOR SAMPLE LOCATIONS

SPEEDWAY SHOPPING CENTER
13632 HIGHWAY 99
LYNWOOD, WA

Cardno Shaping the Future
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543


LEGEND

- JULY 2015 INDOOR AIR QUALITY SAMPLE
- MAY 2015 INDOOR AIR QUALITY SAMPLE
- PCE 0.544 PCE CONCENTRATION, µg/m³
- TCE 0.317 TCE CONCENTRATION, µg/m³

**BOLD** CONCENTRATION AT OR ABOVE REGULATORY CLEANUP LEVEL

MTCA METHOD B INDOOR AIR QUALITY CLEANUP LEVEL FOR PCE = 9.62 µg/m³, TCE = 0.37 µg/m³

0 20 40

SCALE, FT

NOTE: SCALE AND LOCATIONS ARE APPROXIMATE

S:\Projects-BST\WEINGARTEN\HARBOR POINT CLEANERS 282EM00018\VAP_IA_SAMP.dwg

# INDOOR AIR QUALITY SAMPLE LOCATIONS

SPEEDWAY SHOPPING CENTER
13632 HIGHWAY 99
LYNWOOD, WA

PROJECT NUMBER: 282EM00018
APPROVED BY: SP
DATE: 9/17/15
DRAWN BY: BK

FIGURE 5

Cardno Stapling the Future
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

# Enclosure B

# Cleanup Action Report Outline

# FOCUS

## Cleanup Action Report Outline

July 2012

## Goals

*The elements below are to assist the author to prepare Cleanup Action Reports that are complete and concisely present information about the site to facilitate Ecology's review and decision regarding the appropriateness of No Further Action for the site. It is recognized that each site is different and not all elements may be appropriate for a site and in some cases additional information may be needed. In order to provide a clear and concise picture of site conditions and cleanup actions that have been implemented the report shall meet the requirements specified in Model Toxics Control Act (MTCA) [WAC 173-340-515(4)(b)] and Guidelines for Property Cleanups under the Voluntary Cleanup Program [Publication No. 08-09-044].*

*Information included in the CAR is a summary of information in the RI/FS/DCA with a conclusion focusing on cleanup performed at the Site. If all contaminated media were remediated to cleanup levels and standard points of compliance, a combined RI and CAR may be sufficient. In this case, a FS/DCA may not be needed.*

## Cleanup Action Report (CAR) Outline

INTRODUCTION
(*Concise, bulleted if possible*)

- Site name, Ecology Facility Site number, Ecology Cleanup ID, VCP number, Name, address, and phone number of project consultant, Current owner/operator
- Purpose of document *(very brief restatement of what a CAR is for, reference the WAC)*

SITE IDENTIFICATION AND DESCRIPTION
(*Focus on defining the site in the context of its location.*)

- Site discovery and regulatory status (*describe how the site was identified and where it is in the MTCA process)*
- Site and property location/definition (*define actual MTCA site location relative to property or study area, include size of site and property*)
- Neighborhood setting
- Physiographic setting/topography

DRAFT

Figure – Vicinity Map (*preferably with topography*)
Figure – Property/Site Map (*preferably with topography*)
Appendix – Legal description of property, present owner and operator, chronological listing of past owners and operators

PROPERTY DEVELOPMENT AND HISTORY

(*This section focuses on the built environment, both current and historical, and presents the sources of contamination and release mechanisms.*)

- Past site uses and facilities
- Current site use and facilities
- Proposed or potential future site uses
- Zoning (*if appropriate)*
- Transportation/roads
- Utilities, water supply
- Potential sources of site contamination *(identification of release)*
- Potential sources of contamination from neighboring properties (*discuss nearby sources if known)*

Figure – Historical site features (*may be combined with Figure 2*)
Figure – Potential contaminant sources
Figure – Utilities (*may be combined with Figure 2*)
Table – Potential Contaminants

NATURAL CONDITIONS

- Geology
  (*focus on interpretation*)
  - Regional Setting (*brief*)
  - Property Geologic Conditions (*synthesis, not repeating information in boring logs*)
  - Physical Properties (*unlikely to need this section, but in some cases may be useful to present data on soil adsorptive capacity, organic content, strength, etc.)*

  Figure – Plan view of geologic unit distribution (*if helpful*)
  Figure - Cross section A-A' *(show borings, wells, screened intervals, water levels)*
  Figure – Cross section B-B' (*if necessary*)

- Surface Water
  (*brief description of the surface water system*)

DRAFT

- Property drainage
- Area surface water/floodplain issues
- Regulatory classifications, if any (*e.g. surface water classification)*

Figure – Surface water Conditions *(only if information not already in a prior figure)*

- Ground Water
  (*focus on interpretation*)
  - Occurrence (*aquifers, water levels, confinement, geometry, continuity, physical properties*)
  - Movement (*directions, gradient if important, seasonal fluctuations, tidal influence*)
  - Discharge
  - Recharge (*if significant for site*)
  - Regulatory classifications, if any (*e.g. sole source aquifer*)

  Figure – Cross section with ground water information *(if not already included above)*
  Figure – Water table/potentiometric surface maps *(ground water rose diagram, include seasonal or tidal conditions, show surface water)*
  Appendix – Ground water elevation data *(a table)*

