Groundwater & Environmental Services, Inc.

63 E Main Street, Suite 3
Pawling, New York 12564

T. 866.839.5195

November 21, 2024

Mr. Matthew Hubicki
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway – 12th Floor
Albany, New York 12233-7014

Re: Periodic Review Report – October 2023 to October 2024
Carmel Shop-Rite Plaza
180 Gleneida Avenue
Carmel, New York
NYSDEC Site Number V00104

Dear Mr. Hubicki:

Enclosed is the *Periodic Review Report* for the above referenced site prepared by Groundwater & Environmental Services, Inc. (GES) on behalf of Regency Centers. This document is required as an element of the remedial program at the Carmel Shop-Rite Plaza, located in Carmel, Putnam County, New York in accordance with the Voluntary Cleanup Program (VCP) administered by the New York State Department of Environmental Conservation (NYSDEC).

If you have any questions or comments regarding this submittal, please contact the undersigned at (866) 839-5195, extension 3839.

Sincerely,
Groundwater & Environmental Services, Inc.

Michael DeGloria
Digitally signed by Michael DeGloria
Date: 2024.11.21 16:15:19 -05'00'

Michael DeGloria, P.G.
Principal Project Manager

cc: Monica Roth, Regency Centers, (MonicaRoth@regencycenters.com)
Kerry Maloney, NYSDEC Section Chief, (kerry.maloney@dec.ny.gov)

Regency Centers

Periodic Review Report

Carmel Shop-Rite Plaza
180 Gleneida Avenue, Carmel, New York
NYSDEC Site Number V00104

November 21, 2024

Version 1

Periodic Review Report
Carmel Shop-Rite Plaza
180 Gleneida Avenue
Carmel, New York

Prepared for:
Regency Centers
321 Railroad Avenue
Greenwich, Connecticut

Prepared by:
Groundwater & Environmental Services, Inc.
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Pawling, New York 12564
TEL: 866-839-5195
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GES Project:
1192323

Date:
November 21, 2024

Jessica M. Montaldo, P.E.
Project Engineer

Michael DeGloria

Digitally signed by Michael DeGloria
Date: 2024.11.21 16:14:06 -05'00'

Michael DeGloria, P.G.
Principal Project Manager

Genevieve F. Bock, P.E.
NE Region Engineering Manager

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Acronyms

COC	Constituent of Concern
DOH	Department of Health
EC	Engineering Control
EPA	Environmental Protection Agency
ft	feet
fbg	feet below grade
GES	Groundwater & Environmental Services, Inc.
IC	Institutional Control
MIF	MIF Realty, L.P.
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operation and maintenance
PCE	tetrachloroethylene
PRR	Periodic Review Report
SGS	SGS North America, Inc. of Dayton, New Jersey
SMP	Site Management Plan
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVI	Soil Vapor Intrusion
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	volatile organic compound

1 Executive Summary

This document is required as an element of the remedial program at the Carmel Shop-Rite Plaza, located in the Town of Carmel, County of Putnam, State of New York (the site) under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by the New York State Department of Environmental Conservation (NYSDEC). The site remediation activities have been conducted in accordance with the Voluntary Cleanup Agreement (VCA) Index #D3-0001-97-04, Site #V00104. MIF Realty, L.P. (MIF) entered into a VCA with the NYSDEC to investigate a 19 acre property located in Carmel, Putnam County, New York. The VCA required MIF to investigate contaminated media at the site. The property was sold by MIF to Urstadt Biddle Properties Inc. of Greenwich, Connecticut. In August 2023, Urstadt Biddle Properties Inc. merged with Regency Centers.

Procedures required to manage remaining contamination at the site outlined in the Site Management Plan (SMP) have been successful. No major non-compliance issues have been identified during the monitoring period.

Historical remedial activities consisted of excavation of tetrachloroethylene (PCE) impacted soils, installation of a soil vapor extraction (SVE) system to remediate the remaining PCE impacted soil, installation of a sub-slab depressurization (SSD) system , development and implementation of a SMP for the long term management of remaining contamination as required by the Deed Restriction, and execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the site. Remedial activities were completed at the site in March of 2010. A detailed summary of remedial activities at the site can be referenced in the Site Investigation Summary & Remedial Action Plan prepared by Vertex Environmental Services, Inc. on May 24, 2002, the Remedial Investigation/Feasibility Study & Remedial Action Report prepared by Vertex Environmental Services, Inc. on February 23, 2004, the Work Plan prepared by Vertex Environmental Services, Inc. in December of 2006, and the Site Management Plan prepared by Vertex Environmental Services, Inc. on February 28, 2012.

2 Site Overview

The site is located in the Town of Carmel, County of Putnam, State of New York and is identified as Tax Map Number 44.9-1-9 on the Putnam County Tax Map. The approximate geographical coordinates for the property are 41 degrees, 26 minutes, 7.5 seconds North (latitude) by 73 degrees, 40 minutes, 48.1 seconds West (longitude). The property is comprised of one (1) parcel that covers an area of approximately 19 acres. A Site Location Map (**Figure 1**) for the general property location and a Site Map (**Figure 2**) showing the current key site features at the subject property have been included. The boundaries of the site are more fully described in **Appendix A** (Site Survey and Metes and Bounds).

Lauren's Dry Cleaner and A&A Cleaners are noted as the historic tenants of concern in the shopping center and their historical operations resulted in PCE contamination at the site. Site investigation activities were conducted between 1994 and 2004. During the investigation, a

source area was observed beneath the concrete slab of the dry cleaner tenant space. The source area dimensions were noted as approximately 8 feet (ft) by 12 ft, to a depth of approximately 3 to 4 feet below grade (fbg). In total, approximately 49.66 tons of PCE impacted soil were excavated and removed for disposal off-site. Confirmation soil borings were completed subsequent to the excavation activities and indicated the presence of residual PCE contamination beneath the building slab. An SVE system was installed at the site to remediate the residual PCE impacted soil. The SVE system was shut down when monitoring of the SVE system indicated that remediation of the PCE impacted soils was complete. Following the SVE system deactivation, an SSDS was installed at the site in 2010 for the purpose of preventing potential residual contamination of PCE beneath the concrete slab from impacting indoor air quality. The SSDS will continue operation until the selected remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.5 of NYSDEC DER-10.

3 Evaluation of Remedy Performance and Effectiveness

3.1 Sub-Slab Depressurization System Evaluation

Routine site visits completed over the monitoring period indicate the remedy has been effective in achieving the remedial goals for the site. Routine operation and maintenance (O&M) visits to the site for the SSDS were conducted on a quarterly basis in October 2023, January 2024, April 2024, July 2024. The annual site inspection was conducted on October 11, 2024.

During the January 29, 2024 O&M visit, one (1) of the SSDS fans located at the Europa Pizza tenant space was observed to be non-operational. GES replaced the malfunctioning SSDS fan on March 6, 2024, due to a period of planned downtime for soil vapor intrusion (SVI) sampling activities (completed on March 5, 2024). Following replacement of the SSDS fan, all SSDS components on-site were operational.

A copy of the *Non-routine Maintenance Reports* and all correspondence with the NYSDEC are included in **Appendix B**. A Sub-Slab Depressurization System Layout Map is included as **Figure 3**.

3.1.1 Soil Vapor Intrusion Evaluation

The SSDS was temporarily shut down on January 29, 2024 at all four (4) tenant spaces in preparation for an SVI investigation which was completed on March 5, 2024. The SSDS was restarted upon completion of the SVI investigation activities on March 6, 2024. Additional indoor air samples were collected as part of the SVI investigation activities on June 17, 2024, the SSDS remained online during sampling.

A summary of the SVI investigation activities completed in March 2024 and June 2024 are included in the *Soil Vapor Intrusion Investigation Summary* report, dated July 31, 2024. Upon review of the SVI investigation results, the NYSDEC requested an additional round of SVI sampling in the 2024/2025 heating season at all four (4) tenant spaces. Regulatory correspondences are attached in **Appendix B.**

4 Institutional Control (IC) & Engineering Control (EC) Plan Compliance

4.1 Institutional Controls

The site has a series of Institutional Controls (IC) required by the Decision Document to: (1) implement, maintain, and monitor Engineering Control (EC) systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to commercial and/or industrial uses only.

Adherence to the following ICs on the site is required by the Deed Restriction implemented as part of the SMP.

- The property owner is required to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3).
- The use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g) is allowed, though land use is subject to local zoning laws.
- The use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYS Department of Health (DOH) or County DOH, is restricted.
- Agriculture or vegetable gardens on the controlled property are prohibited.
- Compliance with the Department approved SMP is required.

No new development in the EC/IC area has occurred during the monitoring period. Groundwater was not observed as a source of potable or process water. No agricultural or vegetable gardens were observed. Additionally, monitoring and reporting completed during the monitoring period were in compliance with the Department approved SMP.

During site visits completed during the monitoring period, site restrictions were observed to be in place. The annual site wide inspection was conducted on October 11, 2024. The Groundwater & Environmental Services, Inc. (GES) personnel conducting the inspection noted no new development in the EC/IC area of the site. Photographs taken of the EC/IC area during the annual site wide inspection are included as **Appendix C**. Certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3) is attached as **Appendix D**.

4.2 Engineering Controls

The SMP requires that a single engineering control (SSDS) be maintained at the site. Maintenance and inspections of the SSDS at the site are required by the SMP to be completed within 18 months of the installation of the system and then every 12 to 18 months thereafter. In total, five (5) SSDS fans were installed in four (4) tenant spaces, as summarized in the below table and depicted on **Figure 3**.

Tenant Space	Number of Suction Points	Radon-Away Fan Type
178 Route 52 - Europa Pizza (formerly Redendo's Pizza)	3	HS-5000
176 Route 52 - Chic Nail & Spa (formerly New Journey Nail & Spa/Jina's Nail Salon)	3	HS-5000
174 Route 52 - Electric Paradise Tanning II (formerly Sunscape Tan)	Trench (existing)	RP-265
170 Route 52 - Chinatown Restaurant	3	HS-5000
	3	HS-5000

Note: Tenant space names were updated to reflect Regency Centers Site Plan available at https://www.regencycenters.com/property/detail/70043/Carmel-ShopRite-Plaza. Names of tenant spaces reflected on the Non-Routine Reports submitted during the monitoring period may differ slightly from the tenant space names referenced above.

Routine operation and maintenance of the system consisted of the following activities:

- Check that all fans are running.
- Check that no air intakes have been installed within 20 feet of the exhaust pipe.
- Check each visible suction point for leaks and/or holes in the seals. Repair with caulk as necessary.
- Where seals are not visible due to drywall or metal enclosures, a subjective noise survey of the suction points will be conducted. Although a low suction sound can be heard during system operation, an unusually loud hissing sound could indicate a compromised seal.
- Where liquid manometers are installed on system piping, check that suction is occurring in the system.
- Inspect all pipes and/or pipe enclosures for any signs of damage.
- Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made to the system.
- Where piping is visible, check that labeling and liquid manometers remain in place.
- Review the manufacturer's specifications, including operation and maintenance manuals for both fans for any manufacturer's recommendations.

Certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3) is attached as **Appendix D**.

5 Operation & Maintenance Plan Compliance

The O&M Plan describes the measures necessary to operate, monitor, and maintain the mechanical components of the remedy selected for the site. This O&M Plan includes the following:

- The steps necessary to allow individuals unfamiliar with the site to operate and maintain the SSDS.
- An operation and maintenance contingency plan.
- Will be updated periodically to reflect changes in site conditions or the manner in which the SSDS are operated and maintained.

Five (5) fans are mounted on the exterior rear walls of the subject tenant spaces. The SSDSs at the site use one (1) of the following two (2) fans:

- Model RP-265 – manufactured by Radon-Away of Ward Hill, MA
- Model HS-5000 – manufactured by Radon-Away of Ward Hill, MA

The SSDS installed at the site is designed to run continuously. No active interactions are necessary to maintain the system operation. No new tenants were identified during the monitoring period.

Quarterly system inspections were completed on October 30, 2023, and January 29, April 26, and July 23, 2024 to ensure that the system continues to operate as designed. Details regarding all quarterly system inspections completed during the monitoring period are summarized in the *Non-routine Maintenance Reports* submitted to the NYSDEC. A copy of the *Non-routine Maintenance Reports* including the site inspection forms are included in **Appendix B**.

During the January 29, 2024 O&M visit, one (1) of the SSDS fans, located at the Europa Pizza tenant space, was observed to be non-operational. Following the site inspection, the NYSDEC was contacted via email on January 29, 2024 to provide notification of the system status as required by the SMP. Email correspondence is included in **Appendix B**. Following a period of planned downtime for SVI sampling activities, GES removed and replaced the existing Radon-Away HS-5000 fan with an identical replacement on March 6, 2024. Upon departure from the site on March 6, 2024, GES confirmed operation of the SSDS and all restrictions listed under the institutional controls for the site were observed to be in compliance.

GES completed the annual site wide inspection of the site on October 11, 2024 during this monitoring period.

5.1 SSDS Monitoring Compliance

A SVI investigation was conducted to evaluate the ability of the remedy to perform as designed/expected. Following prolonged operation of the SSDS, SVI investigation activities were completed to assess if continued mitigation, via operation and maintenance of the SSDS, is warranted.

GES performed SVI investigation activities at the four (4) tenant spaces (#170, #174, #176, and #178 Route 52, Carmel, New York) on March 5, 2024 and June 17, 2024. The SVI investigations were completed in accordance with the December 22, 2023 *Soil Vapor Intrusion Work Plan*, approved by NYSDEC on January 10, 2024. The investigation activities were also completed in accordance with the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006, and Updates to Soil Vapor/Indoor Air Decision Matrices A through F, dated May 2017 and February 2024. The purpose of the SVI investigation activities was to assess the continue need for soil vapor intrusion mitigation measures at the four (4) tenant spaces (#170, #174, #176, and #178 Route 52, Carmel, New York) and determine through quantitative testing if site conditions meet the NYSDOH guidelines for "No Further Action", as recommended by the NYSDOH Soil Vapor Intrusion Decision Matrices A through F.

The SVI investigation activities completed in March 2024 and June 2024 are included in the *Soil Vapor Intrusion Investigation Summary* report submitted to the NYSDEC and NYSDOH on July 31, 2024. The SSDS was shut down on January 29, 2024 at all four (4) tenant spaces in preparation for the SVI investigation activities. SVI sampling was completed on March 5, 2024 and June 17, 2024. Sample locations are illustrated on the Sample Location Map included as **Figure 4**. The concentrations of constituents of concern in sub-slab and indoor air samples from the March 2024 and June 2024 SVI investigation activities are depicted on **Figure 5**.

For the March 2024 and June 2024 SVI sampling events, samples were submitted to SGS North America, Inc. of Dayton, New Jersey (SGS) and were analyzed for volatile organic compounds (VOCs) via Environmental Protection Agency (EPA) Methods VTO15NYLL and/or VTO15NYSVLL. Laboratory analytical results were compared to the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, section 3.4.2, Indoor Air Matrices A through F (May 2017 and February 2024). The March 2024 sampling event results were compared to the NYSDOH matrices with a recommendation of "No Further Action" in three (3) of the four (4) tenant spaces (170 Route 52, 176 Route 52 and 178 Route 52). However, testing results from tenant space 174 Route 52, Carmel, New York recommended "Identify Source(s) and Resample or Mitigate" due to concentrations of constituents-of-concern (COCs) in Matrix A, B, D, and E. Following the results, indoor air samples were collected at the tenant space at 174 Route 52, Carmel, New York on June 17, 2024. The indoor air sample results for the two (2) sample locations in the tenant space (IA-5 and IA-6) were not compared to the matrices since the samples were collected outside of the heating season, no sub-slab vapor samples were collected adjacent to the indoor air samples, and the SSDS was active at the time of sampling.

GES included recommendations in the July 2024 *Soil Vapor Intrusion Investigation Summary* for no further SVI testing at the three (3) tenant spaces (170 Route 52, 176 Route 52 and 178 Route 52) and one (1) additional SVI sampling event during the 2024/2025 heating season at the tenant space (174 Route 52) with the "Identify Source(s) and Resample or Mitigate" recommendation. The results of the SVI testing were communicated to the respective tenants electronically. Copies of the tenant notice letters are included in **Appendix B**.

On October 3, 2024, the NYSDEC responded to the July 2024 *Soil Vapor Intrusion Investigation Summary* report and requested additional sampling of all four (4) tenant spaces (170 Route 52,

174 Route 52, 176 Route 52, and 178 Route 52) during the 2024/2025 heating season. Additionally, the Department requested the SSDS be shut down for a period of 45-60 days prior to the SVI sampling event.

Regulatory correspondences are attached in **Appendix B**. SVI investigation analytical results are summarized in **Table 1** and **Table 2** for March 2024 and June 2024 SVI sampling data, respectively, and the comparison of analytical results to NYSDOH Indoor Air Matrices A through F is included as **Table 3** and **3A** for March 2024 SVI sampling data and **Table 4** and **4A** for June 2024 SVI sampling data.

6 Conclusions and Recommendations

6.1 SMP Compliance

During this monitoring period, all controls established by the SMP continue to be met. Institutional controls are in compliance and no major issues were identified during the monitoring period with the exception of the Radon-Away HS-5000 fan located at the Europa Pizza tenant space as noted in **Section 5.0** above. Engineering controls are also in compliance with the SSDS continuing to operate as designed.

6.2 Performance and Effectiveness of Remedy

The SSDS has functioned as required during this monitoring period, except as noted in **Section 5.0** above. Therefore, the negative pressure field mitigates the potential of residual concentrations of PCE beneath the concrete slab of the tenant spaces adjacent to the former dry cleaner space from impacting indoor air quality.

6.3 Site Closeout

In accordance with Section 6.5 of NYSDEC DER-10, site closeout may be initiated when soil vapor intrusion mitigation measures meet the most recent NYSDOH guidance. An SVI investigation was completed at the site in March and June 2024 to assess if soil vapor intrusion mitigation measures have met the NYSDOH guidelines for “No Further Action” as recommended by the NYSDOH Soil Vapor Intrusion Decision Matrices. Based on the sub-slab vapor and indoor air sampling results from March 2024, Identify Source(s) and Resample or Mitigate was the recommended action for the tenant space at 174 Route 52, Carmel, New York. Therefore, an additional SVI investigation will be completed prior to site closeout.

6.4 Recommendations

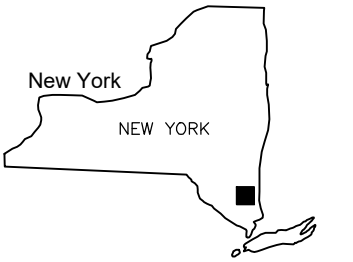
As requested by the NYSDEC in the October 3, 2024 letter, an additional SVI sampling event at all four (4) tenant spaces will be conducted during the 2024/2025 heating season. This event is currently scheduled on December 10, 2024. The SSDS were shut down in preparation for the SVI sampling event on October 11, 2024. The SVI sampling event will be completed in accordance with the December 22, 2023 *Soil Vapor Intrusion Work Plan*, approved by NYSDEC on January

10, 2024, and the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

Sub-slab and Indoor air sampling results from the 2024/2025 heating season will be compared to the NYSDOH Soil Vapor Intrusion Decision Matrices. If No Further Action is recommended based on the Matrices results, GES and Regency Centers would request approval from NYSDEC and NYSDOH for permanent shutdown of the SSDS components at the site.

Figures

Source:
USGS 7.5 Minute Series
Topographic Quadrangle, 1981
Lake Carmel, New York
Contour Interval = 10'



Quadrangle Location

Site Location Map

Regency Centers
Carmel Shop Rite Center
180 Gleneida Avemue
Carmel, New York

Drawn
M.H.
Designed
J.M.
Approved

Date
11/18/24
Figure
1

N

Scale In Feet
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GES
Groundwater & Environmental Services, Inc.

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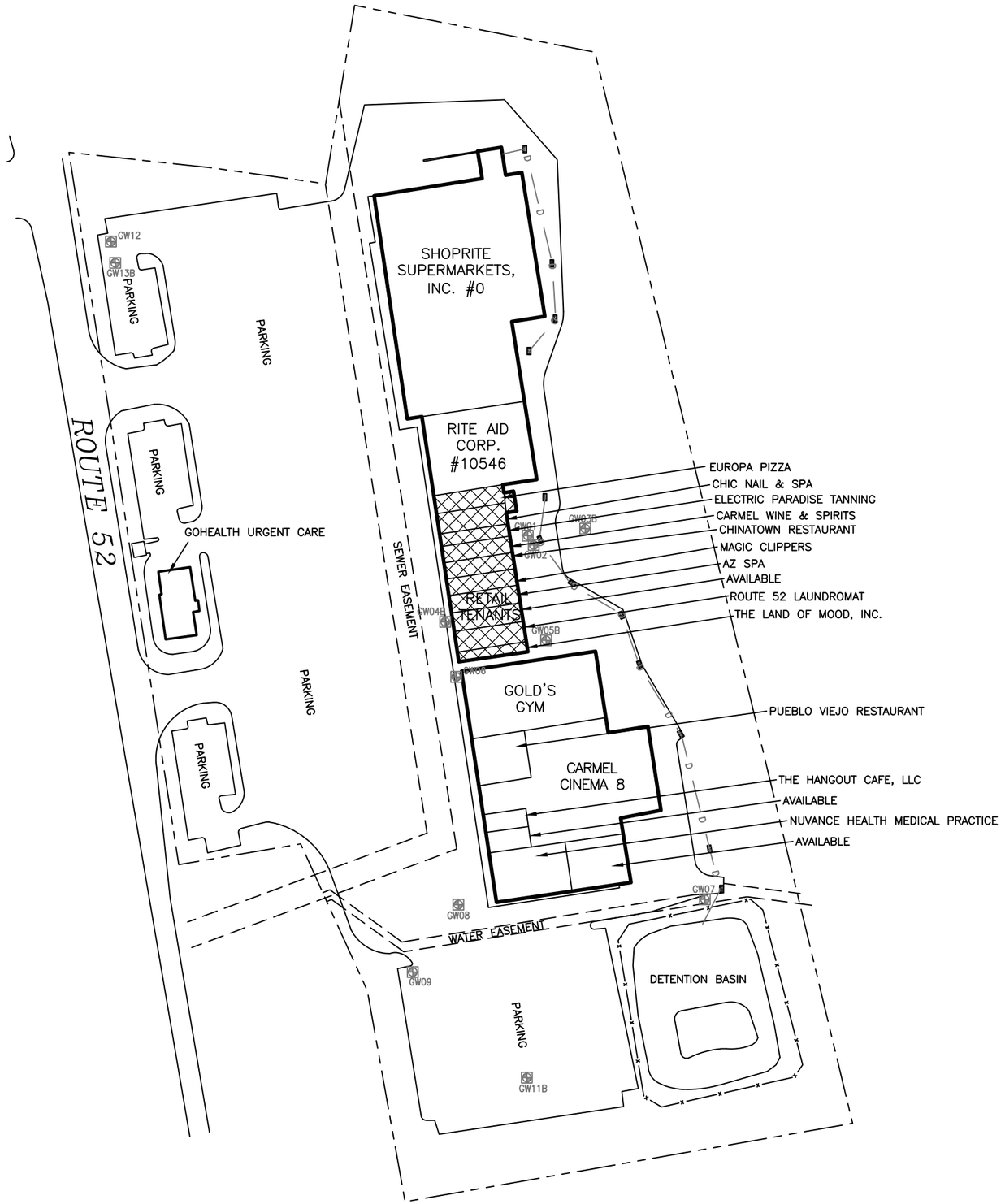

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CATCH BASIN
- UNDERGROUND DRAIN LINE
- DESTROYED/ABANDONED WELL
- SOIL MANAGEMENT AREA

Site Map

Regency Centers
Carmel Shop Rite Center
180 Gleneida Avemue
Carmel, New York

Drawn
M.R.H.
Designed
J.M.
Approved
M.D.

Date
11/18/2024
Figure
2

Scale In Feet
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Groundwater & Environmental Services, Inc.

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Sub-Slab Depressurization System Layout

Regency Centers
Carmel Shop Rite Center
180 Gleneida Avemue
Carmel, New York

Drawn
M.H.
Designed
J.M.
Approved
M.D.

Date
11/18/24
Figure
3

Scale In Feet
0 20

Groundwater & Environmental Services, Inc.

Sample Location Map

Regency Centers
Carmel Shop Rite Center
180 Gleneida Avemue
Carmel, New York

Drawn
M.H.
Designed
J.M.
Approved
M.D.

Date
11/18/24
Figure
4

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Groundwater & Environmental Services, Inc.

