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May 8, 2020

Ed Honeycutt 16113 NW 27th Ct Vancouver, WA 98685 edhoneycutt@mrformalinc.com

#### Re: Opinion on a Cleanup at the following Site:

- Site Name: Adams Street Building (a.k.a. Mr. Formal)
- Site Address: 6707 S Adams St., Tacoma, Pierce County, WA 98409
- Facility/Site ID: 7177
- Cleanup Site ID: 13051
- VCP Project ID: SW1530

Dear Ed Honeycutt:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup the Adams Street Building (*a.k.a.* Mr. Formal) facility (Site). Your submittal is currently incomplete, awaiting acceptance of electronic data to Ecology's Environmental Information Management (EIM) database. Ecology has decided to proceed with our review prior to acceptance of the Site data into EIM. This letter provides our opinion. We are providing this opinion under the authority of the <u>Model Toxics Control Act (MTCA)</u>,<sup>1</sup> chapter 70.105D Revised Code of Washington (RCW).

### **Issues Presented and Opinion**

Ecology appreciates the significant independent remedial actions you have conducted at the Site, and supports pursuing a no further action (NFA) determination; however, Ecology needs confirmatory data and reporting before we can concur with an NFA.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70.105D RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340 (collectively "substantive requirements of MTCA"). Our analysis is provided below.

<sup>&</sup>lt;sup>1</sup> https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html

### **Description of the Property and Site**

#### Description of the Property.

The Property includes the following tax parcels in Pierce County, affected by the Site:

- 0220251163.
- 0220251164.

The Property is currently zoned by Pierce County as industrial. Based on available records, historical use was as a dry cleaning center for a chain of retail tuxedo rental stores and as a warehouse.

#### Description of the Site.

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Tetrachloroethylene (PCE) and its degradation products into the soil, groundwater, and air (soil vapor).
- Chloroform into groundwater.

The parcel of real property associated with this Site is also located within the projected boundaries of the Tacoma Smelter Plume Facility (FSID: 62855481). At this time, Ecology has no information that the parcels (0220251163 and 0220251164) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

### **Basis for the Opinion**

This opinion is based on the information contained in the following documents:

- 1. Associated Environmental Group, LLC (AEG), Subsurface Investigation Report, April 28, 2016.
- 2. Ecology, Re: Further Action at the Following Site, December 14, 2016.
- 3. Succeed Environmental Consulting, LLC (SEC), *Supplemental Data Report and Investigative Work Plan*, January 11, 2018.
- 4. SEC, Remedial Investigation Report, October 31, 2018.
- 5. SEC, Remedial Investigation Addendum, January 29, 2020.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining the records can be found on Ecology's public records requests web page.<sup>2</sup> Some site documents may be available on Ecology's Cleanup Site Search web page.<sup>3</sup>

<sup>&</sup>lt;sup>2</sup> https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests

<sup>&</sup>lt;sup>3</sup> https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=13051

This opinion is void if any of the information contained in the documents is materially false or misleading.

### Analysis of the Cleanup

Pending the results of needed post-remedial confirmation data, no further action is likely necessary to clean up contamination at the Site. A description of the Site is included as **Enclosure A**. If any comments made by Ecology prior to this letter conflict with the determinations contained herein, those comments are superseded by this letter. That conclusion is based on the following analysis:

#### 1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards for the Site, and to select a cleanup action. Historical Site characterization is provided in the documents listed above. Based on the additional data submitted, the Site appears to be defined in accordance with WAC 173-340-350(7). The Site appears to be confined to within the Property.

Since the last opinion issued by Ecology on December 14, 2016, additional investigation and an interim action has been completed at the Site. Monitoring well MW-3D has been installed to vertically delineated PCE in soil and groundwater contamination at MW-3. Multiple soil, groundwater, soil vapor, and indoor air samples have been collected. Three fans were installed between November 2017 and February 2018 to reduce contaminant concentrations in the subsurface by venting soil vapor to the atmosphere.

