From:	Lind, Jennifer (ECY)
To:	"Greg Lish"; "Frank Stauff"; "William Carroll"; "Tim Jackson"
Cc:	Durkee, Matthew (ECY); Smith, Frosti K. (ECY)
Subject:	RE: 395 Cleaners Site VCP Letter Response
Date:	Thursday, July 30, 2015 10:30:38 AM

All,

In an attempt to clarify Ecology's Further Action opinion letter dated April 8, 2014, **and** the additional response to comments email dated September 9, 2014 , I have evaluated the information available and provided comments below. Ecology has determined much of the submitted information is compromised due to poor data quality, improper sampling techniques, or insufficient documentation.

This is not meant to be an exhaustive review of all data gaps. If you need further technical assistance for this cleanup Site, an Agreed Order is recommended rather than continuing in the Voluntary Cleanup Program.

Subsurface Investigation Report – May 2000
Comments:

Soil samples collected had concentrations of PCE and TCE exceeding current MTCA Method A CULs. The Detection Limits for TCE, VC, and cis-1,2-DCE were too high.

The soil data confirms a release of chlorinated solvents occurred at the Site.

The soil gas survey results showed concentrations of TCE, cis-1,2-DCE, trans-1,2-DCE, VC, 1,1-DCE, and benzene exceeding current screening levels. The Detection Limits for all the detected analytes were too high (presumably, the non-detects as well).

The soil vapor results collected outside the footprint of the building at 4 ft bgs are likely biased low due to diluting from atmospheric air.

The soil gas survey data is only useful as confirmation of a VI risk. The sampling methods were not properly documented, and are likely not reliable by today's standards.

The data is not of sufficient quality and reliability to support a comparison with current Washington State screening levels.

Conclusions:

A release of chlorinated solvents was confirmed.

Soil and indoor air concentrations exceeding CULs were confirmed.

The VI pathway is complete.

Subsurface and Additional Subsurface Investigation Reports – July 2013
Comments:

Air rotary drilling is undesirable for VOC sampling due to potential for excessive volatilization. Discussion of potential data quality problems necessary.

Soil data can screen in Sites, can't screen out Sites without corroborating lines of evidence.

Sample depth/location were not included on the boring logs, reference to sampling methods and protocols (guidance docs?), and field reports are were not included.

Need more sampling specifics (how, when, where, etc.) to substantiate the quality of the data collected.

Conclusion that all of the VOCs detected in indoor air were from the adjoining tenant space (nail salon) has not been substantiated. It is true that many of these chemicals are commonly found in use at nail salons (but not all); however, additional information and discussion is necessary to verify an off-site source.

The Attenuation Factors (AF) have been revised since the report was submitted.

Detection Limits greater than the Screening Levels were not acknowledged or discussed.

If the deep soil gas sample was not collected from directly above the subsurface contamination, spatial variability is a factor in the reported concentrations and cannot be used at face value.

Why did you purge the soil gas sample location for 5 minutes prior to sampling? – Reference to sampling plan, protocols, guidance documents, etc. are necessary.

The absence of chlorinated solvents (and daughter products) in the recent investigation have not been thoroughly discussed. - Did they biodegrade? Do the subsurface conditions support this?

Conclusions:

The reports conclude that "PCE and associated breakdown products do not appear to be present in the shallow soil beneath the former 395 Cleaner tenant space…" – Based on quality of the data presented, this conclusion is unsubstantiated.

The confirmational data you collected is not sufficient evidence to negate the 2000 investigation results.

HVOC concentrations in SOIL will need to be remediated prior to receiving a NFA opinion.

The sub-slab or indoor air concentrations of other building tenants should be evaluated. The Site is not defined by the property boundary or the building footprint..

There is likely a source area of HVOCs in soil that has not yet been identified.

Comments on Responses to Ecology's Letter Dated April 8, 2014:

The 1999/2000 soil results "…did not contain detectable concentrations of HVOCs at or above the laboratory's PQLs." – The PQLs were greater than the current soil CULs.

You cannot directly correlate vapor concentrations with soil sample concentrations.

"Based on the results of the investigations performed in 1999/2000, and more recently in 2013, HVOCs do not appear to currently be present in soil at the site at concentrations above MTCA Method A soil cleanup levels". – The 1999/2000 investigation DID find soil concentrations exceeding current CULS.

When soil gas concentrations exceed screening levels, then there is still a pathway to receptors.

Regarding discussion of potential for drill rig exhaust emissions impacting indoor air concentrations… - Either throw out the data or qualify results and do over.

Recommended Guidance Documents:

EPA - **Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air** (June 2015)

EPA - Conceptual Model Scenarios for the Vapor Intrusion Pathway. (Feb. 2012)

ITRC - Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios (A Supplement to VI-1)

- DRAFT: Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action

Appendix B, Table B-1: Link to revised (April 2015) Excel spreadsheet for Vapor Intrusion Screening Levels

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From: Durkee, Matthew (ECY)
Sent: Tuesday, September 09, 2014 3:35 PM
To: Greg Lish
Cc: 'Frank Stauff'; William Carroll; 'Tim Jackson'
Subject: 395 Cleaners Site VCP Letter Response

Hi Greg,

Thanks for reviewing the VCP opinion letter I provided and providing additional information and comments.

The opinion provided in the VCP letter remains unchanged. Additional work will be needed for the Site to reach No Further Action status.

During the ATC investigation conducted in 1999/2000, soil gas samples from seven borings exceeded soil gas screening levels for PCE, PCE daughter products, and benzene. There were also four soil borings where soil concentrations of PCE and/or daughter products exceeded MTCA Method A soil cleanup levels. The work SLR conducted in 2013 was relatively limited compared to this study and did not characterize current conditions for all of the areas of previous sampling or the spatial extent of the contamination. SLR's indoor air sampling may not have been performed adequately if it is believed exhaust from the drill rig affected the results.

Additional soil gas and soil sample collection is needed to fully characterize the extent and concentrations throughout the Site.

Results from the 1999/2000 ATC study showed soil gas concentrations for TCE, vinyl chloride, and benzene more than ten times the current soil gas screening levels. An institutional control in the form of an environmental covenant for inaccessible contamination remaining under the building will most likely be needed. Possible remedial actions could include soil vapor extraction.

Future work plans may be submitted for review and comment under the VCP program.

Matthew Durkee, LHG
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