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RITE AID CORP.
#10546

EUROPA PIZZA

CHIC NAIL & SPA

ELECTRIC PARADISE TANNING

CARMEL WINE & SPIRITS

CHINATOWN RESTAURANT

MASIC CLIPPERS

AZ SPA

AVAILABLE

ROUTE 52 LAUNDROMAT

SS-1/1A-1 | SS-2/1A-2 | SS-3/1A-3 | SS-4/1A-4 | SS-5/1A-5 | SS-6/1A-6 | SS-7/1A-7 | SS-8/1A-8

OA-1 | OA-2

3/5/24	SS-1		IA-1	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	4.4	ND	0.44
1,1-DCE	ND	1.3	ND	0.13
CARBON TETRACHLORIDE	ND	2.0	0.51	0.20
c12-DCE	ND	1.3	ND	0.13
METHYLENE CHLORIDE	ND	5.6	0.94	0.56
PCE	8.1	2.2	ND	0.22
TCE	ND	1.7	ND	0.17
VC	ND	0.082	ND	0.082

3/5/24	SS-2		IA-2	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.55	ND	0.44
1,1-DCE	ND	0.16	ND	0.13
CARBON TETRACHLORIDE	ND	0.25	0.55	0.20
c12-DCE	ND	0.16	ND	0.13
METHYLENE CHLORIDE	0.97	0.69	1.6	0.56
PCE	5.6	0.27	ND	0.22
TCE	ND	0.21	ND	0.17
VC	ND	0.10	ND	0.082

3/5/24	SS-3		IA-3	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.55	ND	0.44
1,1-DCE	ND	0.16	ND	0.13
CARBON TETRACHLORIDE	ND	0.25	ND	0.20
c12-DCE	ND	0.16	ND	0.13
METHYLENE CHLORIDE	ND	0.69	0.69	0.56
PCE	11	0.27	ND	0.22
TCE	ND	0.21	ND	0.17
VC	ND	0.10	ND	0.082

3/5/24	SS-4		IA-4	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.60	ND	0.44
1,1-DCE	ND	0.18	ND	0.13
CARBON TETRACHLORIDE	ND	0.29	0.51	0.20
c12-DCE	ND	0.18	ND	0.13
METHYLENE CHLORIDE	1.6	0.80	1.1	0.56
PCE	6.3	0.31	ND	0.22
TCE	ND	0.25	ND	0.17
VC	ND	0.12	ND	0.082

3/5/24	SS-5		IA-5	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.55	ND	0.44
1,1-DCE	ND	0.16	ND	0.13
CARBON TETRACHLORIDE	ND	0.25	ND	0.20
c12-DCE	ND	0.16	1.2	0.13
METHYLENE CHLORIDE	0.83	0.69	ND	0.56
PCE	0.41	0.27	74.6	0.22
TCE	ND	0.21	60.7	0.17
VC	ND	0.10	ND	0.082

6/17/24	IA-5		IA-5 (Dup)	
	INDOOR AIR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.44	ND	0.44
1,1-DCE	ND	0.13	ND	0.13
CARBON TETRACHLORIDE	ND	0.20	ND	0.20
c12-DCE	ND	0.13	ND	0.13
METHYLENE CHLORIDE	1.0	0.56	1.6	0.56
PCE	ND	0.22	ND	0.22
TCE	ND	0.17	ND	0.17
VC	ND	0.082	ND	0.10

3/5/24	OA-1	
	OUTDOOR AIR	
	RESULT	MDL
1,1,1-TCA	ND	0.44
1,1-DCE	ND	0.13
CARBON TETRACHLORIDE	ND	0.20
c12-DCE	ND	0.13
METHYLENE CHLORIDE	ND	0.56
PCE	ND	0.22
TCE	ND	0.17
VC	ND	0.082

3/5/24	OA-2	
	OUTDOOR AIR	
	RESULT	MDL
1,1,1-TCA	ND	0.51
1,1-DCE	ND	0.15
CARBON TETRACHLORIDE	ND	0.23
c12-DCE	ND	0.15
METHYLENE CHLORIDE	0.83	0.66
PCE	ND	0.25
TCE	ND	0.20
VC	ND	0.095

3/5/24	SS-6		IA-6	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.55	ND	0.44
1,1-DCE	ND	0.16	ND	0.13
CARBON TETRACHLORIDE	ND	0.25	ND	0.20
c12-DCE	ND	0.16	ND	0.13
METHYLENE CHLORIDE	3.1	0.69	0.69	0.56
PCE	136	0.27	0.68	0.22
TCE	0.33	0.21	ND	0.17
VC	ND	0.10	ND	0.082

6/17/24	IA-6	
	INDOOR AIR	
	RESULT	MDL
1,1,1-TCA	ND	0.44
1,1-DCE	ND	0.13
CARBON TETRACHLORIDE	0.57	0.20
c12-DCE	ND	0.13
METHYLENE CHLORIDE	1.7	0.56
PCE	0.39	0.22
TCE	ND	0.17
VC	ND	0.082

3/5/24	SS-7		IA-7	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.55	ND	0.44
1,1-DCE	ND	0.16	ND	0.13
CARBON TETRACHLORIDE	ND	0.25	ND	0.20
c12-DCE	ND	0.16	0.33	0.13
METHYLENE CHLORIDE	0.69	0.69	1.5	0.56
PCE	1.1	0.27	0.22	0.22
TCE	ND	0.21	0.51	0.17
VC	ND	0.10	ND	0.082

3/5/24	SS-8		IA-8	
	SUB-SLAB VAPOR		INDOOR AIR	
	RESULT	MDL	RESULT	MDL
1,1,1-TCA	ND	0.55	ND	0.44
1,1-DCE	ND	0.16	ND	0.13
CARBON TETRACHLORIDE	ND	0.25	ND	0.20
c12-DCE	ND	0.16	ND	0.13
METHYLENE CHLORIDE	ND	0.69	0.76	0.56
PCE	5.3	0.27	0.38	0.22
TCE	ND	0.21	ND	0.17
VC	ND	0.10	ND	0.082

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CATCH BASIN
- UNDERGROUND DRAIN LINE
- SSDS SUCTION POINT
- OVERHEAD 3" PVC PIPING
- UNDERGROUND 6" PERFORATED PVC TRENCH
- HS-5000 FAN
- RP-265 FAN
- SUB-SLAB SAMPLING POINT
- OUTDOOR SAMPLING POINT

3/5/24	SAMPLE DATE
SS-1	SAMPLE ID
SUB-SLAB VAPOR	SAMPLE TYPE
µg/m3 RESULT MDL	(µg/m3) – RESULT – MDL
1,1,1-TCA ND 4.4	1,1,1-TRICHLOROETHANE CONCENTRATION (µg/m3)
1,1-DCE ND 1.3	1,1-DICHLOROETHENE CONCENTRATION (µg/m3)
CARBON TETRACHLORIDE ND 2.0	CARBON TETRACHLORIDE CONCENTRATION (µg/m3)
c12-DCE ND 1.3	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/m3)
METHYLENE CHLORIDE ND 5.6	METHYLENE CHLORIDE CONCENTRATION (µg/m3)
PCE 8.1 2.2	TETRACHLOROETHENE CONCENTRATION (µg/m3)
TCE ND 1.7	TRICHLOROETHENE CONCENTRATION (µg/m3)
VC ND 0.082	VINYL CHLORIDE CONCENTRATION (µg/m3)

µg/m3 MICROGRAMS PER CUBIC METER

MDL METHOD DETECTION LIMIT

ND NON-DETECT

Constituents of Concern Summary Map
March 2024 & June 2024

Regency Centers
Carmel Shop Rite Center
180 Gleneida Avemue
Carmel, New York

Drawn M.H.
Designed J.M.
Approved M.D.

Date 11/18/24
Figure 5

Scale In Feet
0 20

Groundwater & Environmental Services, Inc.

N:\Graphics\Graphics\1100-Patterson-LHV\Misc\Urstadt Biddle Properties\Carmel\Carmel SM.dwg, B20, 11/18/2024 9:54:49 AM, mhollister

Tables

Regency Centers Corp.
Carmel ShopRite Plaza
Carmel, New York

Table 1
Air Analytical Results
March 2024

Tenant Space Location	178 Route 52 – Europa Pizza				176 Route 52 – Carmel Nails					174 Route 52 – Electric Paradise Tanning				170 Route 52 – Chinatown Restaurant				Outdoors		Regulatory Guidance	
Client Sample ID:	IA-1	SS-1	IA-2	SS-2	IA-3	SS-3	IA-4	SS-4	SS-4 DUP	IA-5	SS-5	IA-6	SS-6	IA-7	SS-7	IA-8	SS-8	OA1	OA2	NYSDOH 2006 Soil Vapor Indoor 95th Percentile (1)	NYSDOH 2006 Soil Vapor Intrusion Air Guidance Value (2)
Lab Sample ID:	JD83930-2	JD83930-1	JD83930-4	JD83930-3	JD84099-3	JD84099-4	JD83931-1	JD84099-1	JD84099-2	JD83912-2	JD83912-1	JD83912-3	JD83912-4	JD83929-2	JD83929-1	JD83929-4	JD83929-3	JD84100-2	JD84100-1		
Date Sampled:	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024		
Matrix:	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	Soil Vapor	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	Ambient Air	Ambient Air		
Acetone (2-Propanone)	105	19	100	**189**	**1,130**	67.5	**1,020**	33	94.8	25.2	57.5	78.4	13	44.4	51.1	12	20	4.5	8.3	140	NS
1,3-Butadiene	0.58	ND<(3.5)	1.0	ND<(0.44)	ND<(0.35)	ND<(0.44)	ND<(0.35)	ND<(0.51)	ND<(0.51)	ND<(0.35)	ND<(0.44)	ND<(0.35)	ND<(0.44)	2.2	ND<(0.44)	ND<(0.35)	ND<(0.44)	ND<(0.35)	ND<(0.42)	NS	NS
Benzene	3.2	ND<(5.1)	7.7	4.2	0.86	4.8	1.2	2.1	2.2	2.7	1.7	2.0	2.3	4.2	3.5	1.5	1.4	ND<(0.51)	0.89	29	NS
Bromodichloromethane	ND<(0.54)	ND<(5.4)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.74)	ND<(0.74)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.62)	NS	NS
Bromoform	ND<(0.33)	ND<(3.3)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.48)	ND<(0.48)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.38)	NS	NS
Bromomethane	ND<(0.62)	ND<(6.2)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.89)	ND<(0.89)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.74)	0.9	NS
Bromoethene	ND<(0.70)	ND<(7.0)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(1.0)	ND<(1.0)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(0.83)	NS	NS
Benzyl Chloride	ND<(0.82)	ND<(8.2)	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(1.2)	ND<(1.2)	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(0.98)	NS	NS
Carbon disulfide	ND<(0.50)	ND<(5.0)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.72)	ND<(0.72)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.59)	NS	NS
Chlorobenzene	ND<(0.74)	ND<(7.4)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(1.1)	ND<(1.1)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.88)	<0.25	NS
Chloroethane	ND<(0.42)	ND<(4.2)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.61)	ND<(0.61)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.50)	0.6	NS
Chloroform	1.8	ND<(7.8)	2.9	ND<(0.98)	0.93	ND<(0.98)	1.8	ND<(1.1)	ND<(1.1)	ND<(0.78)	ND<(0.98)	2.0	ND<(0.98)	1.9	ND<(0.98)	ND<(0.78)	ND<(0.98)	ND<(0.78)	ND<(0.93)	4.6	NS
Chloromethane	1.4	ND<(3.3)	1.6	ND<(0.41)	1.1	ND<(0.41)	1.3	ND<(0.47)	ND<(0.47)	ND<(0.33)	1.5	1.4	ND<(0.41)	2.3	0.41	1.1	ND<(0.41)	1.2	1.2	5.2	NS
3-Chloropropene	ND<(0.50)	ND<(5.0)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.72)	ND<(0.72)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.59)	NS	NS
2-Chlorotoluene	ND<(0.83)	ND<(8.3)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(1.2)	ND<(1.2)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(0.98)	NS	NS
Carbon tetrachloride	0.51	ND<(2.0)	0.55	ND<(0.25)	ND<(0.20)	ND<(0.25)	0.51	ND<(0.29)	ND<(0.29)	ND<(0.20)	ND<(0.25)	ND<(0.20)	ND<(0.25)	ND<(0.20)	ND<(0.25)	ND<(0.20)	ND<(0.25)	ND<(0.20)	ND<(0.23)	1.1	NS
Cyclohexane	ND<(0.55)	ND<(5.5)	ND<(0.55)	1.8	ND<(0.55)	4.1	ND<(0.55)	1.4	1.3	1.2	ND<(0.69)	ND<(0.55)	0.72	ND<(0.55)	2.5	ND<(0.55)	0.76	ND<(0.55)	ND<(0.65)	19	NS
1,1-Dichloroethane	ND<(0.65)	ND<(6.5)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.93)	ND<(0.93)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.77)	<0.25	NS
1,1-Dichloroethylene	ND<(0.13)	ND<(1.3)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.18)	ND<(0.18)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.15)	0.7	NS
1,2-Dibromoethane (EDB)	ND<(0.61)	ND<(6.1)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.85)	ND<(0.85)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.71)	<0.25	NS
1,2-Dichloroethane	ND<(0.65) [a]	ND<(6.5)	ND<(0.65) [a]	ND<(0.81)	**0.69**	ND<(0.81)	**0.81** [a]	ND<(0.93)	ND<(0.93)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	ND<(0.65) [a]	ND<(0.81)	ND<(0.65) [a]	ND<(0.81)	ND<(0.65)	ND<(0.77)	<0.25	NS
1,2-Dichloropropane	ND<(0.74)	ND<(7.4)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(1.1)	ND<(1.1)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.88)	<0.25	NS
1,4-Dioxane	ND<(0.58)	ND<(5.8)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.83)	ND<(0.83)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.68)	NS	NS
Dichlorodifluoromethane	2.7	ND<(7.9)	2.9	11	1.7	2.2	2.7	1.8	1.8	1.1	1.3	1.1	1.2	3.0	4.3	2.5	2.3	1.5	1.6	26	NS
Dibromochloromethane	ND<(0.68)	ND<(6.8)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.94)	ND<(0.94)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.79)	NS	NS
trans-1,2-Dichloroethylene	ND<(0.63)	ND<(6.3)	ND<(0.63)	ND<(0.79)	ND<(0.63)	ND<(0.79)	ND<(0.63)	ND<(0.91)	ND<(0.91)	1.2	ND<(0.79)	ND<(0.63)	ND<(0.79)	0.95	ND<(0.79)	ND<(0.63)	ND<(0.79)	ND<(0.63)	ND<(0.75)	NS	NS
cis-1,2-Dichloroethylene	ND<(0.13)	ND<(1.3)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.18)	ND<(0.18)	**1.2**	ND<(0.16)	ND<(0.13)	ND<(0.16)	0.33	ND<(0.16)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.15)	1.2	NS
cis-1,3-Dichloropropene	ND<(0.73)	ND<(7.3)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(1.0)	ND<(1.0)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.86)	<0.25	NS
m-Dichlorobenzene	ND<(0.48)	ND<(4.8)	ND<(0.48)	ND<(0.60)	ND<(0.48)	**1.1**	ND<(0.48)	**1.1**	**1.1**	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.56)	0.9	NS
o-Dichlorobenzene	ND<(0.19)	ND<(1.9)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.28)	ND<(0.28)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.22)	1	NS
p-Dichlorobenzene	ND<(0.48)	ND<(4.8)	ND<(0.48)	ND<(0.60)	1.6	ND<(0.60)	2.5	ND<(0.66)	ND<(0.66)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.56)	2.6	NS
trans-1,3-Dichloropropene	ND<(0.73)	ND<(7.3)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(1.0)	ND<(1.0)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.86)	<0.25	NS
Ethanol	1350 E	93.6	1580 E	258	1,000	292 E	610	134 E	188 E	177 E	1,920 E	1,120 E	84.6	1,740 E	556 E	335 E	52.8	27.1	28.8	NS	NS
Ethylbenzene	ND<(0.69)	**15**	ND<(0.69)	**29**	ND<(0.69)	**26**	ND<(0.69)	**17**	**16**	**24**	ND<(0.87)	ND<(0.69)	12	ND<(0.69)	6.5	ND<(0.69)	6.1	ND<(0.69)	ND<(0.83)	13	NS
Ethyl Acetate	27	18	48.2	9.4	134	41.8	99.7	13	17	9.7	20	17	6.5	12	11	21	12	6.5	4.7	NS	NS
4-Ethyltoluene	ND<(0.79)	ND<(7.9)	ND<(0.79)	16	ND<(0.79)	13	ND<(0.79)	9.8	8.8	16	ND<(0.98)	ND<(0.79)	5.4	ND<(0.79)	4.2	ND<(0.79)	3.3	ND<(0.79)	ND<(0.93)	NS	NS
Freon 113	ND<(0.61)	ND<(6.1)	0.67	ND<(0.77)	ND<(0.61)	ND<(0.77)	0.63	ND<(0.84)	ND<(0.84)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	0.67	ND<(0.77)	0.61	ND<(0.77)	ND<(0.61)	ND<(0.71)	NS	NS
Freon 114	ND<(0.56)	ND<(5.6)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.77)	ND<(0.77)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.65)	NS	NS
Heptane	2.4	ND<(6.6)	4.5	11	8.2	14	5.7	7.0	7.0	7.4	1.2	1.7	2.6	1.6	4.5	1.1	3.2	1.1	0.82	NS	NS
Hexachlorobutadiene	ND<(0.77)	ND<(7.7)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(1.1)	ND<(1.1)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(0.89)	11	NS
Hexane	0.92	6.7	1.4	7.0	ND<(0.56)	9.9	0.81	4.6	4.2	4.6	0.99	0.92	5.3	3.2	6.3	0.63	2.7	ND<(0.56)	0.74	NS	NS
2-Hexanone	ND<(0.65)	ND<(6.5)	ND<(0.65)	7.8	ND<(0.65)	4.5	ND<(0.65)	3.8	4.1	4.9	ND<(0.82)	ND<(0.65)	ND<(0.82)	ND<(0.65)	ND<(0.82)	ND<(0.65)	1.1	ND<(0.65)	ND<(0.78)	NS	NS
Isopropyl Alcohol	103	12	275 E	17	69.6	11	90.9	7.9	13	9.6	116	172 E	8.8	83.1	28.5	70.1	9.1	8.4	3.7	NS	NS
Methylene chloride	0.94	ND<(5.6)	1.6	0.97	0.69	ND<(0.69)	1.1	1.6	ND<(0.80)	ND<(0.56)	0.83	0.69	3.1	1.5	0.69	0.76	ND<(0.69)	ND<(0.56)	0.83	45	60
Methyl ethyl ketone	1.7	ND<(4.7)	2.2	21	1.0	29.8	1.2	17	17	9.4	1.2	1.2	5.3	2.9	19	0.83	16	0.56	ND<(0.56)	39	NS
Methyl Isobutyl Ketone	ND<(0.66)	ND<(6.6)	ND<(0.66)	ND<(0.82)	ND<(0.66)	1.8	ND<(0.66)	0.94	ND<(0.94)	ND<(0.66)	ND<(0.82)	ND<(0.66)	ND<(0.82)	ND<(0.66)	ND<(0.82)	ND<(0.66)	ND<(0.82)	ND<(0.66)	ND<(0.78)	5.3	NS
Methyl Tert Butyl Ether	ND<(0.58)	ND<(5.8)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.83)	ND<(0.83)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.69)	71	NS
Methylmethacrylate	**7.0**	ND<(6.6)	**6.6**	**1.7**	**63.1**	**11**	**52.4**	**5.3**	**8.2**	ND<(0.66)	**1.7**	**2.7**	ND<(0.82)	ND<(0.66)	0.94	ND<(0.66)	ND<(0.82)	ND<(0.66)	ND<(0.78)	1.1	NS
Naphthalene	ND<(0.84)	ND<(8.4)	ND<(0.84)	2.4	ND<(0.84)	ND<(1.0)	ND<(0.84)	1.8	1.6	3.9	ND<(1.0)	ND<(0.84)	ND<(1.0)	ND<(0.84)	ND<(1.0)	ND<(0.84)	1.6	ND<(0.84)	ND<(1.0)	NS	NS
Propylene	ND<(0.69)	ND<(6.9)	ND<(0.69)	1.3	ND<(0.69)	ND<(0.86)	ND<(0.69)	ND<(0.98)	ND<(0.98)	ND<(0.69)	ND<(0.86)	ND<(0.69)	ND<(0.86)	ND<(0.69)	ND<(0.86)	ND<(0.69)	ND<(0.86)	ND<(0.69)	ND<(0.79)	NS	NS
Styrene	ND<(0.68)	ND<(6.8)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.98)	ND<(0.98)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.81)	2.3	NS
1,1,1-Trichloroethane	ND<(0.44)	ND<(4.4)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.60)	ND<(0.60)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.51)	6.9	NS
1,1,2,2-Tetrachloroethane	ND<(0.55)	ND<(5.5)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.76)	ND<(0.76)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.64)	<0.25	NS
1,1,2-Trichloroethane	ND<(0.44)	ND<(4.4)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.60)	ND<(0.60)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.51)	<0.25	NS
1,2,4-Trichlorobenzene	ND<(0.59)	ND<(5.9)	ND<(0.59)	ND<(0.74)	ND<(0.59)	ND<(0.74)	ND<(0.59)	ND<(0.82)	ND<(0.82)	ND<(0.59)	ND<(0.74) [a]	ND<(0.59)	ND<(0.74)	ND<(0.59)	ND<(0.74)	ND<(0.59)	ND<(0.74)	ND<(0.59)	ND<(0.69)	6.3	NS
1,2,4-Trimethylbenzene	ND<(0.79)	13	ND<(0.79)	**61.4**	ND<(0.79)	**49.2**	0.79	**38**	**35**	**66.9**	ND<(0.98)	ND<(0.79)	16	ND<(0.79)	**19**	ND<(0.79)	16	ND<(0.79)	ND<(0.93)	18	NS
1,3,5-Trimethylbenzene	ND<(0.79)	ND<(7.9)	ND<(0.79)	**15**	ND<(0.79)	**12**	ND<(0.79)	**8.8**	**7.9**	**16**	ND<(0.98)	ND<(0.79)	4.1	ND<(0.79)	4.8	ND<(0.79)	3.7	ND<(0.79)	ND<(0.93)	6.5	NS
2,2,4-Trimethylpentane	ND<(0.75)	ND<(7.5)	ND<(0.75)	5.6	ND<(0.75)	12	ND<(0.75)	4.2	4.1	4.1	ND<(0.93)	ND<(0.75)	3.0	ND<(0.75)	10	ND<(0.75)	3.0	ND<(0.75)	ND<(0.89)	NS	NS
Tertiary Butyl Alcohol	ND<(0.49)	ND<(4.9)	1.3	9.4	0.91	7.0	1.1	3.3	3.3	0.94	5.2	2.4	2.8	0.70	5.2	ND<(0.49)	0.79	ND<(0.49)	ND<(0.58)	NS	NS
Tetrachloroethylene	ND<(0.22)	***8.1***	ND<(0.22)	***5.6***	ND<(0.22)	***11***	ND<(0.22)	***6.3***	***6.0***	***74.6***	0.41	0.68	***136***	0.22	1.1	0.38	***5.3***	ND<(0.22)	ND<(0.25)	4.1	5
Tetrahydrofuran	ND<(0.47)	**14**	ND<(0.47)	**23**	ND<(0.47)	**19**	ND<(0.47)	**13**	**12**	**17**	ND<(0.59)	ND<(0.47)	**20**	1.8	**39.8**	ND<(0.47)	**31**	ND<(0.47)	ND<(0.56)	9.4	NS
Toluene	2.1	39.6	2.4	47.9	7.5	64.1	6.4	32	32	38.4	1.5	1.5	24	ND<(0.60)	8.7	0.83	11	ND<(0.60)	0.72	110	NS
Trichloroethylene	ND<(0.17)	ND<(1.7)	ND<(0.17)	ND<(0.21)	ND<(0.17)	ND<(0.21)	ND<(0.17)	ND<(0.25)	ND<(0.25)	***60.7***	ND<(0.21)	ND<(0.17)	0.33	0.51	ND<(0.21)	ND<(0.17)	ND<(0.21)	ND<(0.17)	ND<(0.20)	0.8	2
Trichlorofluoromethane	3.4	**1,250**	4.1	**364**	3.1	**215**	3.7	2.8	2.9	11	2.1	2.0	**48**	2.8	**140**	1.8	**53**	1.0	1.1	30	NS
Vinyl chloride	ND<(0.082)	ND<(0.82)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.12)	ND<(0.12)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.095)	<0.25	NS
Vinyl Acetate	3.3	ND<(5.6)	3.9	ND<(0.70)	ND<(0.56)	ND<(0.70)	1.3	ND<(0.81)	ND<(0.81)	ND<(0.56)	1.0	1.1	ND<(0.70)	ND<(0.56)	ND<(0.70)	1.8	ND<(0.70)	ND<(0.56)	ND<(0.67)	NS	NS
m,p-Xylene	0.83	**45.6**	0.83	**93**	0.74	**83**	1.1	**54.7**	**50.8**	**80.8**	ND<(0.87)	ND<(0.69)	**39**	ND<(0.69)	19	ND<(0.69)	17	ND<(0.69)	ND<(0.83)	21	NS
o-Xylene	ND<(0.69)	**14**	ND<(0.69)	**40**	ND<(0.69)	**33**	ND<(0.69)	**23**	**21**	**35**	ND<(0.87)	ND<(0.69)	**15**	ND<(0.69)	10	ND<(0.69)	8.7	ND<(0.69)	ND<(0.83)	13	NS
Xylenes (total)	0.83	59.6	1.2	133	0.74	116	1.5	77.7	71.8	116	ND<(0.87)	ND<(0.69)	54	ND<(0.69)	29	ND<(0.69)	26	ND<(0.69)	ND<(0.83)	NS	NS

Notes:
Results and Regulatory Guidance values are expressed in µg/m^3.
- = Not analyzed for that specific compound
µg/m^3 = micrograms per cubic meter
a = Result is from Run #2
E = Indicates value exceeds calibration range
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit. Concentration is an approximate value.
ND (ND<#) = Not detected. Concentration is less than the laboratory reporting limit.
NS = No Standard
NYSDOH = New York State Department of Health
BOLD = Results exceed NYSDOH 2006 Soil Vapor Indoor Upper Fence (1) standard
ITALIC = Results exceed NYSDOH 2006 Soil Vapor Intrusion Air Guidance Value (2) standard
BOLD or *ITALIC* indicators in the Regulatory Guidance columns indicate that at least one historic exceedance was observed.
(1) Upper fence indoor air values from "Table C1. NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes"
published in the NYSDOH Soil Vapor Intrusion Guidance Document, Appendix C" (October 2006, revised September 2013 and August 2015)
(2) NYSDOH Air Guideline Values (AGVs) from "Table 3.1 Air guideline values derived by the NYSDOH" presented in the Final Guidance for evaluating
Soil Vapor Intrusion in the State of New York, dated October 2006 ("NYSDOH Vapor Intrusion Guidance Document")