In February 2019, soil borings HA-1 and DP-1 through DP-9 were advanced at the Site to further delineate and characterize contamination as required by WAC 173-340-350(7). Groundwater monitoring was completed quarterly through December 2018. In July and August 2019, heated air injections (at approximately 131°F) were completed around monitoring wells MW-3 and MW-4 to degrade PCE concentrations in soil.

#### Interim Action and Confirmatory Soil Sampling

In August 2019, SEC oversaw heated air injections into the subsurface at known locations of PCE in soil, in order to destroy the contaminants. Confirmatory soil samples were collected before and after the remediation to evaluate the remedial effectiveness. Borings identified with a "DP" were advanced by SEC in February 2018 to evaluate Site conditions at that time, in order to refine the remedial scope.

Examples of confirmatory soil sample borings are the concentrations of PCE in soil boring at MW-3 in November 2019 confirming the boring of same name from February 2016, as well as borings B-7 and B-8 (also advanced in February 2016). Concentrations of PCE in soil at MW-4 identified in February 2016 to exceed the MTCA Method A cleanup level, were also confirmed in November 2019 to be less than the same cleanup level.

#### Terrestrial Ecological Evaluation (TEE) Update

SEC proposed to end the TEE based on a simplified TEE process identified in WAC 173-340-7492(2)(c). No contaminants present at the Site are listed in Table 749-2.<sup>4</sup> Ecology concurs with the proposed TEE and no further TEE is necessary at the Site. Please provide Ecology with a completed <u>TEE form</u><sup>5</sup> to support your simplified TEE.

#### Air/Vapor Pathway

To date, soil vapor and indoor air results have been compared to Method C screening or cleanup levels. Based on January 2020 updates to <u>Ecology's Cleanup Levels and Risk</u> <u>Calculation (CLARC) data tables</u>,<sup>6</sup> please compare available data to the unrestricted MTCA Method B cleanup values to evaluate compliance.

#### Chloroform in Groundwater

Chloroform was detected in groundwater at MW-1 in excess of the MTCA Method B cleanup level in November 2017. MW-1 is adjacent to the drain line which formerly received laundry wastewater discharge for the facility. In other Site monitoring wells, chloroform has either not been detected, or detected at concentrations about the same as the laboratory reporting limit.

Based on the February 2019 sampling results, chloroform was not detected in Site soils. Based on sampling results in 2018, four consecutive quarterly events for chloroform in groundwater were less than the MTCA Method B cleanup level. It appears, based on available data, that the concentration of chloroform in groundwater complies with the proposed MTCA Method B cleanup level at the Site.

#### EIM Data

Due to temporary Ecology staffing issues, the Site's recently uploaded electronic data have not yet been reviewed or accepted to the EIM database. To provide a more timely response, Ecology is issuing this opinion prior to EIM data review. Please continue to work with Ecology's EIM data coordinator to have the Site data accepted to the database.

Ecology will review and comment on the sufficiency of the Site's EIM data set in our next opinion for the Site. All Site data will have to be uploaded to EIM, accepted, reviewed, and concurred with before a NFA letter can be issued.

<sup>4</sup> WAC 173-340-900

<sup>&</sup>lt;sup>5</sup> https://fortress.wa.gov/ecy/publications/documents/ecy090300.pdf

<sup>&</sup>lt;sup>6</sup> https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables

#### 2. Establishment of Cleanup Standards.

Ecology concurs that these proposed cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA. Those unrestricted land use cleanup levels and points of compliance to which you have proposed and to which Ecology may concur, means that the industrial zoning for the Site is irrelevant.

If any cleanup remedy requires the Property to remain industrial to continue to protect human health and the environment, then institutional controls and an environmental covenant are required.

