Former Dry Cleaner Receptor Evaluation Initiative

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The Challenge

Contamination: When former dry cleaners are redeveloped, their legacy of contamination remains.

PCE: Historical PCE releases (related to former use) can impact soil, ground water and indoor air.

Legacy: Releases slow to break down and may persist for many years... decades.

Breakdown: Presence of PCE breakdown products - including TCE and Vinyl Chloride more toxic than parent.

Receptors: These releases not only have the potential to impact on-site receptors but also adjacent receptors.
Former Dry Cleaner Data Base Established

- First conceptualized in 2004
- Effort began Summer of 2012
- Sources:
  - Industrial Directories
  - City Directories
  - Historic Telephone Books
- 11,632 total data entries
- Data entries were Geocoded March 2015
- GIS edits resulted in 5,790 distinct FDC sites
- Recent additions brought total FDC sites to 7,300
GIS Layer Development

Legend
- Dry Cleaners N = 5
GIS Layer Development
Former Dry Cleaner and Child Care Centers

Co-locations - 6
- There were 23 childcare centers co-located with a former Dry Cleaner
- DOH sampled indoor air only in 17
- 6 Required Site Assessment sub-slab sampling

Proximity - 19
- An additional 19 childcare centers were chosen based upon proximity to a former dry cleaner

Total of 25 Childcare Centers Sampled
- Began in 2016
- Analyzed via TO-15 test by Test America, VT
Proximate Risk Study – Results

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>8</td>
<td>Eight of the 25 Child Care Centers exhibited PCE/TCE in Sub-Slab/Sump Samples above Residential Soil Gas Screening/GW Levels</td>
</tr>
<tr>
<td>50%</td>
<td>50% of the Co-Located CCC Exhibited PCE/TCE Above SGSL</td>
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<tr>
<td>3</td>
<td>Three CCCs Required Treatment Systems</td>
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NJDEP Sampling - Bright Start Day Care

- NJDEP sampled sub-slab soil gas on April 2016
  - Results - **PCE 35,000,000 ug/m3**
- NJDEP sampled indoor air on May 2016
  - Results - **PCE 240 ug/m3 (basement) 28 ug/m3 (class room)**
- Indoor air results above the 84 ug/m3 RAL in basement sample
Public School Co-locations

- Approximately 50 FDCs were stated to be co-located with public school property
- Of those, 20 FDCs were confirmed to be located on public school property
  - A total of 6 were sampled
  - The others were addressed previously or the FDC located away from structures
- Of the 6 FDCs sampled
  - 4 of the 6 schools exhibited PCE
  - Only 1 exhibited significant PCE
Public School Co-locations – Hackensack Middle School

- Topps Cleaners operated on site from at least 1947 to the late 1970s
- Building removed sometime between 1979 and 1987
Hackensack Middle School - Sampling

- A total of 18 ground water samples collected
- Of those, 14 exhibited PCE above ground water quality standard
- Concentrations up to 50,000 ppb in B-6
Due to elevated levels of PCE VI sampling conducted

Seven IA and three sub-slab soil gas samples collected

PCE detected in soil gas at 13,000 ug/m3

Indoor air below DEP Screening Level
Class 2 Residential FDC Co-Location Study
Co-Location of FDC and Class 2 Property

More than 400 FDC sites co-located with Class 2 Property

Approximately 263 Rank 1 and Rank 2 Co-Locations

Note: Class 2 Property = (Residential 4 Families or Less)
## Understanding the Rankings

<table>
<thead>
<tr>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
<th>Rank 4</th>
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<tbody>
<tr>
<td>• Sanborn Maps depict <em>dry cleaner</em> or <em>laundry facility</em> on Class 2 parcel(s)</td>
<td>• Sanborn Maps depict a <em>store</em> on the Class 2 parcel(s)</td>
<td>• Sanborn Maps depict a <em>dwelling</em> on the Class 2 parcel(s)</td>
<td>• No Sanborn Map coverage for the area or no image for the area found</td>
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</tbody>
</table>
Mercer County Residential Co-location

Legend
- Mercer County

Miles
0 1.25 2.5 5

- Rank 1 and 2 FDC Sites
  Co-located with Class 2 Property
- Sampled Rank 1 and 2 FDC Sites
  Co-located with Class 2 Property

FDC/Residential Co-location Sample Map - Mercer County
Soil Gas Sampling December 2018 Additional VI Sampling March and June 2019

Eleven Properties in Princeton representing a single Rank 1 Co-Location

Eight of the eleven Princeton Properties exhibited PCE/TCE above 470 ug/m3 DEP SGSL (up to 16,000 ug/m3)

Five of the eleven Princeton Properties exhibited PCE above the 9 ug/m3 DEP IASL (up to 31 ug/m3)

Nine Properties in Trenton representing nine separate Rank 2 Co-Locations – five of the nine sites had PCE in soil gas – None above SGSL
NJDEP Sampling At
University Cleaner & Laundry
Princeton Borough, Mercer County

Sampled - December 2018
March 2019
June 2019

Legend

= Soil Gas Sample PCE not detected
= Soil Gas Sample PCE below SGSL
= Soil Gas Sample PCE above SGSL
= Indoor Air Sample PCE not detected
= Indoor Air Sample PCE below IASL
= Indoor Air Sample PCE above IASL

PCE Con. ug/m3
PCE Soil Gas Screening Level (SGSL) = 470 ug/m3
PCE Indoor Air Screening Level (IASL) = 9 ug/m3
Take–A–Ways

- Unrecognized Former Dry Cleaners are potential continuing sources of contamination
- Developing an Inventory is the First Step
- The Use of GIS tools and capabilities is key to assessing the potential impacts to receptors
- Use of the newly created Geodatabase allows a State Agency to Proactively Assess potential impacts to sensitive receptors co-located with these newly discovered Former Dry Cleaners
- Early and Clear Communication with State/County/Municipal entities and property owners is essential

LEAD THE WAY
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