Table 2
Air Analytical Results - Electric Paradise Tanning
March and July 2024

Tenant Space Location	174 Route 52 – Electric Paradise Tanning							Regulatory Guidance	
Sampling Event	Resampling Event			Previous Event					
Client Sample ID:	IA-5	IA-6	DUP	IA-5	SS-5	IA-6	SS-6	NYSDOH 2006	NYSDOH 2006
Lab Sample ID:	JD90667-1	JD90667-2	JD90667-3	JD83912-2	JD83912-1	JD83912-3	JD83912-4	Soil Vapor Indoor	Soil Vapor Intrusion
Date Sampled:	6/17/2024	6/17/2024	6/17/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	95th Percentile	Air Guidance Value
Matrix:	Indoor Air	Soil Vapor	Indoor Air	Indoor Air	Soil Vapor	Indoor Air	Soil Vapor	(1)	(2)
Acetone (2-Propanone)	**499**	**601**	**527**	25.2	57.5	78.4	13	140	NS
1,3-Butadiene	ND (0.35)	ND (0.35)	ND (0.35)	ND<(0.35)	ND<(0.44)	ND<(0.35)	ND<(0.44)	NS	NS
Benzene	ND (0.51)	ND (0.51)	ND (0.51)	2.7	1.7	2.0	2.3	29	NS
Bromodichloromethane	ND (0.54)	ND (0.54)	ND (0.54)	ND<(0.54)	ND<(0.67)	ND<(0.54)	ND<(0.67)	NS	NS
Bromoform	ND (0.33)	ND (0.33)	ND (0.33)	ND<(0.33)	ND<(0.41)	ND<(0.33)	ND<(0.41)	NS	NS
Bromomethane	ND (0.62)	ND (0.62)	ND (0.62)	ND<(0.62)	ND<(0.78)	ND<(0.62)	ND<(0.78)	0.9	NS
Bromoethene	ND (0.70)	ND (0.70)	ND (0.70)	ND<(0.70)	ND<(0.87)	ND<(0.70)	ND<(0.87)	NS	NS
Benzyl Chloride	ND (0.82) [a]	ND (0.82) [a]	ND (0.82) [a]	ND<(0.82)	ND<(1.0)	ND<(0.82)	ND<(1.0)	NS	NS
Carbon disulfide	ND (0.50)	ND (0.50)	ND (0.50)	ND<(0.50)	ND<(0.62)	ND<(0.50)	ND<(0.62)	NS	NS
Chlorobenzene	ND (0.74)	ND (0.74)	ND (0.74)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	<0.25	NS
Chloroethane	ND (0.42)	ND (0.42)	ND (0.42)	ND<(0.42)	ND<(0.53)	ND<(0.42)	ND<(0.53)	0.6	NS
Chloroform	1.4	2.9	1.4	ND<(0.78)	ND<(0.98)	2.0	ND<(0.98)	4.6	NS
Chloromethane	1.0	1.0	1.1	ND<(0.33)	1.5	1.4	ND<(0.41)	5.2	NS
3-Chloropropene	ND (0.50)	ND (0.50)	ND (0.50)	ND<(0.50)	ND<(0.63)	ND<(0.50)	ND<(0.63)	NS	NS
2-Chlorotoluene	ND (0.83)	ND (0.83)	ND (0.83)	ND<(0.83)	ND<(1.0)	ND<(0.83)	ND<(1.0)	NS	NS
Carbon tetrachloride	ND (0.20)	0.57	ND (0.20)	ND<(0.20)	ND<(0.25)	ND<(0.20)	ND<(0.25)	1.1	NS
Cyclohexane	ND (0.55)	ND (0.55)	ND (0.55)	1.2	ND<(0.69)	ND<(0.55)	0.72	19	NS
1,1-Dichloroethane	ND (0.65)	ND (0.65)	ND (0.65)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	<0.25	NS
1,1-Dichloroethylene	ND (0.13)	ND (0.13)	ND (0.13)	ND<(0.13)	ND<(0.16)	ND<(0.13)	ND<(0.16)	0.7	NS
1,2-Dibromoethane (EDB)	ND (0.61)	ND (0.61)	ND (0.61)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	<0.25	NS
1,2-Dichloroethane	ND (0.65)	ND (0.65)	ND (0.65)	ND<(0.65)	ND<(0.81)	ND<(0.65)	ND<(0.81)	<0.25	NS
1,2-Dichloropropane	ND (0.74)	ND (0.74)	ND (0.74)	ND<(0.74)	ND<(0.92)	ND<(0.74)	ND<(0.92)	<0.25	NS
1,4-Dioxane	ND (0.58)	ND (0.58)	ND (0.58)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	NS	NS
Dichlorodifluoromethane	1.4	1.6	1.6	1.1	1.3	1.1	1.2	26	NS
Dibromochloromethane	ND (0.68)	ND (0.68)	ND (0.68)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	NS	NS
trans-1,2-Dichloroethylene	ND (0.63)	ND (0.63)	ND (0.63)	1.2	ND<(0.79)	ND<(0.63)	ND<(0.79)	NS	NS
cis-1,2-Dichloroethylene	ND (0.13)	ND (0.13)	ND (0.13)	**1.2**	ND<(0.16)	ND<(0.13)	ND<(0.16)	1.2	NS
cis-1,3-Dichloropropene	ND (0.73)	ND (0.73)	ND (0.73)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	<0.25	NS
m-Dichlorobenzene	ND (0.48)	ND (0.48)	ND (0.48)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	0.9	NS
o-Dichlorobenzene	ND (0.19)	ND (0.19)	ND (0.19)	ND<(0.19)	ND<(0.24)	ND<(0.19)	ND<(0.24)	1	NS
p-Dichlorobenzene	ND (0.48)	ND (0.48)	ND (0.48)	ND<(0.48)	ND<(0.60)	ND<(0.48)	ND<(0.60)	2.6	NS
trans-1,3-Dichloropropene	ND (0.73)	ND (0.73)	ND (0.73)	ND<(0.73)	ND<(0.91)	ND<(0.73)	ND<(0.91)	<0.25	NS
Ethanol	1,750 E	1,530 E	1,820 E	177 E	1,920 E	1,120 E	84.6	NS	NS
Ethylbenzene	ND (0.69)	ND (0.69)	ND (0.69)	**24**	ND<(0.87)	ND<(0.69)	12	13	NS
Ethyl Acetate	22	25	22	9.7	20	17	6.5	NS	NS
4-Ethyltoluene	ND (0.79)	ND (0.79)	ND (0.79)	16	ND<(0.98)	ND<(0.79)	5.4	NS	NS
Freon 113	ND (0.61)	ND (0.61)	ND (0.61)	ND<(0.61)	ND<(0.77)	ND<(0.61)	ND<(0.77)	NS	NS
Freon 114	ND (0.56)	ND (0.56)	ND (0.56)	ND<(0.56)	ND<(0.70)	ND<(0.56)	ND<(0.70)	NS	NS
Heptane	ND (0.66)	ND (0.66)	ND (0.66)	7.4	1.2	1.7	2.6	NS	NS
Hexachlorobutadiene	ND (0.77)	ND (0.77)	ND (0.77)	ND<(0.77)	ND<(0.96)	ND<(0.77)	ND<(0.96)	11	NS
Hexane	0.81	1.1	1.1	4.6	0.99	0.92	5.3	NS	NS
2-Hexanone	ND (0.65)	ND (0.65)	ND (0.65)	4.9	ND<(0.82)	ND<(0.65)	ND<(0.82)	NS	NS
Isopropyl Alcohol	67.1	63.4	67.4	9.6	116	172 E	8.8	NS	NS
Methylene chloride	1	1.7	1.6	ND<(0.56)	0.83	0.69	3.1	45	60
Methyl ethyl ketone	2.1	2.4	2.1	9.4	1.2	1.2	5.3	39	NS
Methyl Isobutyl Ketone	ND (0.66)	ND (0.66)	ND (0.66)	ND<(0.66)	ND<(0.82)	ND<(0.66)	ND<(0.82)	5.3	NS
Methyl Tert Butyl Ether	ND (0.58)	ND (0.58)	ND (0.58)	ND<(0.58)	ND<(0.72)	ND<(0.58)	ND<(0.72)	71	NS
Methylmethacrylate	**10**	**9.4**	**11**	ND<(0.66)	**1.7**	**2.7**	ND<(0.82)	1.1	NS
Naphthalene	ND (0.84)	ND (0.84)	ND (0.84)	3.9	ND<(1.0)	ND<(0.84)	ND<(1.0)	NS	NS
Propylene	ND (0.69)	ND (0.69)	ND (0.69)	ND<(0.69)	ND<(0.86)	ND<(0.69)	ND<(0.86)	NS	NS
Styrene	ND (0.68)	ND (0.68)	ND (0.68)	ND<(0.68)	ND<(0.85)	ND<(0.68)	ND<(0.85)	2.3	NS
1,1,1-Trichloroethane	ND (0.44)	ND (0.44)	ND (0.44)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	6.9	NS
1,1,2,2-Tetrachloroethane	ND (0.55)	ND (0.55)	ND (0.55)	ND<(0.55)	ND<(0.69)	ND<(0.55)	ND<(0.69)	<0.25	NS
1,1,2-Trichloroethane	ND (0.44)	ND (0.44)	ND (0.44)	ND<(0.44)	ND<(0.55)	ND<(0.44)	ND<(0.55)	<0.25	NS
1,2,4-Trichlorobenzene	ND (0.59)	ND (0.59)	ND (0.59)	ND<(0.59)	ND<(0.74) [a]	ND<(0.59)	ND<(0.74)	6.3	NS
1,2,4-Trimethylbenzene	ND (0.79)	ND (0.79)	ND (0.79)	**66.9**	ND<(0.98)	ND<(0.79)	16	18	NS
1,3,5-Trimethylbenzene	ND (0.79)	ND (0.79)	ND (0.79)	**16**	ND<(0.98)	ND<(0.79)	4.1	6.5	NS
2,2,4-Trimethylpentane	ND (0.75)	ND (0.75)	ND (0.75)	4.1	ND<(0.93)	ND<(0.75)	3.0	NS	NS
Tertiary Butyl Alcohol	3.3	3.3	3.3	0.94	5.2	2.4	2.8	NS	NS
Tetrachloroethylene	ND (0.22)	0.39	ND (0.22)	***74.6***	0.41	0.68	***136***	4.1	5
Tetrahydrofuran	ND (0.47)	ND (0.47)	ND (0.47)	**17**	ND<(0.59)	ND<(0.47)	**20**	9.4	NS
Toluene	1.1	1.3	1.1	38.4	1.5	1.5	24	110	NS
Trichloroethylene	ND (0.17)	ND (0.17)	ND (0.17)	***60.7***	ND<(0.21)	ND<(0.17)	0.33	0.8	2
Trichlorofluoromethane	1.3	1.3	1.4	11	2.1	2.0	**48**	30	NS
Vinyl chloride	ND (0.082)	ND (0.082)	ND (0.082)	ND<(0.082)	ND<(0.10)	ND<(0.082)	ND<(0.10)	<0.25	NS
Vinyl Acetate	1.0	1.2	1.1	ND<(0.56)	1.0	1.1	ND<(0.70)	NS	NS
m,p-Xylene	ND (0.69)	ND (0.69)	ND (0.69)	**80.8**	ND<(0.87)	ND<(0.69)	**39**	21	NS
o-Xylene	ND (0.69)	ND (0.69)	ND (0.69)	**35**	ND<(0.87)	ND<(0.69)	**15**	13	NS
Xylenes (total)	ND (0.69)	ND (0.69)	ND (0.69)	116	ND<(0.87)	ND<(0.69)	54	NS	NS

Notes:
Results and Regulatory Guidance values are expressed in µg/m^3.
- = Not analyzed for that specific compound
µg/m^3 = micrograms per cubic meter
a = Result is from Run #2
E = Indicates value exceeds calibration range
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit. Concentration is an approximate value.
ND (ND<#) = Not detected. Concentration is less than the laboratory reporting limit.
NS = No Standard
NYSDOH = New York State Department of Health
BOLD = Results exceed NYSDOH 2006 Soil Vapor Indoor Upper Fence (1) standard
ITALIC = Results exceed NYSDOH 2006 Soil Vapor Intrusion Air Guidance Value (2) standard
BOLD or *ITALIC* indicators in the Regulatory Guidance columns indicate that at least one historic exceedance was observed.
(1) Upper fence indoor air values from "Table C1. NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes" published in the NYSDOH Soil Vapor Intrusion Guidance Document, Appendix C" (October 2006, revised September 2013 and August 2015)
(2) NYSDOH Air Guideline Values (AGVs) from "Table 3.1 Air guideline values derived by the NYSDOH" presented in the Final Guidance for evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 ("NYSDOH Vapor Intrusion Guidance Document")

Table 3
Constituents of Concern Summary Comparison
March 2024 (Matrices A, B and C)

Sample ID 178 Route 52 Europa Pizza	SS-1 Sub-Slab Vapor		IA-1 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	4.4	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	1.3	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	2.0	0.51	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	1.3	ND	0.13	NFA
METHYLENE CHLORIDE	ND	5.6	0.94	0.56	NFA
TETRACHLOROETHENE (PCE)	8.1	2.2	ND	0.22	NFA
TRICHLOROETHENE (TCE)	ND	1.7	ND	0.17	NFA
VINYL CHLORIDE	ND	0.082	ND	0.082	NFA

Sample ID 178 Route 52 Europa Pizza	SS-2 Sub-Slab Vapor		IA-2 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.55	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.16	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.25	0.55	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.16	ND	0.13	NFA
METHYLENE CHLORIDE	0.97	0.69	1.6	0.56	NFA
TETRACHLOROETHENE (PCE)	5.6	0.27	ND	0.22	NFA
TRICHLOROETHENE (TCE)	ND	0.21	ND	0.17	NFA
VINYL CHLORIDE	ND	0.10	ND	0.082	NFA

Sample ID 176 Route 52 Carmel Nails	SS-3 Sub-Slab Vapor		IA-3 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.55	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.16	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.25	ND	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.16	ND	0.13	NFA
METHYLENE CHLORIDE	ND	0.69	0.69	0.56	NFA
TETRACHLOROETHENE (PCE)	11	0.27	ND	0.22	NFA
TRICHLOROETHENE (TCE)	ND	0.21	ND	0.17	NFA
VINYL CHLORIDE	ND	0.10	ND	0.082	NFA

Matrix A
Matrix B
Matrix C
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3
Constituents of Concern Summary Comparison
March 2024 (Matrices A, B and C)

Sample ID 176 Route 52 Carmel Nails	SS-4 Sub-Slab Vapor		IA-4 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.60	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.18	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.29	0.51	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.18	ND	0.13	NFA
METHYLENE CHLORIDE	1.6	0.80	1.1	0.56	NFA
TETRACHLOROETHENE (PCE)	6.3	0.31	ND	0.22	NFA
TRICHLOROETHENE (TCE)	ND	0.25	ND	0.17	NFA
VINYL CHLORIDE	ND	0.12	ND	0.082	NFA

Sample ID 176 Route 52 Carmel Nails	SS-4 (DUP) Sub-Slab Vapor		IA-4 (DUP)* Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.60	--	--	--
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.18	--	--	--
CARBON TETRACHLORIDE	ND	0.29	--	--	--
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.18	--	--	--
METHYLENE CHLORIDE	ND	0.80	--	--	--
TETRACHLOROETHENE (PCE)	6.0	0.31	--	--	--
TRICHLOROETHENE (TCE)	ND	0.25	--	--	--
VINYL CHLORIDE	ND	0.12	--	--	--

Sample ID 174 Route 52 Electric Paradise	SS-5 Sub-Slab Vapor		IA-5 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.55	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.16	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.25	ND	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.16	1.2	0.13	IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
METHYLENE CHLORIDE	0.83	0.69	ND	0.56	NFA
TETRACHLOROETHENE (PCE)	0.41	0.27	74.6	0.22	IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
TRICHLOROETHENE (TCE)	ND	0.21	60.7	0.17	IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
VINYL CHLORIDE	ND	0.10	ND	0.082	NFA

* IA-4 Dup data was not analyzed

Matrix A
Matrix B
Matrix C
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3
Constituents of Concern Summary Comparison
March 2024 (Matrices A, B and C)

Sample ID 174 Route 52 Electric Paradise	SS-6 Sub-Slab Vapor		IA-6 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.55	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.16	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.25	ND	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.16	ND	0.13	NFA
METHYLENE CHLORIDE	3.1	0.69	0.69	0.56	NFA
TETRACHLOROETHENE (PCE)	136	0.27	0.68	0.22	NFA
TRICHLOROETHENE (TCE)	0.33	0.21	ND	0.17	NFA
VINYL CHLORIDE	ND	0.10	ND	0.082	NFA

Sample ID 170 Route 52 Chinatown	SS-7 Sub-Slab Vapor		IA-7 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.55	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.16	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.25	ND	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.16	0.33	0.13	NFA
METHYLENE CHLORIDE	0.69	0.69	1.5	0.56	NFA
TETRACHLOROETHENE (PCE)	1.1	0.27	0.22	0.22	NFA
TRICHLOROETHENE (TCE)	ND	0.21	0.51	0.17	NFA
VINYL CHLORIDE	ND	0.10	ND	0.082	NFA

Sample ID 170 Route 52 Chinatown	SS-8 Sub-Slab Vapor		IA-8 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.55	ND	0.44	NFA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.16	ND	0.13	NFA
CARBON TETRACHLORIDE	ND	0.25	ND	0.20	NFA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.16	ND	0.13	NFA
METHYLENE CHLORIDE	ND	0.69	0.76	0.56	NFA
TETRACHLOROETHENE (PCE)	5.3	0.27	0.38	0.22	NFA
TRICHLOROETHENE (TCE)	ND	0.21	ND	0.17	NFA
VINYL CHLORIDE	ND	0.10	ND	0.082	NFA

Matrix A
Matrix B
Matrix C
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3
Constituents of Concern Summary Comparison
March 2024 (Matrices A, B and C)

Sample ID	OA1 Outdoor Air		OA2 Outdoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.44	ND	0.51	NA
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.13	ND	0.15	NA
CARBON TETRACHLORIDE	ND	0.20	ND	0.23	NA
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.13	ND	0.15	NA
METHYLENE CHLORIDE	ND	0.56	0.83	0.66	NA
TETRACHLOROETHENE (PCE)	ND	0.22	ND	0.25	NA
TRICHLOROETHENE (TCE)	ND	0.17	ND	0.20	NA
VINYL CHLORIDE	ND	0.082	ND	0.095	NA

Matrix A
Matrix B
Matrix C
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3A
Constituents of Concern Summary Comparison
March 2024 (Matrices D, E and F)

Sample ID 178 Route 52 Europa Pizza	SS-1 Sub-Slab Vapor		IA-1 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	ND	5.1	3.2	0.51	NFA
CYCLOHEXANE	ND	5.5	ND	0.55	NFA
ETHYLBENZENE	15	6.9	ND	0.69	NFA
HEPTANE	ND	6.6	2.4	0.66	NFA
HEXANE	6.7	5.6	0.92	0.56	NFA
NAPHTHALENE	ND	8.4	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	13	7.9	ND	0.79	NFA
1,3,5-TRIMETHYLBENZENE	ND	7.9	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	ND	7.5	ND	0.75	NFA
TOLUENE	39.6	6.0	2.1	0.60	NFA
M,P-XYLENE	45.6	6.9	0.83	0.69	NFA
O-XYLENE	14	6.9	ND	0.69	NFA

Sample ID 178 Route 52 Europa Pizza	SS-2 Sub-Slab Vapor		IA-2 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	4.2	0.64	7.7	0.51	NFA
CYCLOHEXANE	1.8	0.69	ND	0.55	NFA
ETHYLBENZENE	29	0.87	ND	0.69	NFA
HEPTANE	11	0.82	4.5	0.66	NFA
HEXANE	7.0	0.70	1.4	0.56	NFA
NAPHTHALENE	2.4	1.0	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	61.4	0.98	ND	0.79	NFA
1,3,5-TRIMETHYLBENZENE	15	0.98	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	5.6	0.27	ND	0.75	NFA
TOLUENE	47.9	0.75	2.4	0.60	NFA
M,P-XYLENE	93	0.87	0.83	0.69	NFA
O-XYLENE	40	0.87	ND	0.69	NFA

Matrix D
Matrix E
Matrix F
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3A
Constituents of Concern Summary Comparison
March 2024 (Matrices D, E and F)

Sample ID 176 Route 52 Carmel Nails	SS-3 Sub-Slab Vapor		IA-3 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	4.8	0.64	0.86	0.51	NFA
CYCLOHEXANE	4.1	0.69	ND	0.55	NFA
ETHYLBENZENE	26	0.87	ND	0.69	NFA
HEPTANE	14	0.82	8.2	0.66	NFA
HEXANE	9.9	0.70	ND	0.56	NFA
NAPHTHALENE	ND	1.0	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	49.2	0.98	ND	0.79	NFA
1,3,5-TRIMETHYLBENZENE	12	0.98	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	12	0.93	ND	0.75	NFA
TOLUENE	64.1	0.75	7.5	0.60	NFA
M,P-XYLENE	83	0.87	0.74	0.69	NFA
O-XYLENE	33	0.87	ND	0.69	NFA

Sample ID 176 Route 52 Carmel Nails	SS-4 Sub-Slab Vapor		IA-4 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	2.1	0.73	1.5	0.51	NFA
CYCLOHEXANE	1.4	0.79	ND	0.55	NFA
ETHYLBENZENE	17	1.0	ND	0.69	NFA
HEPTANE	7.0	0.94	5.7	0.66	NFA
HEXANE	4.6	0.81	0.81	0.56	NFA
NAPHTHALENE	1.8	1.2	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	38	1.1	0.79	0.79	NFA
1,3,5-TRIMETHYLBENZENE	8.8	1.1	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	4.2	1.1	ND	0.75	NFA
TOLUENE	32	0.87	6.4	0.60	NFA
M,P-XYLENE	54.7	1.0	1.1	0.69	NFA
O-XYLENE	23	1.0	ND	0.69	NFA

Sample ID 176 Route 52 Carmel Nails	SS-4 (DUP) Sub-Slab Vapor		IA-4 (DUP)* Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	2.2	0.73	--	--	--
CYCLOHEXANE	1.3	0.79	--	--	--
ETHYLBENZENE	16	1.0	--	--	--
HEPTANE	7.0	0.94	--	--	--
HEXANE	4.2	0.81	--	--	--
NAPHTHALENE	1.6	1.2	--	--	--
1,2,4-TRIMETHYLBENZENE	35	1.1	--	--	--
1,3,5-TRIMETHYLBENZENE	7.9	1.1	--	--	--
2,2,4-TRIMETHYLPENTANE	4.1	1.1	--	--	--
TOLUENE	32	0.87	--	--	--
M,P-XYLENE	50.8	1.0	--	--	--
O-XYLENE	21	1.0	--	--	--

* IA-4 Dup data was not analyzed

Matrix D
Matrix E
Matrix F
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3A
Constituents of Concern Summary Comparison
March 2024 (Matrices D, E and F)

Sample ID 174 Route 52 Electric Paradise	SS-5 Sub-Slab Vapor		IA-5 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	1.7	0.64	2.7	0.51	NFA
CYCLOHEXANE	ND	0.69	1.2	0.55	NFA
ETHYLBENZENE	ND	0.87	24	0.69	IDENTIFY SOURCES, RESAMPLE OR MITIGATE
HEPTANE	1.2	0.82	7.4	0.66	NFA
HEXANE	0.99	0.70	4.6	0.56	NFA
NAPHTHALENE	ND	1.0	3.9	0.84	NFA
1,2,4-TRIMETHYLBENZENE	ND	0.98	ND	0.59	NFA
1,3,5-TRIMETHYLBENZENE	ND	0.98	16	0.79	IDENTIFY SOURCES, RESAMPLE OR MITIGATE
2,2,4-TRIMETHYLPENTANE	ND	0.93	4.1	0.75	NFA
TOLUENE	1.5	0.75	38.4	0.60	NFA
M,P-XYLENE	ND	0.87	80.8	0.69	IDENTIFY SOURCES, RESAMPLE OR MITIGATE
O-XYLENE	ND	0.87	35	0.69	IDENTIFY SOURCES, RESAMPLE OR MITIGATE

Sample ID 174 Route 52 Electric Paradise	SS-6 Sub-Slab Vapor		IA-6 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	2.3	0.64	2.0	0.51	NFA
CYCLOHEXANE	0.72	0.69	ND	0.55	NFA
ETHYLBENZENE	12	0.87	ND	0.69	NFA
HEPTANE	2.6	0.82	1.7	0.66	NFA
HEXANE	5.3	0.70	0.92	0.56	NFA
NAPHTHALENE	ND	1.0	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	16	0.98	3	0.79	NFA
1,3,5-TRIMETHYLBENZENE	4.1	0.98	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	3.0	0.93	ND	0.75	NFA
TOLUENE	24	0.75	1.5	0.60	NFA
M,P-XYLENE	39	0.87	ND	0.69	NFA
O-XYLENE	15	0.87	ND	0.69	NFA

Matrix D
Matrix E
Matrix F
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3A
Constituents of Concern Summary Comparison
March 2024 (Matrices D, E and F)

Sample ID 170 Route 52 Chinatown	SS-7 Sub-Slab Vapor		IA-7 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	3.5	0.64	2.2	0.35	NFA
CYCLOHEXANE	2.5	0.69	ND	0.55	NFA
ETHYLBENZENE	6.5	0.87	ND	0.69	NFA
HEPTANE	4.5	0.82	1.6	0.66	NFA
HEXANE	6.3	0.70	3.2	0.56	NFA
NAPHTHALENE	ND	1.0	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	19	0.98	ND	0.79	NFA
1,3,5-TRIMETHYLBENZENE	4.8	0.98	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	10	0.93	ND	0.75	NFA
TOLUENE	8.7	0.75	ND	0.60	NFA
M,P-XYLENE	19	0.87	ND	0.69	NFA
O-XYLENE	10	0.87	ND	0.69	NFA

Sample ID 170 Route 52 Chinatown	SS-8 Sub-Slab Vapor		IA-8 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	1.4	0.64	1.5	0.51	NFA
CYCLOHEXANE	0.76	0.69	ND	0.55	NFA
ETHYLBENZENE	6.1	0.87	ND	0.69	NFA
HEPTANE	3.2	0.82	1.1	0.66	NFA
HEXANE	2.7	0.70	0.63	0.56	NFA
NAPHTHALENE	1.6	1.0	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	16	0.98	ND	0.79	NFA
1,3,5-TRIMETHYLBENZENE	3.7	0.98	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	3.0	0.93	ND	0.75	NFA
TOLUENE	11	0.75	0.83	0.60	NFA
M,P-XYLENE	17	0.87	ND	0.69	NFA
O-XYLENE	8.7	0.87	ND	0.69	NFA

Matrix D
Matrix E
Matrix F
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 3A
Constituents of Concern Summary Comparison
March 2024 (Matrices D, E and F)

Sample ID	OA1 Outdoor Air		OA2 Outdoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	ND	0.51	0.89	0.61	NFA
CYCLOHEXANE	ND	0.55	ND	0.65	NFA
ETHYLBENZENE	ND	0.69	ND	0.83	NFA
HEPTANE	1.1	0.66	0.82	0.78	NFA
HEXANE	ND	0.56	0.74	0.67	NFA
NAPHTHALENE	ND	0.84	ND	1.0	NFA
1,2,4-TRIMETHYLBENZENE	ND	0.79	ND	0.93	NFA
1,3,5-TRIMETHYLBENZENE	ND	0.79	ND	0.93	NFA
2,2,4-TRIMETHYLPENTANE	ND	0.75	ND	0.89	NFA
TOLUENE	ND	0.60	0.72	0.72	NFA
M,P-XYLENE	ND	0.69	ND	0.83	NFA
O-XYLENE	ND	0.69	ND	0.83	NFA