- Natural Resources and Ecological Receptors
  (*preparatory to a TEE*)
  - Greenbelts and other natural habitat
  - Wildlife
  - Other Information required to conduct evaluations under –WAC 173-340-7491 and 7492, or if necessary -7493

  Figure – Depict natural areas, as appropriate

ENVIRONMENTAL INVESTIGATION/INTERIM ACTION SUMMARY

(*Concise summary presentation of the investigations that have been done at the site, along with prior remedial actions. Focused mostly on figures and tables. Details of and methods used in former investigations and remediation in appendices*)

- Constituents of Concern (*brief discussion about which specific compounds were chosen for analysis and why)*
- Soil
- Surface water

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- Ground water
- Sediment
- Air/soil vapor
- Natural resources/wildlife
- Cultural history/archeology
- Interim actions (*brief intro to prior remediation activities*)

Figure – Soil investigation data points (*show potential source areas*)
Figure – Surface water/groundwater investigation data points (*show potential source areas*)
Figure – Air investigation data points (*show potential source areas*)
Figure – Prior remediation activities
Table – Exploration Summary
Table – Analytical Schedule per media (*include analytical methods and reporting limits, as possible)*
Appendix – Previous Investigations (*detailed discussion goes here)*
Appendix – Exploration and sampling methodology (*may combine with Previous Investigations)*
Appendix – Boring/ Well logs
Appendix – Prior Interim Actions

CONTAMINANT OCCURRENCE AND MOVEMENT

(*This section succinctly describes where contamination occurs and relies on figures and tables, transport modeling if needed to present the information. The main focus of this section is to provide easy-to-understand figures showing the depth and breadth of contamination*)

- Waste Material (*sludges, fluids, stockpiles)*
- Soil
- Surface Water
- Ground Water
- Sediment
- Air/Soil Vapor

Figures – Cross sections showing soil contamination with depth
Figures – Plan views showing soil contamination across site (*relative to releases if known*)
Figures – Cross section showing ground water contamination with depth (*if appropriate*)

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Figures – Plan views showing ground water contamination in each aquifer (*relative to soil contamination and P-head map*)
Figures – XY plots of specific contaminants with time (*as appropriate*)
Figures – Others as appropriate to show the distribution of surface water, ground water, or air data
Tables – All of the analytical data against final cleanup levels (*exceedances highlighted, no need to develop screening levels*)
Tables – Summary of exceedances (*if helpful*)
Appendix – QA report
Appendix – Analytical lab reports

CONCEPTUAL MODEL

(*putting the whole story together, graphic illustrations are best*)

- Contaminant release/fate and transport/potential or actual receptors
- Data gaps (*is anything missing)*

CLEANUP STANDARDS

*(Presenting the appropriate cleanup standards based on receptors and pathways. Include the basis for the cleanup standards including Method B calculations.)*

- Soil
  - Reasonable maximum exposure
  - Cleanup levels protective of contact, ground water, inhalation, terrestrial species, surface water, sediment
  - Points of compliance
  - Regulatory classifications *(classification of soil as dangerous or solid waste)*
- Ground Water
  - Highest beneficial use/reasonable maximum exposure
  - Cleanup levels protective of potable use, inhalation, surface water, sediment
  - Points of compliance
- Other Media as appropriate
  - Cleanup levels protective of ….
  - Points of compliance

Table – Cleanup Levels (*all potentially applicable values with final selected cleanup level noted*)

SELECTION OF CLEANUP REMEDY FOR THE PROPERTY

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*(Provide sufficient information for Ecology to determine whether your selected cleanup meets the substantive requirements of MTCA.*

- Summarize the Feasibility Study and Disproportional Cost Analysis conducted.
- Briefly describe the cleanup selected and why it was the preferred remedy.

## CLEANUP OF THE PROPERTY

*(In this section provide sufficient information for Ecology to determine whether your cleanup meets the substantive requirements of MTCA.)*

- Soil
- Surface Water
- Ground Water
- Sediment
- Air/Soil Vapor
- Waste Material (*sludges, fluids, stockpiles)*

For each of the media above you may need to provide the following information:

- The cleanup conducted, including the design, construction, and operation of the cleanup.
- The results of the cleanup conducted, including plans for and results of all performance monitoring.
- The results of compliance samples demonstrating that contaminated is now below the cleanup levels specified for the site.
- If modeling was conducted to demonstrate compliance with cleanup levels then provide documentation of the model which may include:
  - Model assumptions and limitations.
  - Results of model iterations used to calibrate the model.
  - Model results (relevant base graph outputs).
  - Confirmation that the model was correct.

At complex sites with many environmental investigations through the years, it may be best to present the confirmation data in a table (see table below) that clearly identifies the method used and associated confirmation samples to confirm cleanup standards were met.

| Sample above Cleanup Levels | Method used to demonstrate compliance | Sample(s) used to confirm compliance |
|---|---|---|
| Soil SB-4 at 5' | Confirmation sample | Soil SB-12 at 5' |
| Ground water MW-3 | 2 years of ¼ sampling | NA |
| Soil SB-2 at 10' | Empirical demonstration | Ground water at MW-1 |

## REFERENCE

DRAFT

# Environmental Covenant Outline