**Cleanup Standards:** Under MTCA, cleanup standards consist of three primary components; a. Points of Compliance,<sup>7</sup> b. Cleanup Levels,<sup>8</sup> and c. Applicable State and Federal Laws.<sup>9</sup> Ecology concurs with the following proposed cleanup levels:

Hazardous Substance	MTCA Cleanup Level <sup>10</sup>	Soil Cleanup Level (mg/kg) <sup>11</sup>	Groundwater Cleanup Level (µg/L) <sup>12</sup>	Indoor Air <sup>13</sup>
Tetrachloroethylene (PCE)	A/A/B	0.05	5	9.6
Trichloroethylene (TCE)	A/A/B	0.03	5	0.33
1,1-DCE	B/B/B	0.046	7	91
Vinyl Chloride	B/A/B	0.0017	0.2	0.28
Chloroform	B/B/B	0.074	1.4	0.11

Ecology generally concurs with the proposed cleanup levels. Where there is no MTCA Method A cleanup level available, the most stringent MTCA Method B cleanup level should be used. Groundwater cleanup levels may need to be less than the MTCA Method A cleanup level to ensure cleanup levels for soil gas and indoor air are met. This is to ensure the cleanup is sufficiently conservative and be protective of receptors associated with unrestricted land uses.

Ecology has comments in the selection of cleanup action section below regarding the proposed PCE in soil cleanup level and the air/vapor cleanup levels, especially for TCE. Site hazardous substances 1,1-DCE and vinyl chloride have not been detected in Site media. These two substances are included because they are degradation products of PCE and trichloroethylene (TCE).

<sup>7</sup> WAC 173-340-200 "Point of Compliance."

<sup>&</sup>lt;sup>8</sup> WAC 173-340-200 "Cleanup level."

<sup>&</sup>lt;sup>9</sup> WAC 173-340-200 "Applicable state and federal laws," WAC 173-340-700(3)(c).

<sup>&</sup>lt;sup>10</sup> Most stringent cleanup level protective of human health applies.

<sup>&</sup>lt;sup>11</sup> mg/kg = milligrams per kilogram.

 $<sup>^{12}</sup>$  µg/L = micrograms per Liter.

<sup>&</sup>lt;sup>13</sup> CLARC, values protective of indoor air.

a. <u>Points of Compliance</u>. Points of compliance, for which standard points of compliance are proposed, are the specific locations at the Site where cleanup levels must be attained. The Site points of compliance, as Ecology currently understands them are:

Media	Points of Compliance		
Soil-Direct Contact	<ul> <li>Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.<sup>14</sup></li> <li><i>Pending additional evaluation.</i></li> </ul>		
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site. <sup>15</sup>		
	Pending additional evaluation.		
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. <sup>16</sup>		
	Incomplete – Site is excluded from further TEE.		
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth, which could potentially be affected, by the site. <sup>17</sup>		
	Evaluation pending post-remedial data.		
Groundwater-Surface Water Protection	Based on the protection of surface water, the standard point of compliance is all locations where hazardous substances are released to surface water. <sup>18</sup>		
	<ul> <li>Incomplete – groundwater data show that any historical contamination plume is confined to within the Property boundaries.</li> </ul>		
Air Quality	Cleanup levels established under this section shall be attained in the ambient air throughout the site. <sup>19</sup>		
	Pending additional evaluation.		
Sediment	Incomplete – not present at Site		

#### 3. Selection of Cleanup Action.

Based on the results of the interim action and confirmatory soil sampling, it appears that residual PCE concentrations in soil have largely been reduced to less than the MTCA Method A cleanup levels. The concentrations of PCE degradation products are less than the MTCA cleanup levels for soil, groundwater, and air/soil vapor. Concentrations of chloroform in groundwater at MW-1 have been less than the MTCA Method B cleanup level for four consecutive sampling events.