Matrix D
Matrix E
Matrix F
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 4
Constituent of Concern Summary
June 2024 (Matrices A, B and C)

Sample ID 174 Route 52 Electric Paradise	IA-5 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.44	--
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.13	--
CARBON TETRACHLORIDE	ND	0.20	--
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.13	--
METHYLENE CHLORIDE	1.0	0.56	--
TETRACHLOROETHENE (PCE)	ND	0.22	--
TRICHLOROETHENE (TCE)	ND	0.17	--
VINYL CHLORIDE	ND	0.082	--

Sample ID 174 Route 52 Electric Paradise	IA-6 Indoor Air		Matrices Result
(UG/M3)	Result	MDL	
1,1,1-TRICHLOROETHANE (1,1,1-TCA)	ND	0.44	--
1,1,-DICHLOROETHENE (1,1-DCE)	ND	0.13	--
CARBON TETRACHLORIDE	0.57	0.20	--
CIS-1,2-DICHLOROETHENE (c12-DCE)	ND	0.13	--
METHYLENE CHLORIDE	1.7	0.56	--
TETRACHLOROETHENE (PCE)	0.39	0.22	--
TRICHLOROETHENE (TCE)	ND	0.17	--
VINYL CHLORIDE	ND	0.082	--

Matrix A
Matrix B
Matrix C
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Table 4A
Constituent of Concern Summary
June 2024 (Matrices D, E and F)

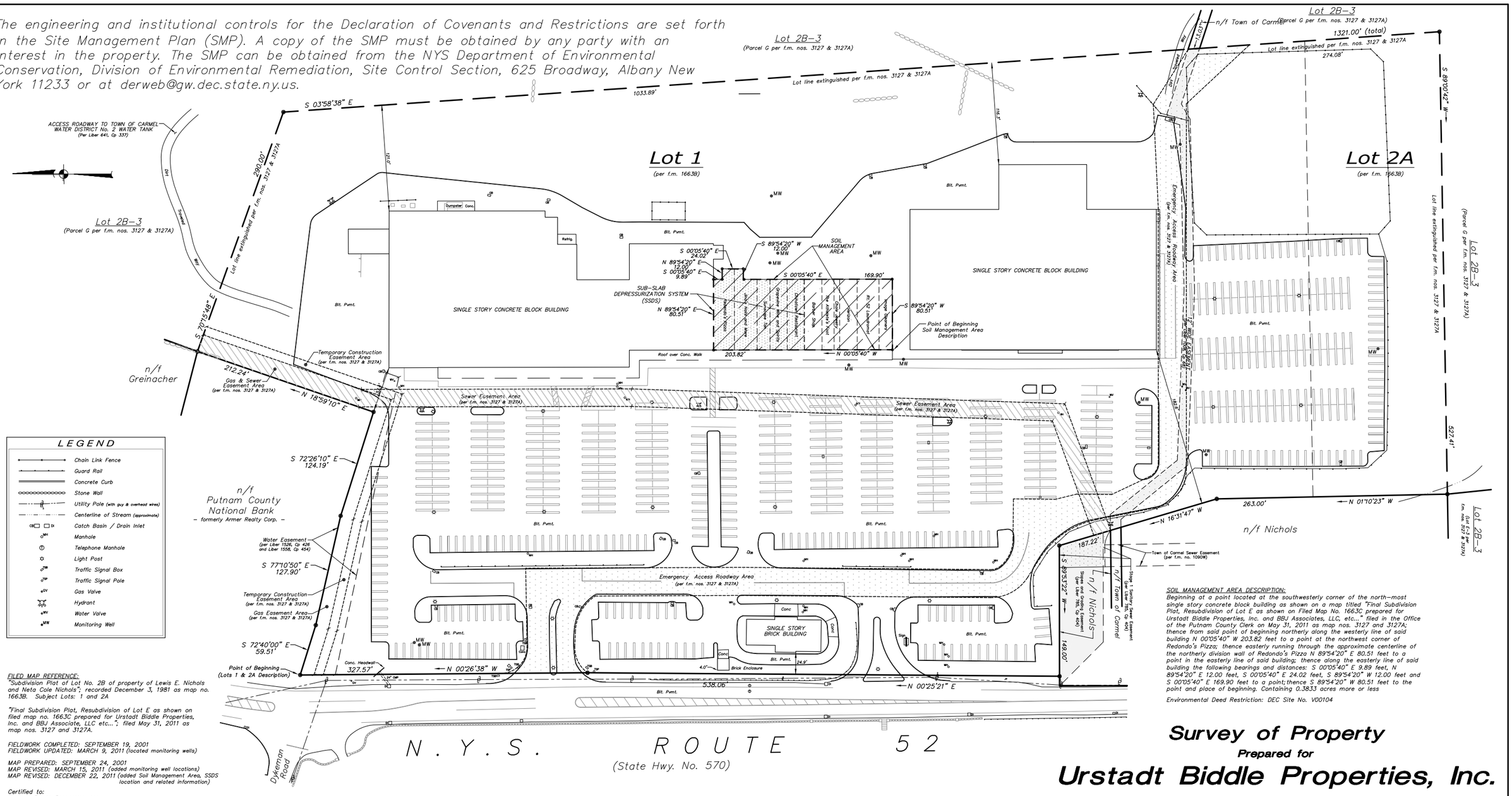
Sample ID 174 Route 52 Electric Paradise	IA-5 Indoor Air		IA-5 (DUP) Indoor Air		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	ND	0.51	ND	0.51	NFA
CYCLOHEXANE	ND	0.55	ND	0.55	NFA
ETHYLBENZENE	ND	0.69	ND	0.69	NFA
HEPTANE	ND	0.66	ND	0.66	NFA
HEXANE	0.81	0.56	1.1	0.56	NFA
NAPHTHALENE	ND	0.84	ND	0.84	NFA
1,2,4-TRIMETHYLBENZENE	ND	0.79	ND	0.79	NFA
1,3,5-TRIMETHYLBENZENE	ND	0.79	ND	0.79	NFA
2,2,4-TRIMETHYLPENTANE	ND	0.75	ND	0.75	NFA
TOLUENE	1.1	0.60	1.1	0.60	NFA
M,P-XYLENE	ND	0.69	ND	0.69	NFA
O-XYLENE	ND	0.69	ND	0.69	NFA

Sample ID 174 Route 52 Electric Paradise	IA-6 Indoor Air		-- --		Matrices Result
(UG/M3)	Result	MDL	Result	MDL	
BENZENE	ND	0.51	--	--	NFA
CYCLOHEXANE	ND	0.55	--	--	NFA
ETHYLBENZENE	ND	0.69	--	--	NFA
HEPTANE	ND	0.66	--	--	NFA
HEXANE	1.1	0.56	--	--	NFA
NAPHTHALENE	ND	0.84	--	--	NFA
1,2,4-TRIMETHYLBENZENE	ND	0.79	--	--	NFA
1,3,5-TRIMETHYLBENZENE	ND	0.79	--	--	NFA
2,2,4-TRIMETHYLPENTANE	ND	0.75	--	--	NFA
TOLUENE	1.3	0.60	--	--	NFA
M,P-XYLENE	ND	0.69	--	--	NFA
O-XYLENE	ND	0.69	--	--	NFA

Matrix D
Matrix E
Matrix F
NFA-No Further Action
All Results Are ug/m3
NS-No Sample
NA-Not Applicable

Appendix A – Site Survey and Metes and Bounds

The engineering and institutional controls for the Declaration of Covenants and Restrictions are set forth in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from the NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany New York 11233 or at derweb@gw.dec.state.ny.us.



LEGEND

- Chain Link Fence
- Guard Rail
- Concrete Curb
- Stone Wall
- Utility Pole (with guy & overhead wires)
- Centerline of Stream (approximate)
- Catch Basin / Drain Inlet
- Manhole
- Telephone Manhole
- Light Post
- Traffic Signal Box
- Traffic Signal Pole
- Gas Valve
- Hydrant
- Water Valve
- Monitoring Well

FILED MAP REFERENCE:
"Subdivision Plat of Lot No. 2B of property of Lewis E. Nichols and Neta Cole Nichols"; recorded December 3, 1981 as map no. 1663B. Subject Lots: 1 and 2A

"Final Subdivision Plat, Resubdivision of Lot E as shown on filed map no. 1663C prepared for Urstadt Biddle Properties, Inc. and BBJ Associate, LLC etc..."; filed May 31, 2011 as map nos. 3127 and 3127A.

FIELDWORK COMPLETED: SEPTEMBER 19, 2001
FIELDWORK UPDATED: MARCH 9, 2011 (located monitoring wells)

MAP PREPARED: SEPTEMBER 24, 2001
MAP REVISED: MARCH 15, 2011 (added monitoring well locations)
MAP REVISED: DECEMBER 22, 2011 (added Soil Management Area, SSDS location and related information)

Certified to:
Urstadt Biddle Properties, Inc.
Emigrant Savings Bank, its successors and assigns
Lawyers Title Insurance Corporation (Title No. LW011162)
New York State Department of Environmental Conservation

This map may not be used in connection with a "Survey Affidavit" or similar document, statement or mechanism to obtain title insurance for any subsequent or future grantees.

Unauthorized alteration or addition to this survey is a violation of Section 7209, subdivision 2 of the New York State Education Law.

The alteration of survey maps by anyone other than the original preparer is misleading, confusing and not in the general welfare and benefit of the public. Licensed Land Surveyors shall not alter survey maps, survey plans, or survey plats prepared by others.

Certifications indicated hereon signify that this survey was prepared in accordance with the existing Code of Practice for Land Surveys adopted by the New York State Association of Professional Land Surveyors, Inc.

Said certifications shall run only to the person for whom this survey was prepared and on his behalf to the title company, governmental agency and/or lending institution listed hereon, and to the assignees of the lending institution. Certifications are not transferable to additional lending institutions or subsequent owners.

Only copies from the original of this survey marked with an original of the land surveyor's embossed seal shall be considered valid true copies.

Prepared by:

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place • Carmel, New York 10512
Phone (845) 225-9690 • Fax (845) 225-9717
www.insite-eng.com

NICHOLAS G. CHAPIS, L.S.
New York State License No. 049330

SURVEY NOTES:

The purpose of this revised map is to depict the location of Soil Management Area and the Sub-Slab Depressurization System Area based upon information provided by others within the subject property.

This survey depicts Lot 1 and Lot 2A as shown on filed map no. 1663B.

Lot E-1 as shown on filed map nos. 3127 and 3127A is comprised of Lot 1 and Lot 2A as shown on filed map no. 1663B and Parcel G as shown on filed map nos. 3127 and 3127A.

This map shows the former limits of Lot 1 and Lot 2A as shown on filed map no. 1663B and does not reflect the entirety of Lot E-1 as shown on filed map nos. 3127 and 3127A.

The Emergency Access Roadway Area, Sewer Easement Area, Gas Easement Area and Temporary Construction Easement Areas shown hereon per f.m. nos. 3127 and 3127A are further described in Liber 1876, Page 76 "Second Amended and Restated Reciprocal Easement Agreement" between Urstadt Biddle Properties, Inc. and BBJ Associates, LLC. Recorded May 26, 2011. The Temporary Construction Vehicle Access Easement – Schedule I to Deed of Liber 1876, Page 76 is not plottable.

Underground structures, if any exist, are not shown hereon, except as noted.

PERIMETER DESCRIPTION OF LOT 1 AND LOT 2A

ALL that certain plot, piece or parcel of land, situate, lying and being in the Town of Carmel, County of Putnam and State of New York, bounded and described as follows:

Lot Number 1 and Lot Number 2A as shown on a map entitled "Subdivision Plat of Lot No. 2B of property of Lewis E. Nichols and Neta Cole Nichols", Towns of Carmel and Kent, Putnam County, New York, which was filed in the Office of the Clerk of Putnam County on December 3, 1981, as Map No. 1663B plus a portion of the 12 foot strip of land as shown on said map running through Lot 1 between the Easterly and Westerly Lot Lines of Lot 1 on said map, which last and said portion of the 12 foot strip of land when taken together are more particularly bounded and described as follows:

BEGINNING at the intersection of the southerly lot line of land now or formerly of Armer Realty Corp. and the easterly line of Route 52 (S.H. 570) as widened; thence S 72° 40' 00" E 59.51 feet, S 77° 10' 50" E 127.90 feet, S 72° 26' 10" E 124.19 feet, N 18° 59' 10" E 212.24 feet, S 70° 15' 48" E 290.00 feet, S 3° 58' 38" E 1,321.00 feet, S 89° 00' 42" W 527.41 feet, N 1° 10' 23" W 263.00 feet, N 16° 31' 47" W 187.22 feet, and S 89° 53' 22" W 149.00 feet to a point on the easterly side of Route 52 as widened; thence along the easterly side of Route 52 as widened the following two courses and distances: N 0° 25' 21" E 538.06 feet and N 0° 26' 38" W 327.57 feet to the point or place of beginning. Containing 18.8339 Acres more or less.

SOIL MANAGEMENT AREA DESCRIPTION:

Beginning at a point located at the southwesterly corner of the north-most single story concrete block building as shown on a map titled "Final Subdivision Plat, Resubdivision of Lot E as shown on Filed Map No. 1663C prepared for Urstadt Biddle Properties, Inc. and BBJ Associates, LLC, etc..." filed in the Office of the Putnam County Clerk on May 31, 2011 as map nos. 3127 and 3127A; thence from said point of beginning northerly along the westerly line of said building N 00°05'40" W 203.82 feet to a point at the northwest corner of Redondo's Pizza; thence easterly running through the approximate centerline of the northerly division wall of Redondo's Pizza N 89°54'20" E 80.51 feet to a point in the easterly line of said building; thence along the easterly line of said building the following bearings and distances: S 00°05'40" E 9.89 feet, N 89°54'20" E 12.00 feet, S 00°05'40" E 24.02 feet, S 89°54'20" W 12.00 feet and S 00°05'40" E 169.90 feet to a point; thence S 89°54'20" W 80.51 feet to the point and place of beginning. Containing 0.3833 acres more or less

Environmental Deed Restriction: DEC Site No. V00104

Survey of Property

Prepared for

Urstadt Biddle Properties, Inc.

Situate IN

Town of Carmel County of Putnam

State of New York

180 Gleneida Avenue (Route 52)

(Putnam County Tax Map No. 49.9-1-9)

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

96214.201
ubp.plaza.2011-12-22.dwg

Z:\51989 - 2000 Active Jobs\96214.201 UBP Site\PLETE\96214.201_SURVEY 2012-12-22.dwg, 1/13/2012 2:02:57 PM, bdennedy, 1:1

SITE METES AND BOUNDS

ALL that certain plot, piece or parcel of land, situate, lying and being in the Town of Carmel, County of Putnam and State of New York, bounded and described as follows:

Lot Number 1 and Lot Number 2A as shown on a map entitled "Subdivision Plat of Lot No. 2B of property of Lewis E. Nichols and Neta Cole Nichols", Towns of Carmel and Kent, Putnam County, New York, which was filed in the Office of the Clerk of Putnam County on December 3, 1981, as Map No. 1663B plus a portion of the 12 foot strip of land as shown on said map running through Lot 1 between the Easterly and Westerly Lot Lines of Lot 1 on said map, which last and said portion of the 12 foot strip of land when taken together are more particularly bounded and
described as follows:

BEGINNING at the intersection of the southerly lot line of land now or formerly of Armer Realty Corp. and the easterly line of Route 52 (S.H. 570) as widened; thence S 72° 40' 00" E 59.51 feet, S 77° 10' 50" E 127.90 feet, S 72° 26' 10" E 124.19 feet, N 18° 59' 10" E 212.24 feet, S 70° 15' 48" E 290.00 feet, S 3° 58' 38" E 1,321.00 feet, S 89° 00' 42" W 527.41 feet, N 1° 10' 23" W 263.00 feet, N 16° 31' 47" W 187.22 feet, and S 89° 53' 22" W 149.00 feet to a point on the easterly side of Route 52 as widened; thence along the easterly side of Route 52 as
widened the following two courses and distances: N 0° 25' 21" E 538. 06 feet and N 0° 26' 38" W 327.57 feet to the point or place of beginning. Containing 18.8339 Acres more or less.

Appendix B – Non-Routine Reports and Correspondence

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau C
625 Broadway, 12th Floor, Albany, NY 12233-7014
P: (518) 402-9662 I F: (518) 402-9722
www.dec.ny.gov

Transmitted Via Email Only

January 10, 2024

Monica Roth
Regency Centers
321 Railroad Avenue
Greenwich, CT 06830
monicaroth@regencycenters.com

Re: Carmel Shop-Rite Plaza
Soil Vapor Intrusion Work Plan
180 Gleneida Avenue
Carmel, New York
Site No.: V00104

Dear Monica Roth:

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has reviewed the revised December 22, 2023 Soil Vapor Intrusion (SVI) Work Plan prepared by your consultant, Groundwater & Environmental Services, Inc, for the Carmel Shop-Rite Plaza Site. The work plan is hereby approved.

I can be reached at (518) 402-9605 or by email at matthew.hubicki@dec.ny.gov with any questions. Please allow 7-days' notice prior to start of any work at the site.

Sincerely,

Matthew Hubicki
Project Manager

Regency Centers.

321 Railroad Avenue
Greenwich, CT 06830

203 863 8200
RegencyCenters.com

Manxin Inc.
d/b/a Chic Nail & Spa
4370 Kissena 23N
Flushing, New York 11355
Attn: Yan Zhang

Re: Sub-slab and Ambient Air Sampling at Chic Nail & Spa
Carmel ShopRite
176 Route 52 Carmel, New York

Dear Tenant:

Available upon request is the Soil Vapor Intrusion Summary Report summarizing soil vapor and indoor air sampling at Carmel Nails located at the Carmel ShopRite Plaza, 176 Route 52, Carmel, New York. This report, prepared by our consultant, Groundwater Environmental Services (GES), summarizes the results of recent indoor air sampling efforts at Carmel Nails and other tenant spaces. As shown in the report, low level detections of tetrachloroethene (PCE) and methylene chloride were reported in one or more sample locations. Other volatile organic compounds were also detected. None of the detections identified were at actionable concentrations. The report also explains that GES reactivated the previously installed sub-slab depressurization (SSD) systems; these systems will continue to operate until the New York State Department of Environmental Conservation and New York State Department of Health approve shutdown.

Also enclosed are Fact Sheets prepared by the New York State Department of Health regarding PCE and TCE and other volatile organic compounds. If you have any questions regarding the air sampling data or the enclosed Tetrachloroethene Fact Sheet, we suggest that you contact Renata E. Ockerby, Public Health Specialist II of the NYSDOH Bureau of Environmental Exposure Investigation. She can be reached by telephone at (518) 402-7860 or via email at BEEI@health.ny.gov.

We will continue to keep you posted on our on-going efforts regarding the above.

Very truly yours,

Monica Roth

Monica Roth
Senior Manager, Environmental

Encls.

TETRACHLOROETHENE (PERC) IN INDOOR AND OUTDOOR AIR

SEPTEMBER 2013 FACT SHEET

This fact sheet answers questions about a chemical called tetrachloroethene (PERC), which is widely used to dry-clean clothes. It provides information on health effects seen in humans exposed to PERC in air. It also provides information about the New York State Department of Health's new guideline of 30 micrograms of PERC per cubic meter of air (30 mcg/m^3) or 0.03 milligrams of PERC per cubic meter of air (0.03 mg/m^3). The fact sheet focuses on the health risks from air exposures because most of the PERC released into the environment goes into air.

Prepared by

Bureau of Toxic Substance Assessment
New York State Department of Health

1. WHAT IS TETRACHLOROETHENE (PERC)?

Tetrachloroethene is a manufactured chemical that is widely used in the dry-cleaning of fabrics, including clothes. It is also used for degreasing metal parts and in manufacturing other chemicals. Tetrachloroethene is found in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for tetrachloroethene include PERC, tetrachloroethylene, perchloroethylene, and PCE. PERC is a commonly used name and will be used in the rest of the fact sheet.

PERC is a nonflammable, colorless liquid at room temperature. It readily evaporates into air and has an ether-like odor. Because most people stop noticing the odor of PERC in air after a short time, odor is not a reliable warning signal of PERC exposure.

2. HOW CAN I BE EXPOSED TO PERC?

People may be exposed to PERC in air, water, and food. Exposure can also occur when PERC or material containing PERC (for example, soil) gets on the skin. For most people, almost all exposure is from PERC in air.

PERC gets into outdoor and indoor air by evaporation from industrial or dry-cleaning operations and from areas where chemical wastes are stored or disposed. People living in homes located near these operations may be exposed to higher levels of PERC than the general population not living near such operations. Groundwater near these areas may become contaminated if PERC is improperly dumped or leaks into the ground. People may be exposed if they drink the contaminated water. They also may be exposed if PERC evaporates from contaminated drinking water into indoor air during cooking and washing. PERC may evaporate from contaminated groundwater and soil into the indoor air of buildings above the contaminated area. PERC also may evaporate from dry-cleaned clothes into indoor air or may get into indoor air after PERC-containing products, such as spot removers, are used. Indoor air PERC levels may get high if PERC-containing products are used in poorly ventilated areas.

3. HOW DOES PERC ENTER AND LEAVE MY BODY?

When people inhale air containing PERC, the PERC is taken into the body through the lungs and passed into the blood, which carries it to all parts of the body. A large fraction of this PERC is exhaled, unchanged, through the lungs into the air. Some of this PERC is stored in the body (for example, in fat, the liver, and the brain) and some is broken down in the liver to other compounds and eliminated in urine. PERC can also be found in breastmilk. Once exposure stops, most of the PERC and its breakdown products leave the body in several days. However, it may take several weeks for all of the PERC and its breakdown products to leave the body.

4. WHAT KINDS OF HEALTH EFFECTS CAN BE CAUSED BY EXPOSURE TO PERC IN AIR?

In humans, PERC may affect the central nervous system, the liver, kidneys, blood, immune system, and perhaps the reproductive system. The available data are insufficient to draw conclusions regarding effects of PERC exposure on development in infants and children.

For all health effects, the potential for an increased health risk depends on several factors, including the amount of exposure, the frequency of exposures, and the duration of the exposures. It also depends on the characteristics of the exposed person, such as age, sex, diet, family traits, lifestyle, genetic background, the presence of other chemicals in their body (e.g., alcohol, prescription drugs), and general state of health. Although difficult to quantify, these differences can affect how people will respond to a given exposure. This is known as sensitivity. Differences in sensitivity should be kept in mind when reading the following information on the human health effects of PERC.

Short-Term Exposure - Studies with volunteers show that exposure of eight hours or less to 700,000 micrograms per cubic meter of air (mcg/m^3) cause central nervous system symptoms such as dizziness, headache, sleepiness, lightheadedness, and poor balance. Exposure to 350,000 mcg/m^3 for four hours affected the nerves of the visual system and reduced scores on certain behavioral tests (which, for example, measure the speed and accuracy of a person's response to something they see on a computer screen). These effects were mild and disappeared soon after exposure ended.

Long-Term Exposure - Numerous studies of dry-cleaning workers indicate that long-term exposure (7 to 20 years, for example) to workplace air levels (41,000 mcg/m^3 to 120,000 mcg/m^3) caused reduced scores on neurobehavioral or color vision tests, increased levels of biochemical indicators of liver or kidney damage, reduced red blood cells, and blood and immune system effects [increased white blood cells and blood levels of a certain type of antibody (immunoglobulin E)]. The effects were mild and required special tests to be detected. It is not known how long these effects last.

The New York State Department of Health (NYSDOH, 2010) measured visual function [visual contrast sensitivity (VCS); color vision][1] in adults and children living in the apartments located in buildings with or without a dry-cleaner using PERC and also measured PERC indoor air levels. PERC levels were higher in the indoor air of apartments in buildings with dry-cleaners. Elevated indoor air PERC levels were associated with a slightly increased risk for children to have decreased VCS scores. The effect of PERC on VCS scores was most noticeable in a small group of children living in buildings with co-located dry cleaners using PERC. In those apartments, indoor air PERC levels ranged from 127 to 710 mcg/m^3, with a 50th percentile[2] (also known as the median) level of 340 mcg/m^3. For affected children (7 years mean duration of residency), the decrease was very small and occurred for only one eye in one of five tests. Mean VCS test scores were still within a normal range. Therefore, the risk for decreased VCS scores among affected children is considered to be small. Elevated indoor air PERC levels were not associated with effects on adult VCS scores, or with color vision of either children or adults. The observed associations between elevated indoor air PERC levels and children's VCS suggests that indoor air PERC levels in the range detected may have subtle effects on the brain.

A few epidemiological studies showed positive associations between workplace PERC exposure and reproductive effects (increased risk of spontaneous abortion, sperm disorders, and reduced fertility or delayed conception). Data on workplace air levels were not reported or were limited; however, workplace air levels during the times these studies were conducted were considerably higher than those typically found in indoor or outdoor air. These data suggest, but do not prove, that the reproductive effects were caused by PERC and not by some other factor or factors.

Lastly, epidemiological studies provide a pattern of evidence for a positive association between PERC exposure in the workplace and several types of cancer, specifically bladder cancer, non-Hodgkin lymphoma, and multiple myeloma. These associations were observed in studies with high quality assessments of the likelihood of PERC only exposures. However, data on PERC workplace air levels were not reported, but measurements from other studies indicate that workplace air levels during the times the workers were exposed were considerably higher than those typically found in indoor or outdoor air. Moreover, it is unlikely that the associations were dependent, totally or in part, on factors other than PERC exposures, such as common lifestyle factors as smoking or drinking alcohol. Data from more limited studies suggest that other types of cancer (esophageal, kidney, lung, liver, cervical, and breast cancer) are associated with PERC exposure. In laboratory studies, PERC caused cancer in rats and mice when they ingested or inhaled high doses almost daily for a lifetime. Based on human and animal data, the United States Environmental Protection Agency (USEPA) classifies PERC as “likely to be carcinogenic in humans by all routes of exposure.”

[1] VCS is a measure of a person's ability to distinguish the contrast between a viewed object and its background. It is easier to detect images of high contrast (e.g., a black cat on snow) than low contrast (e.g., a white cat on snow).

[2] Half the results are less than or equal to this value and half are above this value.

5. WHAT ARE BACKGROUND LEVELS FOR PERC IN OUTDOOR AND INDOOR AIR IN AREAS THAT ARE NOT NEAR A KNOWN ENVIRONMENTAL SOURCE OF PERC?

Various studies provide data on background levels of PERC in outdoor and indoor air. The New York State Department of Environmental Conservation collects data on outdoor air levels of air toxics under the Toxics Monitoring System (also known as Volatile Organics Network). The monitoring sites were selected to provide air quality data from the state's urban, industrial, residential, and rural areas. Based on 5882 samples collected across the state during 1999 to 2008, the 50th percentile (median) and 95th percentile[3] PERC levels were 0.41 mcg/m^3 and 4.8 mcg/m^3, respectively. NYSDOH (2005) conducted a study between 1997 and 2005 on the occurrence of volatile organic chemicals, including PERC, in the indoor and outdoor air of about 100 homes across the state (excluding New York City). Two outdoor samples were collected just outside each home for a total of 200 samples. The 50th percentile and 95th percentile PERC levels were less than 0.25 mcg/m^3 and 1.6 mcg/m^3, respectively. Finally, the 50th percentile and 95% percentile PERC levels in 587 outdoor air samples collected in 1999 - 2011 during the investigation of NYS remedial sites not known to have nor suspected to have sources of PERC were 0.52 mcg/m^3 and 2.6 mcg/m^3, respectively (NYSDOH, 2013b). Collectively, these three data sets, particularly given the low 95% percentile level in the large dataset from the Toxics Monitoring System, indicate that fewer than 5% of the background PERC levels in outdoor air are above 10 mcg/m^3.

The NYSDOH, the USEPA, and others have collected and analyzed information on PERC levels in indoor air. The table below contains the results from air samples collected inside of buildings that were not near known sources of PERC and other chemicals (for example, a home not known to be near a chemical spill, a hazardous waste site, a dry-cleaner, or a factory). The five studies that reported 90th percentile PERC air levels indicate that fewer than 10% of the background PERC levels in indoor air are above 10 mcg/m^3. In addition, the results for six of the eight studies that reported 95th percentiles and contained most of the samples indicate that fewer than 5% of the background PERC levels in indoor air are above 10 mcg/m^3. The other two studies (NYSDOH, 2009, 2013b; USEPA, 2001, 2013) indicate that fewer than 5% of the background indoor air levels are above 20 mcg/m^3.

[3] 95% of the results are less than or equal to this value.

Background Indoor Air Levels in US Buildings (1990-2013).

Study Description (and Sampling Years)	No. of Samples	Air Level Percentiles (mcg/m^3)			Reference
		50th (median)	90th [A]	95th	
Residential Buildings					
13 studies on residential properties (number NR[B]) in North America (1990-2005)	2312[C]	ND[D] - 2.2 (range)[E]	ND[D] - 7 (range)[E]	4.1 - 9.5 (range)[E]	USEPA (2011); also see Dawson & McAlary (2009)
screening study of households (284) in urban or non-urban areas of MN (1997)	284	1.4	NR[B]	4.9	Adgate et al. (2004)
subset of the screened households (101) in MN (1997)	101	1.3	NR[B]	5.2	
single family homes (about 100) heated with fuel oil from across NYS (excluding NYC) (1997-2003)	400	0.34	2.9	3.9	NYSDOH (2005, 2013a)[F]
households (about 100 each) in Elizabeth, NJ, Houston, TX, and Los Angeles, CA (1999-2001)	554	0.56	NR[B]	6.0	Weisel et al. (2005)
apartments (61) in NYC building **without** a co-located dry-cleaner (2001-2003)	61	2.2	8.5	19.09	NYSDOH (2009, 2013b)
Office Buildings					
public & commercial office buildings (70) in US (1994-1996)	209	1.5	9.3	18	USEPA (2001, 2013)
Mixed-Use Buildings					
buildings (number NR[B]) near NYS remedial sites not known nor suspected to have sources of PERC (1999-2011)	1625	0.72	2.8	6.6	NYSDOH (2013b)

[A] 90% of the results are less than or equal to this value.
[B] NR: not reported.
[C] Total number of samples, but number of samples associated with each percentile range is less than 2312, but was not reported.
[D] ND: not detected.
[E] The range from 13, 8, and 5 studies that reported the 50th, 90th, and 95th percentiles, respectively.
[F] One of the 13 studies included in USEPA (2011) and Dawson & McAlary (2009).

6. WHAT IS THE NEW YORK STATE DEPARTMENT OF HEALTH'S NEW GUIDELINE FOR PERC IN AIR?

After consideration of the potential health effects of PERC, background levels of PERC in air, and analytical techniques (the ability and reliability of methods to measure PERC in air), NYSDOH recommends that the average air level not exceed 30 mcg/m^3. This determination considered continuous, lifetime exposure and sensitive people. Three other ways of expressing the new guideline are 0.03 milligrams per cubic meter of air (0.03 mg/m^3), 4.4 parts per billion (ppb) or 0.0044 parts per million (ppm). This replaces the old guideline of 100 mcg/m^3.

An air guideline of 30 mcg/m^3 is below the PERC air levels known to cause noncancer effects, including developmental and reproductive effects, in humans and animals, and should be protective against those effects. It is lower than the USEPA's (2012) reference concentration (RfC)[4] for PERC of 40 mcg/m^3. The estimated excess cancer risk associated with lifetime, continuous exposure to 30 mcg/m^3 is about one-in-one-hundred thousand.

[4] The reference concentration is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

Decisions about whether to take actions to further reduce exposure are generally made on a case-by-case basis at this level of risk.

However, NYSDOH recommends that reasonable and practical actions should be taken to reduce PERC exposure whenever air levels are above background. The purpose of the guideline is to help guide decisions about the urgency of the actions to reduce PERC exposure. The urgency to initiate these actions and to determine, in a timely manner, whether they have reduced exposure, increases with indoor air levels, particularly when air levels are above the guideline.

Indoor air levels substantially above the guideline indicate a significant PERC source and may require more immediate remedial action. NYSDOH has concerns about lengthy exposure (months to years) to air levels higher than 300 mcg/m^3 because the results of a recent NYSDOH study suggested that indoor air PERC levels in apartments (median value of 340 mcg/m^3) may have subtle effects on the nervous system (vision function) of children (NYSDOH, 2010 at http://www.health.ny.gov/environmental/investigations/perc/info_sheet.htm). Thus, NYSDOH recommends taking immediate and effective action to reduce exposure when an air level is equal to or above 300 mcg/m^3. In all cases, the specific corrective actions to be taken depend on a case-by-case evaluation of the situation. The goal of the recommended actions is to reduce PERC levels in indoor air to as close to background as practical.

7. WHY DID NEW YORK STATE DEPARTMENT OF HEALTH REDUCE THE GUIDELINE FOR PERC IN AIR FROM 100 MCG/M^3 TO 30 MCG/M^3?

The guideline of 100 mcg/m^3 was issued in 1997 and was based on the toxicological data available at the time. Since then, many new toxicity studies have been published and the USEPA has completed a comprehensive, state-of-the-science, peer-reviewed risk assessment of PERC. Based on the risk assessment, the USEPA recommended values for evaluating the potential for noncancer and cancer effects from exposure to PERC in air [a RfC (40 mcg/m^3) and an air level (4 mcg/m^3) associated with an estimated excess cancer risk of one-in-one million, assuming continuous, lifetime exposure]. NYSDOH staff reviewed the USEPA risk assessment and determined that the recommended values are scientifically robust and should replace the values derived in 1997. The USEPA publication of its RfC (40 mcg/m^3) necessitated a re-evaluation of the health-protectiveness of the old NYSDOH guideline (100 mcg/m^3) because it has been the past practice of NYSDOH to set guidelines at air levels that are equal to or less than a RfC. Consequently, the guideline was reduced to 30 mcg/m^3 after consideration of new toxicity data (e.g., NYSDOH, 2010) and the USEPA risk assessment.

8. SHOULD I BE CONCERNED ABOUT HEALTH EFFECTS IF I AM EXPOSED TO AN AIR LEVEL SLIGHTLY ABOVE THE GUIDELINE?

The guideline is not a bright line between PERC levels that cause health effects and those that do not. The differences between exposure at the guideline and exposure levels known to cause effects in humans and animals are large. Thus, exposure to levels above but near the guideline will not cause health effects in most, if not all, people. In addition, the guideline is based on the assumption that people are continuously exposed to PERC in air all day, every day for as long as a lifetime. Continuous exposure is rarely true for most people, who, if exposed, are more likely to be exposed for a part of the day and part of their lifetime.

9. IS THERE A TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO PERC?

PERC levels can be measured in the breath for weeks following a high exposure to PERC because it is stored in body fat and is slowly released into the bloodstream and then exhaled in the breath. PERC can be measured in blood. Also, breakdown products of PERC can be detected in the blood and urine for several days after exposure to PERC. Because exposure to other chemicals can produce the same breakdown products in the urine and blood as PERC, the tests for breakdown products cannot determine if you have been exposed only to PERC. Although the tests can show if PERC levels in the body are elevated compared to background levels, they

cannot conclusively determine when and for how long a person was exposed, what the source of that exposure was, or whether or not the person will develop adverse health effects.

10. WHEN SHOULD MY CHILDREN OR I SEE A PHYSICIAN?

If you believe you or your children have symptoms that you think are caused by PERC exposure, you and your children should see a physician. You should tell the physician about the symptoms and about when, how, and for how long you think you and/or your children were exposed to PERC.

11. WHERE CAN I GET MORE INFORMATION?

If you have any questions about the information in this fact sheet, would like to know more about PERC, or are concerned that you may be exposed to elevated levels of PERC, please call the New York State Department of Health at 518-402-7800 or 1-800-458-1158, send an e-mail to btsa@health.state.ny.us, or write to us at the following address.

New York State Department of Health
Bureau of Toxic Substance Assessment
Corning Tower, Room 1743
Empire State Plaza,
Albany, NY 12237

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New York State Department of Health
Tenant Notification Fact Sheet for Tetrachloroethene (Perc)

This fact sheet is provided to fulfill New York State Department of Health (NYS DOH) requirements for preparation of generic fact sheets under Article 27 (Title 24, Section 27-2405) of the Environmental Conservation Law.

Tetrachloroethene (Perc)

Tetrachloroethene (also known as perchloroethylene or Perc) is a man-made volatile organic chemical that is widely used in the dry-cleaning of fabrics, including clothes, and in manufacturing other chemicals. It was also used for degreasing metal parts and in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors.

Sources of Perc in Indoor Air

Household products containing Perc could be a possible source for Perc in indoor air. Perc also may evaporate from dry-cleaned clothes or dry-cleaning operations into indoor air. Another source could be evaporation from contaminated well water that is used for household purposes. Perc may also enter homes through soil vapor intrusion, which occurs when the chemical evaporates from groundwater, enters soil vapor (air spaces between soil particles), and migrates through building foundations into the building's indoor air. Perc has also been found at low concentrations in outdoor air.

Levels Typically Found in Air

The NYS DOH reviewed and compiled information from studies in New York State as well as from homes and office buildings across the United States on typical levels of Perc in indoor and outdoor air. Levels of Perc in the indoor air of homes and office settings and in outdoor air are expected to be below 10 micrograms per cubic meter (mcg/m^3).

Health Risks Associated with Exposure

An association exists between exposure of people in the workplace to high levels of Perc in air and certain forms of cancer. Perc causes cancer in laboratory animals exposed to high levels over their lifetimes. Overall, the studies of humans and in animals do not prove that Perc causes cancer in people, but are highly suggestive that there may be an increased risk for cancer in people who are exposed to Perc (particularly at high concentrations) over long periods of time

People exposed to high levels of Perc in air had nervous system effects and slight changes to their liver and kidneys. Some studies show a slightly increased risk for some types of reproductive effects among workers (including dry-cleaning workers) exposed to Perc and other chemicals. The reproductive effects associated with exposure included increased risks for spontaneous abortion, menstrual and sperm disorders, and reduced fertility. The data suggest, but do not prove, that the effects were caused by Perc and not by some other factor or factors. Exposure to high levels of Perc has caused liver and kidney damage in laboratory animals and effects on the nervous system. Taken together, the human and animal studies indicate that human exposure to high levels of Perc causes effects on the nervous system, and suggest that human exposure to high levels of Perc may increase the risk for liver and kidney toxicity.

NYS DOH Air Guideline

The NYS DOH guideline for Perc in air is 30 mcg/m^3. This level is lower than the levels that have caused health effects in animals and humans. The guideline is based on the assumption that people

are continuously exposed to Perc in air all day, every day for as long as a lifetime. This is rarely true for most people who, if exposed, are likely to be exposed for only part of the day and part of their lifetime. In setting this level, the NYS DOH also considered the possibility that certain members of the population (infants, children, the elderly, and those with pre-existing health conditions) may be especially sensitive to the effects of Perc.

The purpose of the guideline is to help guide decisions about the nature of the efforts to reduce Perc exposure. Reasonable and practical actions should be taken to reduce Perc exposure when indoor air levels are above those typically found in indoor air, even when they are below the guideline of 30 mcg/m^3. The urgency to take actions increases as indoor air levels increase, especially when air levels are above the guideline. The NYS DOH recommends taking immediate action to reduce exposure when an air level is ten times or more higher than the guideline (that is, when the air level is 300 mcg/m^3 or higher).

Ways to Limit Exposure to Perc in Indoor Air

In all cases, the specific actions to limit exposure to Perc in indoor air depend on a case-by-case evaluation of the situation. Removing household sources of Perc and maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of Perc entering indoor air by soil vapor intrusion. Use of an activated carbon filter on the water supply can reduce the amount of the chemical in contaminated well water that could evaporate into indoor air.

Reportable Detection Level

The reportable detection level for a chemical can vary depending on the analytical method used, the laboratory performing the analysis, and several other factors. Most laboratories that use the analytical methods recommended by the NYS DOH for measuring Perc in air (and approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program) can routinely detect the chemical at concentrations below 1 mcg/m^3.

Additional Information

Additional information on Perc, ways to reduce exposure, indoor air contamination resulting from soil vapor intrusion, indoor and outdoor air levels and the Environmental Conservation Law can be found on the NYS DOH website at www.health.state.ny.us/environmental/indoors/air/contaminants.

If you have further questions about Perc and the information in this fact sheet, please call the NYS DOH at 1-518-402-7800 or 1-800-458-1158 (extension 2-7800), e-mail to **ceheduc@health.state.ny.us**, or write to the following address:

New York State Department of Health
Center for Environmental Health
Outreach and Education Group
Empire State Plaza-Corning Tower, Room 1642
Albany, New York 12237

New York State Department of Health
December, 2013

Tenant Notification Information on Trichloroethene (TCE)

This fact sheet fulfills New York State Department of Health requirements under *Article 27 (Title 24, Section 27-2405)* of Environmental Conservation Law.

Trichloroethene

Trichloroethene (also known as trichloroethylene or TCE) is a human-made chemical. TCE is volatile, meaning it readily evaporates into the air at room temperature, where people can sometimes smell it. It is used as a solvent to remove grease from metal, spots from clothing, and as a paint stripper. It is also an ingredient in paints, varnishes, adhesives, and in making other products like furniture and electric/electronic equipment.

Exposure to TCE

People may be exposed to TCE in air, water, and food, or when TCE or material containing TCE (for example, soil) gets on the skin. For most people, almost all TCE exposure is from indoor air.

Sources

TCE can get into indoor air when products containing it are used, like glues, adhesives, paint removers, spot removers, and metal cleaners. TCE can also evaporate into the air from household water that comes from contaminated water wells. TCE can enter homes through soil vapor intrusion, which occurs when chemicals evaporate from contaminated groundwater into the air spaces between soil particles and migrate inside through cracks or other openings in a building's foundation. TCE gets into outdoor air when it is released from industrial facilities and when it evaporates from areas where chemical wastes are stored or disposed.

Levels Typically Found in Air

The background indoor air concentrations in homes and office buildings not near known environmental sources of TCE are almost always 1 microgram per cubic meter of air (1 mcg/m^3) or less. Background outdoor air levels also are almost always 1 mcg/m^3 or less.

Health Risks

TCE exposure can cause health effects on the central nervous system, liver, kidneys, and immune system, and can affect fetal heart development during pregnancy. The United States Environmental Protection Agency classifies TCE as a chemical that causes cancer in humans. As with all exposures, whether or not a person experiences a health effect depends on how much of a chemical they are exposed to, how often the exposure occurs, and how long the exposures last. Individual characteristics such as age, health, lifestyle, and genetics also play a role.

Guidelines

The New York State Department of Health recommends that TCE concentrations in the air not exceed 2 mcg/m^3. This guideline was set at a level below those known or suspected of causing health effects in people and animals. The guideline also assumes that people are continuously exposed to TCE in air, all day, every day, over a lifetime. This is a health protective assumption because most people are not exposed to TCE continuously throughout their life.

The TCE guideline is used to help guide decisions about efforts to reduce TCE exposure. The higher the concentration that TCE is above the guideline level, the greater the urgency to take action to reduce exposure. However, as with all chemicals, reducing exposure is always recommended when concentrations in the air are above background levels.

There is usually a significant TCE source when indoor air concentrations are much greater than the TCE guideline level. New York State Department of Health recommends taking immediate and effective action to reduce exposures when TCE levels in the air are 20 mcg/m^3 and greater. This concentration is based on concerns about TCE exposure during pregnancy, particularly during the first trimester, because TCE exposure is a risk factor for fetal heart defects.

Ways to Limit Indoor Air Exposure

The specific recommended action depends on a case-by-case evaluation of the situation. In many cases, removing household sources and maintaining adequate ventilation will help reduce indoor air levels. A sub-slab depressurization system can reduce the amount of TCE entering indoor air by soil vapor intrusion. TCE can also evaporate into the air from household water that comes from contaminated water wells. In these cases, using an activated carbon filter on the water supply also can help reduce the amount of TCE in indoor air.

Concerns about Exposure

Most people are exposed to TCE at concentrations that are much lower than those known to cause health effects. If you are concerned about exposure to TCE, talk with a health care provider.

Reportable Detection Level

The reportable detection level for any chemical can vary depending on the analytical method used, the laboratory performing the analysis, and other factors. Most laboratories that use the analytical methods recommended by the New York State Department of Health for measuring TCE in air can routinely detect the chemical at levels below 1 mcg/m^3. These labs are approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program. Find a certified lab at www.wadsworth.org/regulatory/elap or contact us at btsa@health.ny.gov for assistance.

More Information

- Visit www.health.ny.gov/environmental/indoors/air/contaminants/ for more about tenant notification law requirements, TCE and other indoor air contaminants, and ways to reduce exposure.
- Contact us with any questions or concerns about TCE exposure
  phone: 1-518-402-7800, e-mail btsa@health.ny.gov, or mail:

  New York State Department of Health
  Bureau of Toxic Substance Assessment Corning Tower, Room 1743
  Empire State Plaza, Albany, NY 12237

Volatile Organic Compounds (VOCs) in Commonly Used Products

People spend most of their time indoors – at home, school and work. This makes the quality of the indoor air you breathe important. This fact sheet focuses on certain kinds of chemicals called *volatile organic compounds* or *VOCs* that are found in many products that we commonly use. It is designed to help you think about what VOCs may be present in your indoor air and steps you can take to reduce them.

What are VOCs?

VOCs are chemicals that easily enter the air as gases from some solids or liquids. They are ingredients in many commonly used products and are in the air of just about every indoor setting. The table to the right shows some examples of products that contain VOCs.

How do VOCs get into indoor air?

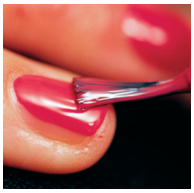
Products containing VOCs can release these chemicals when they are used and when they are stored. Many times you'll notice an odor when using these products. Product labels often list VOC ingredients and recommend that they should be used in well ventilated areas. *Ventilation* means bringing in fresh, outdoor air to mix with indoor air.

When you use a product containing VOCs indoors, the levels of these chemicals in the air increase, then decrease over time after you stop using them. The amount of time the chemical stays in the air depends on how quickly fresh air enters the room and the amount of the chemical used. Levels of VOCs will decrease faster if you open windows or doors, or use exhaust fans.

Building materials and furnishings, such as new carpets or furniture, slowly release VOCs over time. It may be necessary to ventilate areas with new carpeting or furniture for longer time periods because VOC levels can build up again after the windows are closed. If possible, unroll new carpets or store furniture outside your home (in a shed or detached garage) to minimize odors before bringing them in the home. If that's not possible, open windows, close doors and try to stay out of rooms until odors are reduced.

If VOC containing products are used outdoors near your home, you may want to close windows and nearby vents to prevent chemicals from coming inside.

Products used at home or work can release VOCs into the air when used and stored.



Examples of Household Products	Possible VOC Ingredients
Fuel containers or devices using gasoline, kerosene, fuel oil and products with petroleum distillates: paint thinner, oil-based stains and paint, aerosol or liquid insect pest products, mineral spirits, furniture polishes	BTEX (benzene, toluene, ethylbenzene, xylene), hexane, cyclohexane, 1,2,4-trimethylbenzene
Personal care products: nail polish, nail polish remover, colognes, perfumes, rubbing alcohol, hair spray	Acetone, ethyl alcohol, isopropyl alcohol, methacrylates (methyl or ethyl), ethyl acetate
Dry cleaned clothes, spot removers, fabric/ leather cleaners	Tetrachloroethene (perchloroethene (PERC), trichloroethene (TCE))
Citrus (orange) oil or pine oil cleaners, solvents and some odor masking products	d-limonene (citrus odor), a-pinene (pine odor), isoprene
PVC cement and primer, various adhesives, contact cement, model cement	Tetrahydrofuran, cyclohexane, methyl ethyl ketone (MEK), toluene, acetone, hexane, 1,1,1-trichloroethane, methyl-iso-butyl ketone (MIBK)
Paint stripper, adhesive (glue) removers	Methylene chloride, toluene, older products may contain carbon tetrachloride
Degreasers, aerosol penetrating oils, brake cleaner, carburetor cleaner, commercial solvents, electronics cleaners, spray lubricants	Methylene chloride, PERC, TCE, toluene, xylenes, methyl ethyl ketone, 1,1,1-trichloroethane
Moth balls, moth flakes, deodorizers, air fresheners	1,4-dichlorobenzene, naphthalene
Refrigerant from air conditioners, freezers, refrigerators, dehumidifiers	Freons (trichlorofluoromethane, dichlorodifluoromethane)
Aerosol spray products for some paints, cosmetics, automotive products, leather treatments, pesticides	Heptane, butane, pentane
Upholstered furniture, carpets, plywood, pressed wood products	Formaldehyde

VOCs can also get into indoor air from contaminated soils and groundwater under buildings. The chemicals enter buildings through cracks and openings in basements or slabs. When nearby soil or groundwater is contaminated, you might be asked for permission to investigate indoor air at your property. More information can be found at *www.nyhealth.gov/environmental/indoors/vapor_intrusion/*.

Should I be surprised if VOCs are in the air I breathe?

No. Because they are commonly used, some VOCs are almost always found in indoor air. The New York State Department of Health (DOH) and other agencies have studied typical levels of VOCs that may be present in indoor and outdoor air. Sometimes these levels are called "*background levels*".

The term "background levels" can be confusing because they can vary depending on where an air sample was collected and whether VOCs were used or stored. For example, a study of VOCs in urban areas might find higher levels than another study in rural areas. Some studies look at office environments, others examine residences. Please keep in mind study findings may or may not make sense for your setting.

More information about levels of VOCs collected by DOH is available in Appendix C of the guidance for evaluating vapor intrusion at *www.nyhealth.gov/environmental/investigations/soil_gas/svi_guidance.*

How can VOCs affect human health?

Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*. No matter how dangerous a substance or activity is, it cannot harm you without exposure.

Whether or not a person will have health effects after breathing in VOCs depends on:

1. The *toxicity* of the chemical (the amount of harm that can be caused by contact with the chemical).
2. How much of the chemical is in the air.
3. How long and how often the air is breathed.

Differences in age, health condition, gender and exposure to other chemicals also can affect whether or not a person will have health effects.

Short-term exposure to high levels of some VOCs can cause headaches, dizziness, light-headedness, drowsiness, nausea, and eye and respiratory irritation. These effects usually go away after the exposure stops. In laboratory animals, long-term exposure to high levels of some VOCs has caused cancer and affected the liver, kidney and nervous system. In general, we recommend minimizing exposure to chemicals, if possible.

How can I reduce the levels of VOCs indoors?

- Find out if products used or stored in your home contain VOCs. Information about the chemicals in many household products are listed on the front of this fact sheet and a larger list is on the National Institute of Health's website at *hpd.nlm.nih.gov/products.htm*.
- If you must store products containing VOCs, do so in tightly sealed, original containers in a secure and well-ventilated area. If possible store products in places where people do not spend much time, such as a garage or outdoor shed. Better yet, buy these products in amounts that are used quickly.
- Dispose of unneeded products containing VOCs. Many of these products are considered *household hazardous wastes* and should be disposed of at special facilities or during special household hazardous waste collection programs in your area. Contact your town or visit the New York State Department of Environmental Conservation's website at *www.dec.ny.gov/chemical/8485.html* for more information about disposing of these products.
- Use products containing VOCs in well-ventilated areas or outdoors. Open windows and doors or use an exhaust fan to increase ventilation. Repeated or prolonged ventilation may be necessary for reducing levels from building materials (new carpeting or furniture) that release VOCs slowly over time.
- Carefully read labels and follow directions for use.

Where can I find out more?

- **New York State Department of Health**
  (800) 458-1158
  www.nyhealth.gov/environmental/
- **Indoor Air Quality and Your Home** from the New York State Energy Research and Development Authority *www.nyserda.org/publications/iaq.pdf*
- **The Inside Story: A Guide to Indoor Air Quality**
  www.epa.gov/iaq/pubs/insidest.html
- **New York State Department of Environmental Conservation** website for information about household hazardous waste disposal
  www.dec.ny.gov/chemical/8485.html
- **National Institute of Health's** website for information about chemicals found in many household products.
  hpd.nlm.nih.gov/products.htm

December 2007

Regency Centers.