<sup>&</sup>lt;sup>14</sup> WAC 173-340-740 (6)(d)

<sup>&</sup>lt;sup>15</sup> WAC 173-340-747

<sup>&</sup>lt;sup>16</sup> WAC 173-340-7490(4)(b)

<sup>&</sup>lt;sup>17</sup> WAC 173-340-720(8)(b)

<sup>&</sup>lt;sup>18</sup> WAC 173-340-730(6)

<sup>&</sup>lt;sup>19</sup> WAC 173-340-750(6).

However, to concur with an unrestricted NFA determination for your Site, Ecology requests the following additional information:

- Please re-evaluate the soil gas and indoor air data for compliance with cleanup levels based on unrestricted cleanup levels from the January 2020 CLARC update.<sup>20</sup> This is especially true for historical results of TCE in indoor air, where historical indoor air concentrations may have been less than the MTCA Method C cleanup level, but may exceed the new MTCA Method B cleanup (as screening) level.
  - Please also review Ecology Publication 18-09-47, <u>Vapor Intrusion (VI) Investigations</u> and Short-term Trichloroethene (TCE) Toxicity<sup>21</sup> for additional guidance on approaching TCE in indoor air.
  - b. Confirmatory soil gas and/or indoor air data may be necessary.
- 2. Please provide additional detail regarding how the estimated radius of influence for the heated air injections was calculated at MW-3 and MW-4. Literature support for similar remedial actions taken would be another line of evidence to help us understand and concur with the results at your cleanup.
- 3. Though PCE contamination in soil has likely been remediated, please provide sufficient current air/soil vapor data to confirm that the heated air injections did not mobilize soil contamination into soil gas or into indoor air.
  - a. Some of these data may already be available if fan stack testing was completed for a potential Puget Sound Clean Air Authority (PSCAA) discharge permit. PCE and its degradation products in air from any of the fan stacks (though especially fans 1 and 2) would provide data on current soil vapor conditions. Additionally, if PCE is present in concentrations exceeding the MTCA Method B screening level for air or vapor, then a residual mass of PCE in soil is likely still present.
  - b. Alternately, a less than 30-year exposure duration may be appropriate under WAC 173-340-750 to calculate a Site-specific MTCA Method B cleanup level. Any change to the exposure duration for the indoor air or soil vapor cleanup level at the Site would have to be supported with well documented information about the current business and likely worker exposure.

Indoor air confirmatory sampling may still be necessary to support a change in the exposure duration and confirm that Site hazardous substance concentrations in indoor air are protective of Site receptors.

4. Please provide sufficient groundwater data to confirm that the heated air injections did not mobilize soil contamination into groundwater.

<sup>&</sup>lt;sup>20</sup> Cleanup levels may be updated per WAC 173-340-702.

<sup>&</sup>lt;sup>21</sup> October 1, 2019. https://fortress.wa.gov/ecy/publications/documents/1809047.pdf

- a. Per our November 2018 email, Ecology recognizes that you did have four consecutive groundwater sampling events with Site contaminant concentrations less than the MTCA cleanup levels, except for chloroform at MW-1. In December 2018, a fourth consecutive sampling event for chloroform in groundwater was less than the MTCA Method B cleanup level.
- b. Sufficient post-remedial confirmatory sampling data might be met by starting groundwater sampling with MW-3, MW-4D, and MW-4. During any sampling event, for those wells which are not sampled, we encourage collection of gauging data to calculate groundwater flow direction and gradient for the sampling event.
- c. However, Ecology recommends collecting sufficient additional groundwater data for PCE and its degradation products to verify that the heated air injections destroyed the PCE and did desorb any PCE from soil and put it into solution (groundwater). Additionally, these data would be expected to determine if PCE was destroyed, and show that the PCE was not degraded into TCE, DCE, or vinyl chloride.
- d. After reviewing the completed remediation (interim action), we want to be certain that there is no PCE or degradation product which contributes to a "rebound spike" in groundwater because of a potential transfer of contaminant mass from soil to groundwater or air or soil vapor.
- e. Sampling guidance<sup>22</sup> for petroleum, in absence of a specific cleanup action plan, could be used as a guide for post-remedial groundwater monitoring. **Post-remedial** groundwater results will determine the total number of events needed to confirm successful remediation of PCE in soil. This may be as few as two sampling events across seasonal fluctuations.
- 5. The concentration of PCE in soil (0.052 mg/kg) at boring location B-6 at 9.5 feet below ground surface (bgs) exceeded the MTCA Method A cleanup level in 2016.
  - a. Ecology recognizes that you proposed a direct contact MTCA Method B cleanup level for PCE in soil.
    - i. As PCE has been detected in groundwater collected at Site monitoring wells, even at concentrations less than the MTCA cleanup levels, Ecology would not concur with the proposed direct contact cleanup level at this time. PCE would have to have never been detected in groundwater at the Site, or at least not have exceeded the groundwater cleanup level at any monitoring well for at least the last 11 sampling events<sup>23</sup> to support using the direct contact cleanup level for PCE in soil at this Site.
    - ii. For PCE in soil and groundwater, the MTCA Method A cleanup levels are recommended for your Site.