321 Railroad Avenue
Greenwich, CT 06830

203 863 8200
RegencyCenters.com

Hung Chin Wong
d/b/a Chinatown Restaurant
170 Route 52, Carmel, NY 10512

Re: Sub-slab and Ambient Air Sampling at Chinatown
Carmel ShopRite
170 Route 52 Carmel, New York

Dear Tenant:

Available upon request is the Soil Vapor Intrusion Summary Report summarizing soil vapor and indoor air sampling at Chinatown located at the Carmel ShopRite Plaza, 170 Route 52, Carmel, New York. This report, prepared by our consultant, Groundwater Environmental Services (GES), summarizes the results of recent indoor air sampling efforts at Chinatown and other tenant spaces. As shown in the report, detections of tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (c12-DCE) and/or methylene chloride were detected in one or more sample locations. Other volatile organic compounds were also detected. None of the detections identified were at actionable concentrations. The report also explains that GES reactivated the previously installed sub-slab depressurization (SSD) systems; these systems will continue to operate until the New York State Department of Environmental Conservation and New York State Department of Health approve shutdown.

Also enclosed are Fact Sheets prepared by the New York State Department of Health regarding PCE and TCE and other volatile organic compounds. If you have any questions regarding the air sampling data or the enclosed Tetrachloroethene Fact Sheet, we suggest that you contact Renata E. Ockerby, Public Health Specialist II of the NYSDOH Bureau of Environmental Exposure Investigation. She can be reached by telephone at (518) 402-7860 or via email at BEEI@health.ny.gov.

We will continue to keep you posted on our on-going efforts regarding the above.

Very truly yours,

Monica Roth

Monica Roth
Senior Manager, Environmental

Encls.

TETRACHLOROETHENE (PERC) IN INDOOR AND OUTDOOR AIR

SEPTEMBER 2013 FACT SHEET

This fact sheet answers questions about a chemical called tetrachloroethene (PERC), which is widely used to dry-clean clothes. It provides information on health effects seen in humans exposed to PERC in air. It also provides information about the New York State Department of Health's new guideline of 30 micrograms of PERC per cubic meter of air (30 mcg/m^3) or 0.03 milligrams of PERC per cubic meter of air (0.03 mg/m^3). The fact sheet focuses on the health risks from air exposures because most of the PERC released into the environment goes into air.

Prepared by

Bureau of Toxic Substance Assessment
New York State Department of Health

1. WHAT IS TETRACHLOROETHENE (PERC)?

Tetrachloroethene is a manufactured chemical that is widely used in the dry-cleaning of fabrics, including clothes. It is also used for degreasing metal parts and in manufacturing other chemicals. Tetrachloroethene is found in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for tetrachloroethene include PERC, tetrachloroethylene, perchloroethylene, and PCE. PERC is a commonly used name and will be used in the rest of the fact sheet.

PERC is a nonflammable, colorless liquid at room temperature. It readily evaporates into air and has an ether-like odor. Because most people stop noticing the odor of PERC in air after a short time, odor is not a reliable warning signal of PERC exposure.

2. HOW CAN I BE EXPOSED TO PERC?

People may be exposed to PERC in air, water, and food. Exposure can also occur when PERC or material containing PERC (for example, soil) gets on the skin. For most people, almost all exposure is from PERC in air.

PERC gets into outdoor and indoor air by evaporation from industrial or dry-cleaning operations and from areas where chemical wastes are stored or disposed. People living in homes located near these operations may be exposed to higher levels of PERC than the general population not living near such operations. Groundwater near these areas may become contaminated if PERC is improperly dumped or leaks into the ground. People may be exposed if they drink the contaminated water. They also may be exposed if PERC evaporates from contaminated drinking water into indoor air during cooking and washing. PERC may evaporate from contaminated groundwater and soil into the indoor air of buildings above the contaminated area. PERC also may evaporate from dry-cleaned clothes into indoor air or may get into indoor air after PERC-containing products, such as spot removers, are used. Indoor air PERC levels may get high if PERC-containing products are used in poorly ventilated areas.

3. HOW DOES PERC ENTER AND LEAVE MY BODY?

When people inhale air containing PERC, the PERC is taken into the body through the lungs and passed into the blood, which carries it to all parts of the body. A large fraction of this PERC is exhaled, unchanged, through the lungs into the air. Some of this PERC is stored in the body (for example, in fat, the liver, and the brain) and some is broken down in the liver to other compounds and eliminated in urine. PERC can also be found in breastmilk. Once exposure stops, most of the PERC and its breakdown products leave the body in several days. However, it may take several weeks for all of the PERC and its breakdown products to leave the body.

4. WHAT KINDS OF HEALTH EFFECTS CAN BE CAUSED BY EXPOSURE TO PERC IN AIR?

In humans, PERC may affect the central nervous system, the liver, kidneys, blood, immune system, and perhaps the reproductive system. The available data are insufficient to draw conclusions regarding effects of PERC exposure on development in infants and children.

For all health effects, the potential for an increased health risk depends on several factors, including the amount of exposure, the frequency of exposures, and the duration of the exposures. It also depends on the characteristics of the exposed person, such as age, sex, diet, family traits, lifestyle, genetic background, the presence of other chemicals in their body (e.g., alcohol, prescription drugs), and general state of health. Although difficult to quantify, these differences can affect how people will respond to a given exposure. This is known as sensitivity. Differences in sensitivity should be kept in mind when reading the following information on the human health effects of PERC.

Short-Term Exposure - Studies with volunteers show that exposure of eight hours or less to 700,000 micrograms per cubic meter of air (mcg/m^3) cause central nervous system symptoms such as dizziness, headache, sleepiness, lightheadedness, and poor balance. Exposure to 350,000 mcg/m^3 for four hours affected the nerves of the visual system and reduced scores on certain behavioral tests (which, for example, measure the speed and accuracy of a person's response to something they see on a computer screen). These effects were mild and disappeared soon after exposure ended.

Long-Term Exposure - Numerous studies of dry-cleaning workers indicate that long-term exposure (7 to 20 years, for example) to workplace air levels (41,000 mcg/m^3 to 120,000 mcg/m^3) caused reduced scores on neurobehavioral or color vision tests, increased levels of biochemical indicators of liver or kidney damage, reduced red blood cells, and blood and immune system effects [increased white blood cells and blood levels of a certain type of antibody (immunoglobulin E)]. The effects were mild and required special tests to be detected. It is not known how long these effects last.

The New York State Department of Health (NYSDOH, 2010) measured visual function [visual contrast sensitivity (VCS); color vision][1] in adults and children living in the apartments located in buildings with or without a dry-cleaner using PERC and also measured PERC indoor air levels. PERC levels were higher in the indoor air of apartments in buildings with dry-cleaners. Elevated indoor air PERC levels were associated with a slightly increased risk for children to have decreased VCS scores. The effect of PERC on VCS scores was most noticeable in a small group of children living in buildings with co-located dry cleaners using PERC. In those apartments, indoor air PERC levels ranged from 127 to 710 mcg/m^3, with a 50th percentile[2] (also known as the median) level of 340 mcg/m^3. For affected children (7 years mean duration of residency), the decrease was very small and occurred for only one eye in one of five tests. Mean VCS test scores were still within a normal range. Therefore, the risk for decreased VCS scores among affected children is considered to be small. Elevated indoor air PERC levels were not associated with effects on adult VCS scores, or with color vision of either children or adults. The observed associations between elevated indoor air PERC levels and children's VCS suggests that indoor air PERC levels in the range detected may have subtle effects on the brain.

A few epidemiological studies showed positive associations between workplace PERC exposure and reproductive effects (increased risk of spontaneous abortion, sperm disorders, and reduced fertility or delayed conception). Data on workplace air levels were not reported or were limited; however, workplace air levels during the times these studies were conducted were considerably higher than those typically found in indoor or outdoor air. These data suggest, but do not prove, that the reproductive effects were caused by PERC and not by some other factor or factors.

Lastly, epidemiological studies provide a pattern of evidence for a positive association between PERC exposure in the workplace and several types of cancer, specifically bladder cancer, non-Hodgkin lymphoma, and multiple myeloma. These associations were observed in studies with high quality assessments of the likelihood of PERC only exposures. However, data on PERC workplace air levels were not reported, but measurements from other studies indicate that workplace air levels during the times the workers were exposed were considerably higher than those typically found in indoor or outdoor air. Moreover, it is unlikely that the associations were dependent, totally or in part, on factors other than PERC exposures, such as common lifestyle factors as smoking or drinking alcohol. Data from more limited studies suggest that other types of cancer (esophageal, kidney, lung, liver, cervical, and breast cancer) are associated with PERC exposure. In laboratory studies, PERC caused cancer in rats and mice when they ingested or inhaled high doses almost daily for a lifetime. Based on human and animal data, the United States Environmental Protection Agency (USEPA) classifies PERC as “likely to be carcinogenic in humans by all routes of exposure.”

[1] VCS is a measure of a person's ability to distinguish the contrast between a viewed object and its background. It is easier to detect images of high contrast (e.g., a black cat on snow) than low contrast (e.g., a white cat on snow).

[2] Half the results are less than or equal to this value and half are above this value.

5. WHAT ARE BACKGROUND LEVELS FOR PERC IN OUTDOOR AND INDOOR AIR IN AREAS THAT ARE NOT NEAR A KNOWN ENVIRONMENTAL SOURCE OF PERC?

Various studies provide data on background levels of PERC in outdoor and indoor air. The New York State Department of Environmental Conservation collects data on outdoor air levels of air toxics under the Toxics Monitoring System (also known as Volatile Organics Network). The monitoring sites were selected to provide air quality data from the state's urban, industrial, residential, and rural areas. Based on 5882 samples collected across the state during 1999 to 2008, the 50th percentile (median) and 95th percentile[3] PERC levels were 0.41 mcg/m^3 and 4.8 mcg/m^3, respectively. NYSDOH (2005) conducted a study between 1997 and 2005 on the occurrence of volatile organic chemicals, including PERC, in the indoor and outdoor air of about 100 homes across the state (excluding New York City). Two outdoor samples were collected just outside each home for a total of 200 samples. The 50th percentile and 95th percentile PERC levels were less than 0.25 mcg/m^3 and 1.6 mcg/m^3, respectively. Finally, the 50th percentile and 95% percentile PERC levels in 587 outdoor air samples collected in 1999 - 2011 during the investigation of NYS remedial sites not known to have nor suspected to have sources of PERC were 0.52 mcg/m^3 and 2.6 mcg/m^3, respectively (NYSDOH, 2013b). Collectively, these three data sets, particularly given the low 95% percentile level in the large dataset from the Toxics Monitoring System, indicate that fewer than 5% of the background PERC levels in outdoor air are above 10 mcg/m^3.

The NYSDOH, the USEPA, and others have collected and analyzed information on PERC levels in indoor air. The table below contains the results from air samples collected inside of buildings that were not near known sources of PERC and other chemicals (for example, a home not known to be near a chemical spill, a hazardous waste site, a dry-cleaner, or a factory). The five studies that reported 90th percentile PERC air levels indicate that fewer than 10% of the background PERC levels in indoor air are above 10 mcg/m^3. In addition, the results for six of the eight studies that reported 95th percentiles and contained most of the samples indicate that fewer than 5% of the background PERC levels in indoor air are above 10 mcg/m^3. The other two studies (NYSDOH, 2009, 2013b; USEPA, 2001, 2013) indicate that fewer than 5% of the background indoor air levels are above 20 mcg/m^3.

[3] 95% of the results are less than or equal to this value.

Background Indoor Air Levels in US Buildings (1990-2013).

Study Description (and Sampling Years)	No. of Samples	Air Level Percentiles (mcg/m^3)			Reference
		50th (median)	90th [A]	95th	
Residential Buildings					
13 studies on residential properties (number NR[B]) in North America (1990-2005)	2312[C]	ND[D] - 2.2 (range)[E]	ND[D] - 7 (range)[E]	4.1 - 9.5 (range)[E]	USEPA (2011); also see Dawson & McAlary (2009)
screening study of households (284) in urban or non-urban areas of MN (1997)	284	1.4	NR[B]	4.9	Adgate et al. (2004)
subset of the screened households (101) in MN (1997)	101	1.3	NR[B]	5.2	
single family homes (about 100) heated with fuel oil from across NYS (excluding NYC) (1997-2003)	400	0.34	2.9	3.9	NYSDOH (2005, 2013a)[F]
households (about 100 each) in Elizabeth, NJ, Houston, TX, and Los Angeles, CA (1999-2001)	554	0.56	NR[B]	6.0	Weisel et al. (2005)
apartments (61) in NYC building **without** a co-located dry-cleaner (2001-2003)	61	2.2	8.5	19.09	NYSDOH (2009, 2013b)
Office Buildings					
public & commercial office buildings (70) in US (1994-1996)	209	1.5	9.3	18	USEPA (2001, 2013)
Mixed-Use Buildings					
buildings (number NR[B]) near NYS remedial sites not known nor suspected to have sources of PERC (1999-2011)	1625	0.72	2.8	6.6	NYSDOH (2013b)

[A] 90% of the results are less than or equal to this value.
[B] NR: not reported.
[C] Total number of samples, but number of samples associated with each percentile range is less than 2312, but was not reported.
[D] ND: not detected.
[E] The range from 13, 8, and 5 studies that reported the 50th, 90th, and 95th percentiles, respectively.
[F] One of the 13 studies included in USEPA (2011) and Dawson & McAlary (2009).

6. WHAT IS THE NEW YORK STATE DEPARTMENT OF HEALTH'S NEW GUIDELINE FOR PERC IN AIR?

After consideration of the potential health effects of PERC, background levels of PERC in air, and analytical techniques (the ability and reliability of methods to measure PERC in air), NYSDOH recommends that the average air level not exceed 30 mcg/m^3. This determination considered continuous, lifetime exposure and sensitive people. Three other ways of expressing the new guideline are 0.03 milligrams per cubic meter of air (0.03 mg/m^3), 4.4 parts per billion (ppb) or 0.0044 parts per million (ppm). This replaces the old guideline of 100 mcg/m^3.

An air guideline of 30 mcg/m^3 is below the PERC air levels known to cause noncancer effects, including developmental and reproductive effects, in humans and animals, and should be protective against those effects. It is lower than the USEPA's (2012) reference concentration (RfC)[4] for PERC of 40 mcg/m^3. The estimated excess cancer risk associated with lifetime, continuous exposure to 30 mcg/m^3 is about one-in-one-hundred thousand.

[4] The reference concentration is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

Decisions about whether to take actions to further reduce exposure are generally made on a case-by-case basis at this level of risk.

However, NYSDOH recommends that reasonable and practical actions should be taken to reduce PERC exposure whenever air levels are above background. The purpose of the guideline is to help guide decisions about the urgency of the actions to reduce PERC exposure. The urgency to initiate these actions and to determine, in a timely manner, whether they have reduced exposure, increases with indoor air levels, particularly when air levels are above the guideline.

Indoor air levels substantially above the guideline indicate a significant PERC source and may require more immediate remedial action. NYSDOH has concerns about lengthy exposure (months to years) to air levels higher than 300 mcg/m^3 because the results of a recent NYSDOH study suggested that indoor air PERC levels in apartments (median value of 340 mcg/m^3) may have subtle effects on the nervous system (vision function) of children (NYSDOH, 2010 at http://www.health.ny.gov/environmental/investigations/perc/info_sheet.htm). Thus, NYSDOH recommends taking immediate and effective action to reduce exposure when an air level is equal to or above 300 mcg/m^3. In all cases, the specific corrective actions to be taken depend on a case-by-case evaluation of the situation. The goal of the recommended actions is to reduce PERC levels in indoor air to as close to background as practical.

7. WHY DID NEW YORK STATE DEPARTMENT OF HEALTH REDUCE THE GUIDELINE FOR PERC IN AIR FROM 100 MCG/M^3 TO 30 MCG/M^3?

The guideline of 100 mcg/m^3 was issued in 1997 and was based on the toxicological data available at the time. Since then, many new toxicity studies have been published and the USEPA has completed a comprehensive, state-of-the-science, peer-reviewed risk assessment of PERC. Based on the risk assessment, the USEPA recommended values for evaluating the potential for noncancer and cancer effects from exposure to PERC in air [a RfC (40 mcg/m^3) and an air level (4 mcg/m^3) associated with an estimated excess cancer risk of one-in-one million, assuming continuous, lifetime exposure]. NYSDOH staff reviewed the USEPA risk assessment and determined that the recommended values are scientifically robust and should replace the values derived in 1997. The USEPA publication of its RfC (40 mcg/m^3) necessitated a re-evaluation of the health-protectiveness of the old NYSDOH guideline (100 mcg/m^3) because it has been the past practice of NYSDOH to set guidelines at air levels that are equal to or less than a RfC. Consequently, the guideline was reduced to 30 mcg/m^3 after consideration of new toxicity data (e.g., NYSDOH, 2010) and the USEPA risk assessment.

8. SHOULD I BE CONCERNED ABOUT HEALTH EFFECTS IF I AM EXPOSED TO AN AIR LEVEL SLIGHTLY ABOVE THE GUIDELINE?

The guideline is not a bright line between PERC levels that cause health effects and those that do not. The differences between exposure at the guideline and exposure levels known to cause effects in humans and animals are large. Thus, exposure to levels above but near the guideline will not cause health effects in most, if not all, people. In addition, the guideline is based on the assumption that people are continuously exposed to PERC in air all day, every day for as long as a lifetime. Continuous exposure is rarely true for most people, who, if exposed, are more likely to be exposed for a part of the day and part of their lifetime.

9. IS THERE A TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO PERC?

PERC levels can be measured in the breath for weeks following a high exposure to PERC because it is stored in body fat and is slowly released into the bloodstream and then exhaled in the breath. PERC can be measured in blood. Also, breakdown products of PERC can be detected in the blood and urine for several days after exposure to PERC. Because exposure to other chemicals can produce the same breakdown products in the urine and blood as PERC, the tests for breakdown products cannot determine if you have been exposed only to PERC. Although the tests can show if PERC levels in the body are elevated compared to background levels, they

cannot conclusively determine when and for how long a person was exposed, what the source of that exposure was, or whether or not the person will develop adverse health effects.

10. WHEN SHOULD MY CHILDREN OR I SEE A PHYSICIAN?

If you believe you or your children have symptoms that you think are caused by PERC exposure, you and your children should see a physician. You should tell the physician about the symptoms and about when, how, and for how long you think you and/or your children were exposed to PERC.

11. WHERE CAN I GET MORE INFORMATION?

If you have any questions about the information in this fact sheet, would like to know more about PERC, or are concerned that you may be exposed to elevated levels of PERC, please call the New York State Department of Health at 518-402-7800 or 1-800-458-1158, send an e-mail to btsa@health.state.ny.us, or write to us at the following address.

New York State Department of Health
Bureau of Toxic Substance Assessment
Corning Tower, Room 1743
Empire State Plaza,
Albany, NY 12237

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New York State Department of Health
Tenant Notification Fact Sheet for Tetrachloroethene (Perc)

This fact sheet is provided to fulfill New York State Department of Health (NYS DOH) requirements for preparation of generic fact sheets under Article 27 (Title 24, Section 27-2405) of the Environmental Conservation Law.

Tetrachloroethene (Perc)

Tetrachloroethene (also known as perchloroethylene or Perc) is a man-made volatile organic chemical that is widely used in the dry-cleaning of fabrics, including clothes, and in manufacturing other chemicals. It was also used for degreasing metal parts and in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors.

Sources of Perc in Indoor Air

Household products containing Perc could be a possible source for Perc in indoor air. Perc also may evaporate from dry-cleaned clothes or dry-cleaning operations into indoor air. Another source could be evaporation from contaminated well water that is used for household purposes. Perc may also enter homes through soil vapor intrusion, which occurs when the chemical evaporates from groundwater, enters soil vapor (air spaces between soil particles), and migrates through building foundations into the building's indoor air. Perc has also been found at low concentrations in outdoor air.

Levels Typically Found in Air

The NYS DOH reviewed and compiled information from studies in New York State as well as from homes and office buildings across the United States on typical levels of Perc in indoor and outdoor air. Levels of Perc in the indoor air of homes and office settings and in outdoor air are expected to be below 10 micrograms per cubic meter (mcg/m^3).

Health Risks Associated with Exposure

An association exists between exposure of people in the workplace to high levels of Perc in air and certain forms of cancer. Perc causes cancer in laboratory animals exposed to high levels over their lifetimes. Overall, the studies of humans and in animals do not prove that Perc causes cancer in people, but are highly suggestive that there may be an increased risk for cancer in people who are exposed to Perc (particularly at high concentrations) over long periods of time

People exposed to high levels of Perc in air had nervous system effects and slight changes to their liver and kidneys. Some studies show a slightly increased risk for some types of reproductive effects among workers (including dry-cleaning workers) exposed to Perc and other chemicals. The reproductive effects associated with exposure included increased risks for spontaneous abortion, menstrual and sperm disorders, and reduced fertility. The data suggest, but do not prove, that the effects were caused by Perc and not by some other factor or factors. Exposure to high levels of Perc has caused liver and kidney damage in laboratory animals and effects on the nervous system. Taken together, the human and animal studies indicate that human exposure to high levels of Perc causes effects on the nervous system, and suggest that human exposure to high levels of Perc may increase the risk for liver and kidney toxicity.

NYS DOH Air Guideline

The NYS DOH guideline for Perc in air is 30 mcg/m^3. This level is lower than the levels that have caused health effects in animals and humans. The guideline is based on the assumption that people

are continuously exposed to Perc in air all day, every day for as long as a lifetime. This is rarely true for most people who, if exposed, are likely to be exposed for only part of the day and part of their lifetime. In setting this level, the NYS DOH also considered the possibility that certain members of the population (infants, children, the elderly, and those with pre-existing health conditions) may be especially sensitive to the effects of Perc.

The purpose of the guideline is to help guide decisions about the nature of the efforts to reduce Perc exposure. Reasonable and practical actions should be taken to reduce Perc exposure when indoor air levels are above those typically found in indoor air, even when they are below the guideline of 30 mcg/m^3. The urgency to take actions increases as indoor air levels increase, especially when air levels are above the guideline. The NYS DOH recommends taking immediate action to reduce exposure when an air level is ten times or more higher than the guideline (that is, when the air level is 300 mcg/m^3 or higher).

Ways to Limit Exposure to Perc in Indoor Air

In all cases, the specific actions to limit exposure to Perc in indoor air depend on a case-by-case evaluation of the situation. Removing household sources of Perc and maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of Perc entering indoor air by soil vapor intrusion. Use of an activated carbon filter on the water supply can reduce the amount of the chemical in contaminated well water that could evaporate into indoor air.

Reportable Detection Level

The reportable detection level for a chemical can vary depending on the analytical method used, the laboratory performing the analysis, and several other factors. Most laboratories that use the analytical methods recommended by the NYS DOH for measuring Perc in air (and approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program) can routinely detect the chemical at concentrations below 1 mcg/m^3.

Additional Information

Additional information on Perc, ways to reduce exposure, indoor air contamination resulting from soil vapor intrusion, indoor and outdoor air levels and the Environmental Conservation Law can be found on the NYS DOH website at www.health.state.ny.us/environmental/indoors/air/contaminants.

If you have further questions about Perc and the information in this fact sheet, please call the NYS DOH at 1-518-402-7800 or 1-800-458-1158 (extension 2-7800), e-mail to **ceheduc@health.state.ny.us**, or write to the following address:

New York State Department of Health
Center for Environmental Health
Outreach and Education Group
Empire State Plaza-Corning Tower, Room 1642
Albany, New York 12237

New York State Department of Health
December, 2013

Tenant Notification Information on Trichloroethene (TCE)

This fact sheet fulfills New York State Department of Health requirements under *Article 27 (Title 24, Section 27-2405)* of Environmental Conservation Law.

Trichloroethene

Trichloroethene (also known as trichloroethylene or TCE) is a human-made chemical. TCE is volatile, meaning it readily evaporates into the air at room temperature, where people can sometimes smell it. It is used as a solvent to remove grease from metal, spots from clothing, and as a paint stripper. It is also an ingredient in paints, varnishes, adhesives, and in making other products like furniture and electric/electronic equipment.

Exposure to TCE

People may be exposed to TCE in air, water, and food, or when TCE or material containing TCE (for example, soil) gets on the skin. For most people, almost all TCE exposure is from indoor air.

Sources

TCE can get into indoor air when products containing it are used, like glues, adhesives, paint removers, spot removers, and metal cleaners. TCE can also evaporate into the air from household water that comes from contaminated water wells. TCE can enter homes through soil vapor intrusion, which occurs when chemicals evaporate from contaminated groundwater into the air spaces between soil particles and migrate inside through cracks or other openings in a building's foundation. TCE gets into outdoor air when it is released from industrial facilities and when it evaporates from areas where chemical wastes are stored or disposed.

Levels Typically Found in Air

The background indoor air concentrations in homes and office buildings not near known environmental sources of TCE are almost always 1 microgram per cubic meter of air (1 mcg/m^3) or less. Background outdoor air levels also are almost always 1 mcg/m^3 or less.

Health Risks

TCE exposure can cause health effects on the central nervous system, liver, kidneys, and immune system, and can affect fetal heart development during pregnancy. The United States Environmental Protection Agency classifies TCE as a chemical that causes cancer in humans. As with all exposures, whether or not a person experiences a health effect depends on how much of a chemical they are exposed to, how often the exposure occurs, and how long the exposures last. Individual characteristics such as age, health, lifestyle, and genetics also play a role.

Guidelines

The New York State Department of Health recommends that TCE concentrations in the air not exceed 2 mcg/m^3. This guideline was set at a level below those known or suspected of causing health effects in people and animals. The guideline also assumes that people are continuously exposed to TCE in air, all day, every day, over a lifetime. This is a health protective assumption because most people are not exposed to TCE continuously throughout their life.

The TCE guideline is used to help guide decisions about efforts to reduce TCE exposure. The higher the concentration that TCE is above the guideline level, the greater the urgency to take action to reduce exposure. However, as with all chemicals, reducing exposure is always recommended when concentrations in the air are above background levels.

There is usually a significant TCE source when indoor air concentrations are much greater than the TCE guideline level. New York State Department of Health recommends taking immediate and effective action to reduce exposures when TCE levels in the air are 20 mcg/m^3 and greater. This concentration is based on concerns about TCE exposure during pregnancy, particularly during the first trimester, because TCE exposure is a risk factor for fetal heart defects.