<sup>&</sup>lt;sup>22</sup> Please see section 10.3, Ecology Publication No. 10-09-057, *Guidance for Remediation of Petroleum Contaminated Sites*, revised June 2016.

<sup>&</sup>lt;sup>23</sup> Based on WAC 173-340-720(9).

- b. A statistical approach to determine compliance for PCE in soil at B-6 with the MTCA Method A cleanup level may be appropriate.
  - i. This approach would be appropriate if the post-remedial air/vapor and groundwater data show that PCE concentrations in soil are not contaminating other media, to ensure compliance with WAC 173-340-702(8). The statistical approach is outlined in WAC 173-340-740(7).
  - To evaluate statistical compliance for PCE in soil at B-6 with the MTCA Method A cleanup level of 0.05 mg/kg, Ecology used statistical analysis tools in <u>USEPA's</u> <u>Pro UCL 5.1 software package</u>.<sup>24</sup>
    - Ecology evaluated PCE in soil data from the following soil samples collected in 2018 and 2019: BP-6, DP-2, DP-3, MW-3 (post-remedial soil samples), DP-9, and HA-1. These locations were selected as they surround BP-6, and are representative of the most recent soil conditions. MW-3 data were collected post-heated air injection, but the other data were collected after fans had been running to remove contaminated soil gas from the subsurface. No data from 2016, aside from B-6, were selected, as these were un-remediated data points. A total of twelve data points were selected.
    - 2) The evaluation<sup>25</sup> indicated that the 95% upper confidence limit (UCL) for PCE concentrations in soil was 0.0315 mg/kg, which is less than the cleanup level of 0.05 mg/kg. The concentration of 0.052 mg/kg is less than two times the MTCA Method A cleanup level of 0.05 mg/kg. One of twelve (fewer than 10%) of the selected data set exceeded the cleanup level. As these results satisfy the requirements under WAC 173-340-740(7)(d) and –(e), it appears that it is more likely than not that the PCE in soil at B-6 is in compliance with the MTCA Method A cleanup level.

#### Ecology Comments on Proposed Method C Cleanup

 In its *Remedial Investigation Report* dated October 31, 2018, SEC originally proposed closure using Method C, institutional controls, and an environmental covenant. Ecology concurred that a Method C closure with institutional controls and an environmental covenant would be appropriate with certain long-term monitoring requirements, per technical assistance issued by email on November 21, 2018. That email is attached as **Enclosure B**.

Based on your most recent report and opinion request, a Method C closure with institutional controls and an environmental covenant and support long-term compliance monitoring plans is no longer requested.

As this independent cleanup is not ranked, no public notification and comment period is required for any NFA letter issued.

<sup>24</sup> https://www.epa.gov/land-research/proucl-software

<sup>&</sup>lt;sup>25</sup> Following WAC 173-340-740(7)(d) and –(e)

## Limitations of the Opinion

#### 1. Opinion Does Not Settle Liability with the State.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

#### 2. Opinion Does Not Constitute a Determination of Substantial Equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

#### 3. State is Immune from Liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

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### **Contact Information**

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our <u>Voluntary</u> <u>Cleanup Program website</u>.<sup>26</sup> If you have any questions about this opinion, please contact me by phone at (360) 407-6265 or <u>tim.mullin@ecy.wa.gov</u>.

Sincerely,

Tim Mullin, LHG Toxics Cleanup Program Southwest Regional Office

TCM/tam

Enclosures (2) A – Site Description B – November 21, 2018 Email

cc by email: Andrew Blake, Succeed Environmental Consulting, LLC, <u>ablake@succeed-env.com</u> Stephen Nielsen, Property Owner, <u>holroydsn@aol.com</u> Nicholas Acklam, Ecology, <u>nicholas.acklam@ecy.wa.gov</u> Ecology Site File

<sup>&</sup>lt;sup>26</sup> https://www.ecy.wa.gov/vcp

# **Enclosure A**

Site Description

#### **Site Description**

The Adams Street Building Site is located at 6707 and 6709 S Adams St, Tacoma, Pierce County, Washington. Two Pierce County tax parcels, 0220251163 and 0220251164, total about 1.29 acres in size. The surrounding area is mostly commercial and industrial, though there is a vacant lot to the west across Adams Street.

A warehouse building occupies the Property. The Pierce County Assessor-Treasurer's office notes that the parcels are industrial with use code 6310 – general warehousing storage. The Property elevation is approximately 230 feet above mean sea level and the Property topography is relatively flat. Groundwater flow direction has been calculated to be somewhat variable, but generally is to the southwest. To the maximum depth explored of 25.0 feet bgs, lithology is fill underlain by mainly compacted sands and gravels, representative of till.

The Property is believed to be serviced by public water and sewer. The Site is within a five-year travel time frame for two City of Tacoma water wells located about one-half mile to the northeast. Flett Creek, located about 0.67 miles to the south and 1.3 miles southwest of the Site, is the nearest surface water to the Site.

Based on historical concentrations of PCE, TCE, and chloroform in one or more media, the reported release at the Site is suspected to be from the former dry cleaning operation at the Site.

# **Enclosure B**

November 21, 2018 Email

#### Hi Andrew,

For SW1530, Adams Street Building, Ecology is amenable to a Site closure based on the following conditions.

1) We concur the Site is delineated, confined to the property boundary, and a cleanup action can be selected.

a. Interim remedial actions can still be taken at any time prior to closure.

## 2) Per our discussion, I will hold the opinion request for now, awaiting the outcome of the chloroform in groundwater result.

- a. Please email me when you want me to re-start the opinion.
- b. Of note, per the VCP agreement, I plan on billing 0.5 hours for my meeting on 11/20/18 and 0.8 hours for our phone call and my email on 11/21/18.
- 3) We concur that Method A is appropriate (and met) for PCE and its degradation products in groundwater.

a. For chloroform in groundwater, Ecology requests at least one more result less than MTCA Method B at MW-1. As the historical exceedance of MTCA Method B for chloroform in groundwater was in November, we want the sampling event to occur in fourth quarter (by the end of 2018).

- b. The groundwater monitoring must be completed for before any environmental covenant is granted.
- 4) We concur that MTCA method B cleanup levels are appropriate (and met) for chloroform in soil, groundwater, and air.
- 5) We concur that MTCA method C cleanup levels are appropriate for PCE and its degradation products in soil and air.

a. WAC 173-340-440(4)(b) requires institutional controls via an environmental covenant for using Method C at a Site.