Ways to Limit Indoor Air Exposure

The specific recommended action depends on a case-by-case evaluation of the situation. In many cases, removing household sources and maintaining adequate ventilation will help reduce indoor air levels. A sub-slab depressurization system can reduce the amount of TCE entering indoor air by soil vapor intrusion. TCE can also evaporate into the air from household water that comes from contaminated water wells. In these cases, using an activated carbon filter on the water supply also can help reduce the amount of TCE in indoor air.

Concerns about Exposure

Most people are exposed to TCE at concentrations that are much lower than those known to cause health effects. If you are concerned about exposure to TCE, talk with a health care provider.

Reportable Detection Level

The reportable detection level for any chemical can vary depending on the analytical method used, the laboratory performing the analysis, and other factors. Most laboratories that use the analytical methods recommended by the New York State Department of Health for measuring TCE in air can routinely detect the chemical at levels below 1 mcg/m^3. These labs are approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program. Find a certified lab at www.wadsworth.org/regulatory/elap or contact us at btsa@health.ny.gov for assistance.

More Information

- Visit www.health.ny.gov/environmental/indoors/air/contaminants/ for more about tenant notification law requirements, TCE and other indoor air contaminants, and ways to reduce exposure.
- Contact us with any questions or concerns about TCE exposure
  phone: 1-518-402-7800, e-mail btsa@health.ny.gov, or mail:

  New York State Department of Health
  Bureau of Toxic Substance Assessment Corning Tower, Room 1743
  Empire State Plaza, Albany, NY 12237

Volatile Organic Compounds (VOCs) in Commonly Used Products

People spend most of their time indoors – at home, school and work. This makes the quality of the indoor air you breathe important. This fact sheet focuses on certain kinds of chemicals called *volatile organic compounds* or *VOCs* that are found in many products that we commonly use. It is designed to help you think about what VOCs may be present in your indoor air and steps you can take to reduce them.

What are VOCs?

VOCs are chemicals that easily enter the air as gases from some solids or liquids. They are ingredients in many commonly used products and are in the air of just about every indoor setting. The table to the right shows some examples of products that contain VOCs.

How do VOCs get into indoor air?

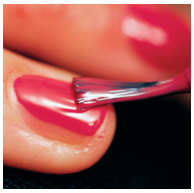
Products containing VOCs can release these chemicals when they are used and when they are stored. Many times you'll notice an odor when using these products. Product labels often list VOC ingredients and recommend that they should be used in well ventilated areas. *Ventilation* means bringing in fresh, outdoor air to mix with indoor air.

When you use a product containing VOCs indoors, the levels of these chemicals in the air increase, then decrease over time after you stop using them. The amount of time the chemical stays in the air depends on how quickly fresh air enters the room and the amount of the chemical used. Levels of VOCs will decrease faster if you open windows or doors, or use exhaust fans.

Building materials and furnishings, such as new carpets or furniture, slowly release VOCs over time. It may be necessary to ventilate areas with new carpeting or furniture for longer time periods because VOC levels can build up again after the windows are closed. If possible, unroll new carpets or store furniture outside your home (in a shed or detached garage) to minimize odors before bringing them in the home. If that's not possible, open windows, close doors and try to stay out of rooms until odors are reduced.

If VOC containing products are used outdoors near your home, you may want to close windows and nearby vents to prevent chemicals from coming inside.

Products used at home or work can release VOCs into the air when used and stored.



Examples of Household Products	Possible VOC Ingredients
Fuel containers or devices using gasoline, kerosene, fuel oil and products with petroleum distillates: paint thinner, oil-based stains and paint, aerosol or liquid insect pest products, mineral spirits, furniture polishes	BTEX (benzene, toluene, ethylbenzene, xylene), hexane, cyclohexane, 1,2,4-trimethylbenzene
Personal care products: nail polish, nail polish remover, colognes, perfumes, rubbing alcohol, hair spray	Acetone, ethyl alcohol, isopropyl alcohol, methacrylates (methyl or ethyl), ethyl acetate
Dry cleaned clothes, spot removers, fabric/ leather cleaners	Tetrachloroethene (perchloroethene (PERC), trichloroethene (TCE))
Citrus (orange) oil or pine oil cleaners, solvents and some odor masking products	d-limonene (citrus odor), a-pinene (pine odor), isoprene
PVC cement and primer, various adhesives, contact cement, model cement	Tetrahydrofuran, cyclohexane, methyl ethyl ketone (MEK), toluene, acetone, hexane, 1,1,1-trichloroethane, methyl-iso-butyl ketone (MIBK)
Paint stripper, adhesive (glue) removers	Methylene chloride, toluene, older products may contain carbon tetrachloride
Degreasers, aerosol penetrating oils, brake cleaner, carburetor cleaner, commercial solvents, electronics cleaners, spray lubricants	Methylene chloride, PERC, TCE, toluene, xylenes, methyl ethyl ketone, 1,1,1-trichloroethane
Moth balls, moth flakes, deodorizers, air fresheners	1,4-dichlorobenzene, naphthalene
Refrigerant from air conditioners, freezers, refrigerators, dehumidifiers	Freons (trichlorofluoromethane, dichlorodifluoromethane)
Aerosol spray products for some paints, cosmetics, automotive products, leather treatments, pesticides	Heptane, butane, pentane
Upholstered furniture, carpets, plywood, pressed wood products	Formaldehyde

VOCs can also get into indoor air from contaminated soils and groundwater under buildings. The chemicals enter buildings through cracks and openings in basements or slabs. When nearby soil or groundwater is contaminated, you might be asked for permission to investigate indoor air at your property. More information can be found at *www.nyhealth.gov/environmental/indoors/vapor_intrusion/*.

Should I be surprised if VOCs are in the air I breathe?

No. Because they are commonly used, some VOCs are almost always found in indoor air. The New York State Department of Health (DOH) and other agencies have studied typical levels of VOCs that may be present in indoor and outdoor air. Sometimes these levels are called "*background levels*".

The term "background levels" can be confusing because they can vary depending on where an air sample was collected and whether VOCs were used or stored. For example, a study of VOCs in urban areas might find higher levels than another study in rural areas. Some studies look at office environments, others examine residences. Please keep in mind study findings may or may not make sense for your setting.

More information about levels of VOCs collected by DOH is available in Appendix C of the guidance for evaluating vapor intrusion at *www.nyhealth.gov/environmental/investigations/soil_gas/svi_guidance.*

How can VOCs affect human health?

Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*. No matter how dangerous a substance or activity is, it cannot harm you without exposure.

Whether or not a person will have health effects after breathing in VOCs depends on:

1. The *toxicity* of the chemical (the amount of harm that can be caused by contact with the chemical).
2. How much of the chemical is in the air.
3. How long and how often the air is breathed.

Differences in age, health condition, gender and exposure to other chemicals also can affect whether or not a person will have health effects.

Short-term exposure to high levels of some VOCs can cause headaches, dizziness, light-headedness, drowsiness, nausea, and eye and respiratory irritation. These effects usually go away after the exposure stops. In laboratory animals, long-term exposure to high levels of some VOCs has caused cancer and affected the liver, kidney and nervous system. In general, we recommend minimizing exposure to chemicals, if possible.

How can I reduce the levels of VOCs indoors?

- Find out if products used or stored in your home contain VOCs. Information about the chemicals in many household products are listed on the front of this fact sheet and a larger list is on the National Institute of Health's website at *hpd.nlm.nih.gov/products.htm*.
- If you must store products containing VOCs, do so in tightly sealed, original containers in a secure and well-ventilated area. If possible store products in places where people do not spend much time, such as a garage or outdoor shed. Better yet, buy these products in amounts that are used quickly.
- Dispose of unneeded products containing VOCs. Many of these products are considered *household hazardous wastes* and should be disposed of at special facilities or during special household hazardous waste collection programs in your area. Contact your town or visit the New York State Department of Environmental Conservation's website at *www.dec.ny.gov/chemical/8485.html* for more information about disposing of these products.
- Use products containing VOCs in well-ventilated areas or outdoors. Open windows and doors or use an exhaust fan to increase ventilation. Repeated or prolonged ventilation may be necessary for reducing levels from building materials (new carpeting or furniture) that release VOCs slowly over time.
- Carefully read labels and follow directions for use.

Where can I find out more?

- **New York State Department of Health**
  (800) 458-1158
  www.nyhealth.gov/environmental/
- **Indoor Air Quality and Your Home** from the New York State Energy Research and Development Authority *www.nyserda.org/publications/iaq.pdf*
- **The Inside Story: A Guide to Indoor Air Quality**
  www.epa.gov/iaq/pubs/insidest.html
- **New York State Department of Environmental Conservation** website for information about household hazardous waste disposal
  www.dec.ny.gov/chemical/8485.html
- **National Institute of Health's** website for information about chemicals found in many household products.
  hpd.nlm.nih.gov/products.htm

December 2007

Regency Centers.

321 Railroad Avenue
Greenwich, CT 06830

203 863 8200
RegencyCenters.com

Electric Paradise Tanning II, Inc.
131 Manhattan Avenue
Hawthorne, NY 10532
Attn: Michael Poli

Re: Sub-slab and Ambient Air Sampling at Electric Paradise Tanning
Carmel ShopRite Plaza
172 Route 52 Carmel, New York

Dear Mr. Poli:

Available upon request is the Soil Vapor Intrusion Summary Report summarizing soil vapor and indoor air sampling at Electric Paradise Tanning located at the Carmel ShopRite Plaza, 172 Route 52, Carmel, New York. This report, prepared by our consultant, Groundwater Environmental Services (GES), summarizes the results of recent indoor air sampling efforts at Electronic Paradise Tanning and other tenant spaces. As shown in the report, detections of tetrachloroethene (PCE), trichloroethene (TCE), methylene chloride and/or cis-1,2-dichloroethene (cis 1,2-DCE) were identified in one or more of the SS-5/IA-5 sample set. Other volatile organic compounds were also detected. The report also explains that GES reactivated the previously installed sub-slab depressurization (SSD) systems; these systems will continue to operate to control the potential for vapor intrusion.

In response to the detections of PCE, TCE and cis 1,2-DCE in the indoor air sample, IA-5, a limited resampling event was completed on June 17, 2024. As shown in the report, detections of these compounds was lower and comparable to the results of other tenant spaces sampled during the previous event.

An additional soil vapor and indoor air sampling event is scheduled to occur during the 2024/2025 heating season. The additional test will aid in evaluating site conditions and determine if the SSD systems should remain, or be removed. Both the New York State Departments of Health and Environmental Conservation have reviewed the report and approved GES's proposed plan.

Also enclosed are Fact Sheets prepared by the New York State Department of Health regarding PCE and TCE and other volatile organic compounds. If you have any questions regarding the air sampling data or the enclosed Tetrachloroethene Fact Sheet, we suggest that you contact Renata E. Ockerby, Public Health Specialist II of the NYSDOH Bureau of Environmental Exposure Investigation. She can be reached by telephone at (518) 402-7860 or via email at BEEI@Health.ny.gov.

We will continue to keep you posted on our on-going efforts regarding the above.

Very truly yours,

Monica Roth

Monica Roth
Senior Manager, Environmental

Encls.

TETRACHLOROETHENE (PERC) IN INDOOR AND OUTDOOR AIR

SEPTEMBER 2013 FACT SHEET

This fact sheet answers questions about a chemical called tetrachloroethene (PERC), which is widely used to dry-clean clothes. It provides information on health effects seen in humans exposed to PERC in air. It also provides information about the New York State Department of Health's new guideline of 30 micrograms of PERC per cubic meter of air (30 mcg/m^3) or 0.03 milligrams of PERC per cubic meter of air (0.03 mg/m^3). The fact sheet focuses on the health risks from air exposures because most of the PERC released into the environment goes into air.

Prepared by

Bureau of Toxic Substance Assessment
New York State Department of Health

1. WHAT IS TETRACHLOROETHENE (PERC)?

Tetrachloroethene is a manufactured chemical that is widely used in the dry-cleaning of fabrics, including clothes. It is also used for degreasing metal parts and in manufacturing other chemicals. Tetrachloroethene is found in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for tetrachloroethene include PERC, tetrachloroethylene, perchloroethylene, and PCE. PERC is a commonly used name and will be used in the rest of the fact sheet.

PERC is a nonflammable, colorless liquid at room temperature. It readily evaporates into air and has an ether-like odor. Because most people stop noticing the odor of PERC in air after a short time, odor is not a reliable warning signal of PERC exposure.

2. HOW CAN I BE EXPOSED TO PERC?

People may be exposed to PERC in air, water, and food. Exposure can also occur when PERC or material containing PERC (for example, soil) gets on the skin. For most people, almost all exposure is from PERC in air.

PERC gets into outdoor and indoor air by evaporation from industrial or dry-cleaning operations and from areas where chemical wastes are stored or disposed. People living in homes located near these operations may be exposed to higher levels of PERC than the general population not living near such operations. Groundwater near these areas may become contaminated if PERC is improperly dumped or leaks into the ground. People may be exposed if they drink the contaminated water. They also may be exposed if PERC evaporates from contaminated drinking water into indoor air during cooking and washing. PERC may evaporate from contaminated groundwater and soil into the indoor air of buildings above the contaminated area. PERC also may evaporate from dry-cleaned clothes into indoor air or may get into indoor air after PERC-containing products, such as spot removers, are used. Indoor air PERC levels may get high if PERC-containing products are used in poorly ventilated areas.

3. HOW DOES PERC ENTER AND LEAVE MY BODY?

When people inhale air containing PERC, the PERC is taken into the body through the lungs and passed into the blood, which carries it to all parts of the body. A large fraction of this PERC is exhaled, unchanged, through the lungs into the air. Some of this PERC is stored in the body (for example, in fat, the liver, and the brain) and some is broken down in the liver to other compounds and eliminated in urine. PERC can also be found in breastmilk. Once exposure stops, most of the PERC and its breakdown products leave the body in several days. However, it may take several weeks for all of the PERC and its breakdown products to leave the body.

4. WHAT KINDS OF HEALTH EFFECTS CAN BE CAUSED BY EXPOSURE TO PERC IN AIR?

In humans, PERC may affect the central nervous system, the liver, kidneys, blood, immune system, and perhaps the reproductive system. The available data are insufficient to draw conclusions regarding effects of PERC exposure on development in infants and children.

For all health effects, the potential for an increased health risk depends on several factors, including the amount of exposure, the frequency of exposures, and the duration of the exposures. It also depends on the characteristics of the exposed person, such as age, sex, diet, family traits, lifestyle, genetic background, the presence of other chemicals in their body (e.g., alcohol, prescription drugs), and general state of health. Although difficult to quantify, these differences can affect how people will respond to a given exposure. This is known as sensitivity. Differences in sensitivity should be kept in mind when reading the following information on the human health effects of PERC.

Short-Term Exposure - Studies with volunteers show that exposure of eight hours or less to 700,000 micrograms per cubic meter of air (mcg/m^3) cause central nervous system symptoms such as dizziness, headache, sleepiness, lightheadedness, and poor balance. Exposure to 350,000 mcg/m^3 for four hours affected the nerves of the visual system and reduced scores on certain behavioral tests (which, for example, measure the speed and accuracy of a person's response to something they see on a computer screen). These effects were mild and disappeared soon after exposure ended.

Long-Term Exposure - Numerous studies of dry-cleaning workers indicate that long-term exposure (7 to 20 years, for example) to workplace air levels (41,000 mcg/m^3 to 120,000 mcg/m^3) caused reduced scores on neurobehavioral or color vision tests, increased levels of biochemical indicators of liver or kidney damage, reduced red blood cells, and blood and immune system effects [increased white blood cells and blood levels of a certain type of antibody (immunoglobulin E)]. The effects were mild and required special tests to be detected. It is not known how long these effects last.

The New York State Department of Health (NYSDOH, 2010) measured visual function [visual contrast sensitivity (VCS); color vision][1] in adults and children living in the apartments located in buildings with or without a dry-cleaner using PERC and also measured PERC indoor air levels. PERC levels were higher in the indoor air of apartments in buildings with dry-cleaners. Elevated indoor air PERC levels were associated with a slightly increased risk for children to have decreased VCS scores. The effect of PERC on VCS scores was most noticeable in a small group of children living in buildings with co-located dry cleaners using PERC. In those apartments, indoor air PERC levels ranged from 127 to 710 mcg/m^3, with a 50th percentile[2] (also known as the median) level of 340 mcg/m^3. For affected children (7 years mean duration of residency), the decrease was very small and occurred for only one eye in one of five tests. Mean VCS test scores were still within a normal range. Therefore, the risk for decreased VCS scores among affected children is considered to be small. Elevated indoor air PERC levels were not associated with effects on adult VCS scores, or with color vision of either children or adults. The observed associations between elevated indoor air PERC levels and children's VCS suggests that indoor air PERC levels in the range detected may have subtle effects on the brain.

A few epidemiological studies showed positive associations between workplace PERC exposure and reproductive effects (increased risk of spontaneous abortion, sperm disorders, and reduced fertility or delayed conception). Data on workplace air levels were not reported or were limited; however, workplace air levels during the times these studies were conducted were considerably higher than those typically found in indoor or outdoor air. These data suggest, but do not prove, that the reproductive effects were caused by PERC and not by some other factor or factors.

Lastly, epidemiological studies provide a pattern of evidence for a positive association between PERC exposure in the workplace and several types of cancer, specifically bladder cancer, non-Hodgkin lymphoma, and multiple myeloma. These associations were observed in studies with high quality assessments of the likelihood of PERC only exposures. However, data on PERC workplace air levels were not reported, but measurements from other studies indicate that workplace air levels during the times the workers were exposed were considerably higher than those typically found in indoor or outdoor air. Moreover, it is unlikely that the associations were dependent, totally or in part, on factors other than PERC exposures, such as common lifestyle factors as smoking or drinking alcohol. Data from more limited studies suggest that other types of cancer (esophageal, kidney, lung, liver, cervical, and breast cancer) are associated with PERC exposure. In laboratory studies, PERC caused cancer in rats and mice when they ingested or inhaled high doses almost daily for a lifetime. Based on human and animal data, the United States Environmental Protection Agency (USEPA) classifies PERC as “likely to be carcinogenic in humans by all routes of exposure.”

[1] VCS is a measure of a person's ability to distinguish the contrast between a viewed object and its background. It is easier to detect images of high contrast (e.g., a black cat on snow) than low contrast (e.g., a white cat on snow).

[2] Half the results are less than or equal to this value and half are above this value.

5. WHAT ARE BACKGROUND LEVELS FOR PERC IN OUTDOOR AND INDOOR AIR IN AREAS THAT ARE NOT NEAR A KNOWN ENVIRONMENTAL SOURCE OF PERC?

Various studies provide data on background levels of PERC in outdoor and indoor air. The New York State Department of Environmental Conservation collects data on outdoor air levels of air toxics under the Toxics Monitoring System (also known as Volatile Organics Network). The monitoring sites were selected to provide air quality data from the state's urban, industrial, residential, and rural areas. Based on 5882 samples collected across the state during 1999 to 2008, the 50th percentile (median) and 95th percentile[3] PERC levels were 0.41 mcg/m^3 and 4.8 mcg/m^3, respectively. NYSDOH (2005) conducted a study between 1997 and 2005 on the occurrence of volatile organic chemicals, including PERC, in the indoor and outdoor air of about 100 homes across the state (excluding New York City). Two outdoor samples were collected just outside each home for a total of 200 samples. The 50th percentile and 95th percentile PERC levels were less than 0.25 mcg/m^3 and 1.6 mcg/m^3, respectively. Finally, the 50th percentile and 95% percentile PERC levels in 587 outdoor air samples collected in 1999 - 2011 during the investigation of NYS remedial sites not known to have nor suspected to have sources of PERC were 0.52 mcg/m^3 and 2.6 mcg/m^3, respectively (NYSDOH, 2013b). Collectively, these three data sets, particularly given the low 95% percentile level in the large dataset from the Toxics Monitoring System, indicate that fewer than 5% of the background PERC levels in outdoor air are above 10 mcg/m^3.

The NYSDOH, the USEPA, and others have collected and analyzed information on PERC levels in indoor air. The table below contains the results from air samples collected inside of buildings that were not near known sources of PERC and other chemicals (for example, a home not known to be near a chemical spill, a hazardous waste site, a dry-cleaner, or a factory). The five studies that reported 90th percentile PERC air levels indicate that fewer than 10% of the background PERC levels in indoor air are above 10 mcg/m^3. In addition, the results for six of the eight studies that reported 95th percentiles and contained most of the samples indicate that fewer than 5% of the background PERC levels in indoor air are above 10 mcg/m^3. The other two studies (NYSDOH, 2009, 2013b; USEPA, 2001, 2013) indicate that fewer than 5% of the background indoor air levels are above 20 mcg/m^3.

[3] 95% of the results are less than or equal to this value.

Background Indoor Air Levels in US Buildings (1990-2013).

Study Description (and Sampling Years)	No. of Samples	Air Level Percentiles (mcg/m^3)			Reference
		50th (median)	90th [A]	95th	
Residential Buildings					
13 studies on residential properties (number NR[B]) in North America (1990-2005)	2312[C]	ND[D] - 2.2 (range)[E]	ND[D] - 7 (range)[E]	4.1 - 9.5 (range)[E]	USEPA (2011); also see Dawson & McAlary (2009)
screening study of households (284) in urban or non-urban areas of MN (1997)	284	1.4	NR[B]	4.9	Adgate et al. (2004)
subset of the screened households (101) in MN (1997)	101	1.3	NR[B]	5.2	
single family homes (about 100) heated with fuel oil from across NYS (excluding NYC) (1997-2003)	400	0.34	2.9	3.9	NYSDOH (2005, 2013a)[F]
households (about 100 each) in Elizabeth, NJ, Houston, TX, and Los Angeles, CA (1999-2001)	554	0.56	NR[B]	6.0	Weisel et al. (2005)
apartments (61) in NYC building **without** a co-located dry-cleaner (2001-2003)	61	2.2	8.5	19.09	NYSDOH (2009, 2013b)
Office Buildings					
public & commercial office buildings (70) in US (1994-1996)	209	1.5	9.3	18	USEPA (2001, 2013)
Mixed-Use Buildings					
buildings (number NR[B]) near NYS remedial sites not known nor suspected to have sources of PERC (1999-2011)	1625	0.72	2.8	6.6	NYSDOH (2013b)

[A] 90% of the results are less than or equal to this value.
[B] NR: not reported.
[C] Total number of samples, but number of samples associated with each percentile range is less than 2312, but was not reported.
[D] ND: not detected.
[E] The range from 13, 8, and 5 studies that reported the 50th, 90th, and 95th percentiles, respectively.
[F] One of the 13 studies included in USEPA (2011) and Dawson & McAlary (2009).

6. WHAT IS THE NEW YORK STATE DEPARTMENT OF HEALTH'S NEW GUIDELINE FOR PERC IN AIR?

After consideration of the potential health effects of PERC, background levels of PERC in air, and analytical techniques (the ability and reliability of methods to measure PERC in air), NYSDOH recommends that the average air level not exceed 30 mcg/m^3. This determination considered continuous, lifetime exposure and sensitive people. Three other ways of expressing the new guideline are 0.03 milligrams per cubic meter of air (0.03 mg/m^3), 4.4 parts per billion (ppb) or 0.0044 parts per million (ppm). This replaces the old guideline of 100 mcg/m^3.

An air guideline of 30 mcg/m^3 is below the PERC air levels known to cause noncancer effects, including developmental and reproductive effects, in humans and animals, and should be protective against those effects. It is lower than the USEPA's (2012) reference concentration (RfC)[4] for PERC of 40 mcg/m^3. The estimated excess cancer risk associated with lifetime, continuous exposure to 30 mcg/m^3 is about one-in-one-hundred thousand.

[4] The reference concentration is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

Decisions about whether to take actions to further reduce exposure are generally made on a case-by-case basis at this level of risk.

However, NYSDOH recommends that reasonable and practical actions should be taken to reduce PERC exposure whenever air levels are above background. The purpose of the guideline is to help guide decisions about the urgency of the actions to reduce PERC exposure. The urgency to initiate these actions and to determine, in a timely manner, whether they have reduced exposure, increases with indoor air levels, particularly when air levels are above the guideline.

Indoor air levels substantially above the guideline indicate a significant PERC source and may require more immediate remedial action. NYSDOH has concerns about lengthy exposure (months to years) to air levels higher than 300 mcg/m^3 because the results of a recent NYSDOH study suggested that indoor air PERC levels in apartments (median value of 340 mcg/m^3) may have subtle effects on the nervous system (vision function) of children (NYSDOH, 2010 at http://www.health.ny.gov/environmental/investigations/perc/info_sheet.htm). Thus, NYSDOH recommends taking immediate and effective action to reduce exposure when an air level is equal to or above 300 mcg/m^3. In all cases, the specific corrective actions to be taken depend on a case-by-case evaluation of the situation. The goal of the recommended actions is to reduce PERC levels in indoor air to as close to background as practical.

7. WHY DID NEW YORK STATE DEPARTMENT OF HEALTH REDUCE THE GUIDELINE FOR PERC IN AIR FROM 100 MCG/M^3 TO 30 MCG/M^3?

The guideline of 100 mcg/m^3 was issued in 1997 and was based on the toxicological data available at the time. Since then, many new toxicity studies have been published and the USEPA has completed a comprehensive, state-of-the-science, peer-reviewed risk assessment of PERC. Based on the risk assessment, the USEPA recommended values for evaluating the potential for noncancer and cancer effects from exposure to PERC in air [a RfC (40 mcg/m^3) and an air level (4 mcg/m^3) associated with an estimated excess cancer risk of one-in-one million, assuming continuous, lifetime exposure]. NYSDOH staff reviewed the USEPA risk assessment and determined that the recommended values are scientifically robust and should replace the values derived in 1997. The USEPA publication of its RfC (40 mcg/m^3) necessitated a re-evaluation of the health-protectiveness of the old NYSDOH guideline (100 mcg/m^3) because it has been the past practice of NYSDOH to set guidelines at air levels that are equal to or less than a RfC. Consequently, the guideline was reduced to 30 mcg/m^3 after consideration of new toxicity data (e.g., NYSDOH, 2010) and the USEPA risk assessment.