#### i. http://app.leg.wa.gov/WAC/default.aspx?cite=173-340-440

- ii. Environmental covenants are subject to periodic review, once every five years.
  - 6) To demonstrate the benefit vs. cost of an environmental covenant against active remediation, a feasibility study with disproportionate cost analysis is required. This can be a brief document comparing costs vs. benefits in a table and a chart, and would have to be reviewed as part of the closure request.
    - a. Pertinent information located at:
- i. WAC 173-340-360(3)(e): <u>http://apps.leg.wa.gov/WAC/default.aspx?cite=173-340-360</u>

ii. Feasibility Study checklist: https://fortress.wa.gov/ecy/publications/documents/1609007.pdf

7) Standard institutional controls at industrial Sites include limiting use to industrial only, prohibiting installation of drinking water wells, maintaining a cap (in this case, the building and asphalt parking lot).

a. A look at the covenant procedure, all the typical restrictions, and boilerplate covenant is available at:

- https://fortress.wa.gov/ecv/publications/SummarvPages/1509054.html
- b. The boilerplate is generally static, with only a few places to update. Changes to the static boilerplate text requires Washington state Attorney General's Office approval, which is very difficult to get.
- c. It is somewhat of a lengthy process with having to get a title search, provide the platting and dedication, provide a figure with the area of contamination, involve the land use planning authority, etc.
- 8) Ecology wants the continued fan operation as an institutional control. This interim action appears to be mitigating the concentrations of PCE and TCE in indoor air to less than Method C numbers.
- 9) WAC 173-340-410(3) requires long term monitoring whenever on-site disposal, isolation, or containment is the selected cleanup action for a site or a portion of the site.

## a. At SW1530, Ecology would require groundwater monitoring and air monitoring to prove that the soils were not re-contaminating other media. Cap monitoring would also be required.

- 10) Ecology would be amenable to long term monitoring, such as:
  - a. Captured in compliance monitoring plan for groundwater, air, and cap. The compliance monitoring plan is attached to the covenant.

i. Year 1:

- 1. Groundwater monitoring at monitoring wells MW-1 through MW-4 and MW-3D, at high and low seasonal fluctuations (January and July or February and August). Monitoring for PCE and degradation products at all wells, chloroform at MW-1.
- 2. Air monitoring at the same time as the groundwater monitoring (e.g., January and July), for PCE and degradation products at IA-1.
- 3. Cap: verify the asphalt parking lot and building are still in place. A picture or brief checklist is sufficient.

ii. Years 2-5:

- 1. Depending on the Year 1 groundwater monitoring results, annual groundwater and air monitoring in January or February.
- 2. Air monitoring would continue at IA-1.
- 3. Groundwater monitoring perhaps as few as MW-3, MW-3D, and MW-4. Contingencies as to which wells have to be monitored and when, would be captured in the compliance plan.
- 4. Cap: Same as Year 1.
- iii. Periodic review after Year 5. Compliance monitoring plan could include contingency to drop to 18 months monitoring frequency for air, groundwater, and cap if data warrant the change.
  - 11) Confirmatory soil sampling.
    - a. Confirmatory soil sampling could be captured as a contingency in the compliance monitoring plan, to be conducted when air (or other) monitoring indicates it is most likely that concentrations of PCE in soil have degraded to below the unrestricted land use cleanup levels.
- i. As Ecology has routinely accepted the MTCA Method A cleanup level for PCE in soil, I recommend using that 0.05 mg/kg value.
- ii. The MTCA Method B cleanup level for PCE in soil protective of groundwater saturated is 0.00276 mg/kg. iii. <u>https://fortress.wa.gov/ecy/clarc/FocusSheets/Soil%20Methods%20B%20and%20A%20unrestricted.pdf</u>

12) Please advise of any questions or if I missed something from our phone call.

Thank you, Tim Tim Mullin, LHG Voluntary Cleanup Program Site Manager Southwest Region – Toxics Cleanup Program Washington State Department of Ecology 300 Desmond Drive Southeast Lacey, WA 98503 360-407-6265 tmul461@ecy.wa.gov