8. SHOULD I BE CONCERNED ABOUT HEALTH EFFECTS IF I AM EXPOSED TO AN AIR LEVEL SLIGHTLY ABOVE THE GUIDELINE?

The guideline is not a bright line between PERC levels that cause health effects and those that do not. The differences between exposure at the guideline and exposure levels known to cause effects in humans and animals are large. Thus, exposure to levels above but near the guideline will not cause health effects in most, if not all, people. In addition, the guideline is based on the assumption that people are continuously exposed to PERC in air all day, every day for as long as a lifetime. Continuous exposure is rarely true for most people, who, if exposed, are more likely to be exposed for a part of the day and part of their lifetime.

9. IS THERE A TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO PERC?

PERC levels can be measured in the breath for weeks following a high exposure to PERC because it is stored in body fat and is slowly released into the bloodstream and then exhaled in the breath. PERC can be measured in blood. Also, breakdown products of PERC can be detected in the blood and urine for several days after exposure to PERC. Because exposure to other chemicals can produce the same breakdown products in the urine and blood as PERC, the tests for breakdown products cannot determine if you have been exposed only to PERC. Although the tests can show if PERC levels in the body are elevated compared to background levels, they

cannot conclusively determine when and for how long a person was exposed, what the source of that exposure was, or whether or not the person will develop adverse health effects.

10. WHEN SHOULD MY CHILDREN OR I SEE A PHYSICIAN?

If you believe you or your children have symptoms that you think are caused by PERC exposure, you and your children should see a physician. You should tell the physician about the symptoms and about when, how, and for how long you think you and/or your children were exposed to PERC.

11. WHERE CAN I GET MORE INFORMATION?

If you have any questions about the information in this fact sheet, would like to know more about PERC, or are concerned that you may be exposed to elevated levels of PERC, please call the New York State Department of Health at 518-402-7800 or 1-800-458-1158, send an e-mail to btsa@health.state.ny.us, or write to us at the following address.

New York State Department of Health
Bureau of Toxic Substance Assessment
Corning Tower, Room 1743
Empire State Plaza,
Albany, NY 12237

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New York State Department of Health
Tenant Notification Fact Sheet for Tetrachloroethene (Perc)

This fact sheet is provided to fulfill New York State Department of Health (NYS DOH) requirements for preparation of generic fact sheets under Article 27 (Title 24, Section 27-2405) of the Environmental Conservation Law.

Tetrachloroethene (Perc)

Tetrachloroethene (also known as perchloroethylene or Perc) is a man-made volatile organic chemical that is widely used in the dry-cleaning of fabrics, including clothes, and in manufacturing other chemicals. It was also used for degreasing metal parts and in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors.

Sources of Perc in Indoor Air

Household products containing Perc could be a possible source for Perc in indoor air. Perc also may evaporate from dry-cleaned clothes or dry-cleaning operations into indoor air. Another source could be evaporation from contaminated well water that is used for household purposes. Perc may also enter homes through soil vapor intrusion, which occurs when the chemical evaporates from groundwater, enters soil vapor (air spaces between soil particles), and migrates through building foundations into the building's indoor air. Perc has also been found at low concentrations in outdoor air.

Levels Typically Found in Air

The NYS DOH reviewed and compiled information from studies in New York State as well as from homes and office buildings across the United States on typical levels of Perc in indoor and outdoor air. Levels of Perc in the indoor air of homes and office settings and in outdoor air are expected to be below 10 micrograms per cubic meter (mcg/m^3).

Health Risks Associated with Exposure

An association exists between exposure of people in the workplace to high levels of Perc in air and certain forms of cancer. Perc causes cancer in laboratory animals exposed to high levels over their lifetimes. Overall, the studies of humans and in animals do not prove that Perc causes cancer in people, but are highly suggestive that there may be an increased risk for cancer in people who are exposed to Perc (particularly at high concentrations) over long periods of time

People exposed to high levels of Perc in air had nervous system effects and slight changes to their liver and kidneys. Some studies show a slightly increased risk for some types of reproductive effects among workers (including dry-cleaning workers) exposed to Perc and other chemicals. The reproductive effects associated with exposure included increased risks for spontaneous abortion, menstrual and sperm disorders, and reduced fertility. The data suggest, but do not prove, that the effects were caused by Perc and not by some other factor or factors. Exposure to high levels of Perc has caused liver and kidney damage in laboratory animals and effects on the nervous system. Taken together, the human and animal studies indicate that human exposure to high levels of Perc causes effects on the nervous system, and suggest that human exposure to high levels of Perc may increase the risk for liver and kidney toxicity.

NYS DOH Air Guideline

The NYS DOH guideline for Perc in air is 30 mcg/m^3. This level is lower than the levels that have caused health effects in animals and humans. The guideline is based on the assumption that people

are continuously exposed to Perc in air all day, every day for as long as a lifetime. This is rarely true for most people who, if exposed, are likely to be exposed for only part of the day and part of their lifetime. In setting this level, the NYS DOH also considered the possibility that certain members of the population (infants, children, the elderly, and those with pre-existing health conditions) may be especially sensitive to the effects of Perc.

The purpose of the guideline is to help guide decisions about the nature of the efforts to reduce Perc exposure. Reasonable and practical actions should be taken to reduce Perc exposure when indoor air levels are above those typically found in indoor air, even when they are below the guideline of 30 mcg/m^3. The urgency to take actions increases as indoor air levels increase, especially when air levels are above the guideline. The NYS DOH recommends taking immediate action to reduce exposure when an air level is ten times or more higher than the guideline (that is, when the air level is 300 mcg/m^3 or higher).

Ways to Limit Exposure to Perc in Indoor Air

In all cases, the specific actions to limit exposure to Perc in indoor air depend on a case-by-case evaluation of the situation. Removing household sources of Perc and maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of Perc entering indoor air by soil vapor intrusion. Use of an activated carbon filter on the water supply can reduce the amount of the chemical in contaminated well water that could evaporate into indoor air.

Reportable Detection Level

The reportable detection level for a chemical can vary depending on the analytical method used, the laboratory performing the analysis, and several other factors. Most laboratories that use the analytical methods recommended by the NYS DOH for measuring Perc in air (and approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program) can routinely detect the chemical at concentrations below 1 mcg/m^3.

Additional Information

Additional information on Perc, ways to reduce exposure, indoor air contamination resulting from soil vapor intrusion, indoor and outdoor air levels and the Environmental Conservation Law can be found on the NYS DOH website at www.health.state.ny.us/environmental/indoors/air/contaminants.

If you have further questions about Perc and the information in this fact sheet, please call the NYS DOH at 1-518-402-7800 or 1-800-458-1158 (extension 2-7800), e-mail to **ceheduc@health.state.ny.us**, or write to the following address:

New York State Department of Health
Center for Environmental Health
Outreach and Education Group
Empire State Plaza-Corning Tower, Room 1642
Albany, New York 12237

New York State Department of Health
December, 2013

Tenant Notification Information on Trichloroethene (TCE)

This fact sheet fulfills New York State Department of Health requirements under *Article 27 (Title 24, Section 27-2405)* of Environmental Conservation Law.

Trichloroethene

Trichloroethene (also known as trichloroethylene or TCE) is a human-made chemical. TCE is volatile, meaning it readily evaporates into the air at room temperature, where people can sometimes smell it. It is used as a solvent to remove grease from metal, spots from clothing, and as a paint stripper. It is also an ingredient in paints, varnishes, adhesives, and in making other products like furniture and electric/electronic equipment.

Exposure to TCE

People may be exposed to TCE in air, water, and food, or when TCE or material containing TCE (for example, soil) gets on the skin. For most people, almost all TCE exposure is from indoor air.

Sources

TCE can get into indoor air when products containing it are used, like glues, adhesives, paint removers, spot removers, and metal cleaners. TCE can also evaporate into the air from household water that comes from contaminated water wells. TCE can enter homes through soil vapor intrusion, which occurs when chemicals evaporate from contaminated groundwater into the air spaces between soil particles and migrate inside through cracks or other openings in a building's foundation. TCE gets into outdoor air when it is released from industrial facilities and when it evaporates from areas where chemical wastes are stored or disposed.

Levels Typically Found in Air

The background indoor air concentrations in homes and office buildings not near known environmental sources of TCE are almost always 1 microgram per cubic meter of air (1 mcg/m^3) or less. Background outdoor air levels also are almost always 1 mcg/m^3 or less.

Health Risks

TCE exposure can cause health effects on the central nervous system, liver, kidneys, and immune system, and can affect fetal heart development during pregnancy. The United States Environmental Protection Agency classifies TCE as a chemical that causes cancer in humans. As with all exposures, whether or not a person experiences a health effect depends on how much of a chemical they are exposed to, how often the exposure occurs, and how long the exposures last. Individual characteristics such as age, health, lifestyle, and genetics also play a role.

Guidelines

The New York State Department of Health recommends that TCE concentrations in the air not exceed 2 mcg/m^3. This guideline was set at a level below those known or suspected of causing health effects in people and animals. The guideline also assumes that people are continuously exposed to TCE in air, all day, every day, over a lifetime. This is a health protective assumption because most people are not exposed to TCE continuously throughout their life.

The TCE guideline is used to help guide decisions about efforts to reduce TCE exposure. The higher the concentration that TCE is above the guideline level, the greater the urgency to take action to reduce exposure. However, as with all chemicals, reducing exposure is always recommended when concentrations in the air are above background levels.

There is usually a significant TCE source when indoor air concentrations are much greater than the TCE guideline level. New York State Department of Health recommends taking immediate and effective action to reduce exposures when TCE levels in the air are 20 mcg/m^3 and greater. This concentration is based on concerns about TCE exposure during pregnancy, particularly during the first trimester, because TCE exposure is a risk factor for fetal heart defects.

Ways to Limit Indoor Air Exposure

The specific recommended action depends on a case-by-case evaluation of the situation. In many cases, removing household sources and maintaining adequate ventilation will help reduce indoor air levels. A sub-slab depressurization system can reduce the amount of TCE entering indoor air by soil vapor intrusion. TCE can also evaporate into the air from household water that comes from contaminated water wells. In these cases, using an activated carbon filter on the water supply also can help reduce the amount of TCE in indoor air.

Concerns about Exposure

Most people are exposed to TCE at concentrations that are much lower than those known to cause health effects. If you are concerned about exposure to TCE, talk with a health care provider.

Reportable Detection Level

The reportable detection level for any chemical can vary depending on the analytical method used, the laboratory performing the analysis, and other factors. Most laboratories that use the analytical methods recommended by the New York State Department of Health for measuring TCE in air can routinely detect the chemical at levels below 1 mcg/m^3. These labs are approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program. Find a certified lab at www.wadsworth.org/regulatory/elap or contact us at btsa@health.ny.gov for assistance.

More Information

- Visit www.health.ny.gov/environmental/indoors/air/contaminants/ for more about tenant notification law requirements, TCE and other indoor air contaminants, and ways to reduce exposure.
- Contact us with any questions or concerns about TCE exposure
  phone: 1-518-402-7800, e-mail btsa@health.ny.gov, or mail:

  New York State Department of Health
  Bureau of Toxic Substance Assessment Corning Tower, Room 1743
  Empire State Plaza, Albany, NY 12237

Volatile Organic Compounds (VOCs) in Commonly Used Products

People spend most of their time indoors – at home, school and work. This makes the quality of the indoor air you breathe important. This fact sheet focuses on certain kinds of chemicals called *volatile organic compounds* or *VOCs* that are found in many products that we commonly use. It is designed to help you think about what VOCs may be present in your indoor air and steps you can take to reduce them.

What are VOCs?

VOCs are chemicals that easily enter the air as gases from some solids or liquids. They are ingredients in many commonly used products and are in the air of just about every indoor setting. The table to the right shows some examples of products that contain VOCs.

How do VOCs get into indoor air?

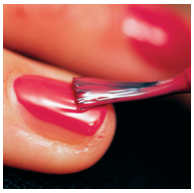
Products containing VOCs can release these chemicals when they are used and when they are stored. Many times you'll notice an odor when using these products. Product labels often list VOC ingredients and recommend that they should be used in well ventilated areas. *Ventilation* means bringing in fresh, outdoor air to mix with indoor air.

When you use a product containing VOCs indoors, the levels of these chemicals in the air increase, then decrease over time after you stop using them. The amount of time the chemical stays in the air depends on how quickly fresh air enters the room and the amount of the chemical used. Levels of VOCs will decrease faster if you open windows or doors, or use exhaust fans.

Building materials and furnishings, such as new carpets or furniture, slowly release VOCs over time. It may be necessary to ventilate areas with new carpeting or furniture for longer time periods because VOC levels can build up again after the windows are closed. If possible, unroll new carpets or store furniture outside your home (in a shed or detached garage) to minimize odors before bringing them in the home. If that's not possible, open windows, close doors and try to stay out of rooms until odors are reduced.

If VOC containing products are used outdoors near your home, you may want to close windows and nearby vents to prevent chemicals from coming inside.

Products used at home or work can release VOCs into the air when used and stored.



Examples of Household Products	Possible VOC Ingredients
Fuel containers or devices using gasoline, kerosene, fuel oil and products with petroleum distillates: paint thinner, oil-based stains and paint, aerosol or liquid insect pest products, mineral spirits, furniture polishes	BTEX (benzene, toluene, ethylbenzene, xylene), hexane, cyclohexane, 1,2,4-trimethylbenzene
Personal care products: nail polish, nail polish remover, colognes, perfumes, rubbing alcohol, hair spray	Acetone, ethyl alcohol, isopropyl alcohol, methacrylates (methyl or ethyl), ethyl acetate
Dry cleaned clothes, spot removers, fabric/ leather cleaners	Tetrachloroethene (perchloroethene (PERC), trichloroethene (TCE))
Citrus (orange) oil or pine oil cleaners, solvents and some odor masking products	d-limonene (citrus odor), a-pinene (pine odor), isoprene
PVC cement and primer, various adhesives, contact cement, model cement	Tetrahydrofuran, cyclohexane, methyl ethyl ketone (MEK), toluene, acetone, hexane, 1,1,1-trichloroethane, methyl-iso-butyl ketone (MIBK)
Paint stripper, adhesive (glue) removers	Methylene chloride, toluene, older products may contain carbon tetrachloride
Degreasers, aerosol penetrating oils, brake cleaner, carburetor cleaner, commercial solvents, electronics cleaners, spray lubricants	Methylene chloride, PERC, TCE, toluene, xylenes, methyl ethyl ketone, 1,1,1-trichloroethane
Moth balls, moth flakes, deodorizers, air fresheners	1,4-dichlorobenzene, naphthalene
Refrigerant from air conditioners, freezers, refrigerators, dehumidifiers	Freons (trichlorofluoromethane, dichlorodifluoromethane)
Aerosol spray products for some paints, cosmetics, automotive products, leather treatments, pesticides	Heptane, butane, pentane
Upholstered furniture, carpets, plywood, pressed wood products	Formaldehyde

VOCs can also get into indoor air from contaminated soils and groundwater under buildings. The chemicals enter buildings through cracks and openings in basements or slabs. When nearby soil or groundwater is contaminated, you might be asked for permission to investigate indoor air at your property. More information can be found at *www.nyhealth.gov/environmental/indoors/vapor_intrusion/*.

Should I be surprised if VOCs are in the air I breathe?

No. Because they are commonly used, some VOCs are almost always found in indoor air. The New York State Department of Health (DOH) and other agencies have studied typical levels of VOCs that may be present in indoor and outdoor air. Sometimes these levels are called "*background levels*".

The term "background levels" can be confusing because they can vary depending on where an air sample was collected and whether VOCs were used or stored. For example, a study of VOCs in urban areas might find higher levels than another study in rural areas. Some studies look at office environments, others examine residences. Please keep in mind study findings may or may not make sense for your setting.

More information about levels of VOCs collected by DOH is available in Appendix C of the guidance for evaluating vapor intrusion at *www.nyhealth.gov/environmental/investigations/soil_gas/svi_guidance.*

How can VOCs affect human health?

Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*. No matter how dangerous a substance or activity is, it cannot harm you without exposure.

Whether or not a person will have health effects after breathing in VOCs depends on:

1. The *toxicity* of the chemical (the amount of harm that can be caused by contact with the chemical).
2. How much of the chemical is in the air.
3. How long and how often the air is breathed.

Differences in age, health condition, gender and exposure to other chemicals also can affect whether or not a person will have health effects.

Short-term exposure to high levels of some VOCs can cause headaches, dizziness, light-headedness, drowsiness, nausea, and eye and respiratory irritation. These effects usually go away after the exposure stops. In laboratory animals, long-term exposure to high levels of some VOCs has caused cancer and affected the liver, kidney and nervous system. In general, we recommend minimizing exposure to chemicals, if possible.

How can I reduce the levels of VOCs indoors?

- Find out if products used or stored in your home contain VOCs. Information about the chemicals in many household products are listed on the front of this fact sheet and a larger list is on the National Institute of Health's website at *hpd.nlm.nih.gov/products.htm*.
- If you must store products containing VOCs, do so in tightly sealed, original containers in a secure and well-ventilated area. If possible store products in places where people do not spend much time, such as a garage or outdoor shed. Better yet, buy these products in amounts that are used quickly.
- Dispose of unneeded products containing VOCs. Many of these products are considered *household hazardous wastes* and should be disposed of at special facilities or during special household hazardous waste collection programs in your area. Contact your town or visit the New York State Department of Environmental Conservation's website at *www.dec.ny.gov/chemical/8485.html* for more information about disposing of these products.
- Use products containing VOCs in well-ventilated areas or outdoors. Open windows and doors or use an exhaust fan to increase ventilation. Repeated or prolonged ventilation may be necessary for reducing levels from building materials (new carpeting or furniture) that release VOCs slowly over time.
- Carefully read labels and follow directions for use.

Where can I find out more?

- **New York State Department of Health**
  (800) 458-1158
  www.nyhealth.gov/environmental/
- **Indoor Air Quality and Your Home** from the New York State Energy Research and Development Authority *www.nyserda.org/publications/iaq.pdf*
- **The Inside Story: A Guide to Indoor Air Quality**
  www.epa.gov/iaq/pubs/insidest.html
- **New York State Department of Environmental Conservation** website for information about household hazardous waste disposal
  www.dec.ny.gov/chemical/8485.html
- **National Institute of Health's** website for information about chemicals found in many household products.
  hpd.nlm.nih.gov/products.htm

December 2007

Regency Centers.

321 Railroad Avenue
Greenwich, CT 06830

203 863 8200
RegencyCenters.com

RC Pizza Restaurant LLC
d/b/a Europa Pizza
178 NY Route 52
Carmel, NY 10512
Attn: Carlos Reyes

Re: Sub-slab and Ambient Air Sampling at Europa Pizza
Carmel ShopRite
178 Route 52 Carmel, New York

Dear Mr. Reyes:

Available upon request is the Soil Vapor Intrusion Summary Report summarizing soil vapor and indoor air sampling at Europa Pizza located at the Carmel ShopRite Plaza, 178 Route 52, Carmel, New York. This report, prepared by our consultant, Groundwater Environmental Services (GES), summarizes the results of recent indoor air sampling efforts at Europa Pizza and other tenant spaces. As shown in the report, detections of tetrachloroethene (PCE), carbon tetrachloride, and methylene chloride were detected in one or more sample locations. Other volatile organic compounds were also detected. None of the detections identified were at actionable concentrations. The report also explains that GES reactivated the previously installed sub-slab depressurization (SSD) systems; these systems will continue to operate until the New York State Department of Environmental Conservation and New York State Department of Health approve shutdown.

Also enclosed are Fact Sheets prepared by the New York State Department of Health regarding PCE and TCE and other volatile organic compounds. If you have any questions regarding the air sampling data or the enclosed Tetrachloroethene Fact Sheet, we suggest that you contact Renata E. Ockerby, Public Health Specialist II of the NYSDOH Bureau of Environmental Exposure Investigation. She can be reached by telephone at (518) 402-7860 or via email at BEEI@health.ny.gov.

We will continue to keep you posted on our on-going efforts regarding the above.

Very truly yours,

Monica Roth

Monica Roth
Senior Manager, Environmental

Encls.

TETRACHLOROETHENE (PERC) IN INDOOR AND OUTDOOR AIR

SEPTEMBER 2013 FACT SHEET

This fact sheet answers questions about a chemical called tetrachloroethene (PERC), which is widely used to dry-clean clothes. It provides information on health effects seen in humans exposed to PERC in air. It also provides information about the New York State Department of Health's new guideline of 30 micrograms of PERC per cubic meter of air (30 mcg/m^3) or 0.03 milligrams of PERC per cubic meter of air (0.03 mg/m^3). The fact sheet focuses on the health risks from air exposures because most of the PERC released into the environment goes into air.

Prepared by

Bureau of Toxic Substance Assessment
New York State Department of Health

1. WHAT IS TETRACHLOROETHENE (PERC)?

Tetrachloroethene is a manufactured chemical that is widely used in the dry-cleaning of fabrics, including clothes. It is also used for degreasing metal parts and in manufacturing other chemicals. Tetrachloroethene is found in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for tetrachloroethene include PERC, tetrachloroethylene, perchloroethylene, and PCE. PERC is a commonly used name and will be used in the rest of the fact sheet.

PERC is a nonflammable, colorless liquid at room temperature. It readily evaporates into air and has an ether-like odor. Because most people stop noticing the odor of PERC in air after a short time, odor is not a reliable warning signal of PERC exposure.

2. HOW CAN I BE EXPOSED TO PERC?

People may be exposed to PERC in air, water, and food. Exposure can also occur when PERC or material containing PERC (for example, soil) gets on the skin. For most people, almost all exposure is from PERC in air.

PERC gets into outdoor and indoor air by evaporation from industrial or dry-cleaning operations and from areas where chemical wastes are stored or disposed. People living in homes located near these operations may be exposed to higher levels of PERC than the general population not living near such operations. Groundwater near these areas may become contaminated if PERC is improperly dumped or leaks into the ground. People may be exposed if they drink the contaminated water. They also may be exposed if PERC evaporates from contaminated drinking water into indoor air during cooking and washing. PERC may evaporate from contaminated groundwater and soil into the indoor air of buildings above the contaminated area. PERC also may evaporate from dry-cleaned clothes into indoor air or may get into indoor air after PERC-containing products, such as spot removers, are used. Indoor air PERC levels may get high if PERC-containing products are used in poorly ventilated areas.

3. HOW DOES PERC ENTER AND LEAVE MY BODY?

When people inhale air containing PERC, the PERC is taken into the body through the lungs and passed into the blood, which carries it to all parts of the body. A large fraction of this PERC is exhaled, unchanged, through the lungs into the air. Some of this PERC is stored in the body (for example, in fat, the liver, and the brain) and some is broken down in the liver to other compounds and eliminated in urine. PERC can also be found in breastmilk. Once exposure stops, most of the PERC and its breakdown products leave the body in several days. However, it may take several weeks for all of the PERC and its breakdown products to leave the body.

4. WHAT KINDS OF HEALTH EFFECTS CAN BE CAUSED BY EXPOSURE TO PERC IN AIR?

In humans, PERC may affect the central nervous system, the liver, kidneys, blood, immune system, and perhaps the reproductive system. The available data are insufficient to draw conclusions regarding effects of PERC exposure on development in infants and children.

For all health effects, the potential for an increased health risk depends on several factors, including the amount of exposure, the frequency of exposures, and the duration of the exposures. It also depends on the characteristics of the exposed person, such as age, sex, diet, family traits, lifestyle, genetic background, the presence of other chemicals in their body (e.g., alcohol, prescription drugs), and general state of health. Although difficult to quantify, these differences can affect how people will respond to a given exposure. This is known as sensitivity. Differences in sensitivity should be kept in mind when reading the following information on the human health effects of PERC.

Short-Term Exposure - Studies with volunteers show that exposure of eight hours or less to 700,000 micrograms per cubic meter of air (mcg/m^3) cause central nervous system symptoms such as dizziness, headache, sleepiness, lightheadedness, and poor balance. Exposure to 350,000 mcg/m^3 for four hours affected the nerves of the visual system and reduced scores on certain behavioral tests (which, for example, measure the speed and accuracy of a person's response to something they see on a computer screen). These effects were mild and disappeared soon after exposure ended.

Long-Term Exposure - Numerous studies of dry-cleaning workers indicate that long-term exposure (7 to 20 years, for example) to workplace air levels (41,000 mcg/m^3 to 120,000 mcg/m^3) caused reduced scores on neurobehavioral or color vision tests, increased levels of biochemical indicators of liver or kidney damage, reduced red blood cells, and blood and immune system effects [increased white blood cells and blood levels of a certain type of antibody (immunoglobulin E)]. The effects were mild and required special tests to be detected. It is not known how long these effects last.

The New York State Department of Health (NYSDOH, 2010) measured visual function [visual contrast sensitivity (VCS); color vision][1] in adults and children living in the apartments located in buildings with or without a dry-cleaner using PERC and also measured PERC indoor air levels. PERC levels were higher in the indoor air of apartments in buildings with dry-cleaners. Elevated indoor air PERC levels were associated with a slightly increased risk for children to have decreased VCS scores. The effect of PERC on VCS scores was most noticeable in a small group of children living in buildings with co-located dry cleaners using PERC. In those apartments, indoor air PERC levels ranged from 127 to 710 mcg/m^3, with a 50th percentile[2] (also known as the median) level of 340 mcg/m^3. For affected children (7 years mean duration of residency), the decrease was very small and occurred for only one eye in one of five tests. Mean VCS test scores were still within a normal range. Therefore, the risk for decreased VCS scores among affected children is considered to be small. Elevated indoor air PERC levels were not associated with effects on adult VCS scores, or with color vision of either children or adults. The observed associations between elevated indoor air PERC levels and children's VCS suggests that indoor air PERC levels in the range detected may have subtle effects on the brain.

A few epidemiological studies showed positive associations between workplace PERC exposure and reproductive effects (increased risk of spontaneous abortion, sperm disorders, and reduced fertility or delayed conception). Data on workplace air levels were not reported or were limited; however, workplace air levels during the times these studies were conducted were considerably higher than those typically found in indoor or outdoor air. These data suggest, but do not prove, that the reproductive effects were caused by PERC and not by some other factor or factors.

Lastly, epidemiological studies provide a pattern of evidence for a positive association between PERC exposure in the workplace and several types of cancer, specifically bladder cancer, non-Hodgkin lymphoma, and multiple myeloma. These associations were observed in studies with high quality assessments of the likelihood of PERC only exposures. However, data on PERC workplace air levels were not reported, but measurements from other studies indicate that workplace air levels during the times the workers were exposed were considerably higher than those typically found in indoor or outdoor air. Moreover, it is unlikely that the associations were dependent, totally or in part, on factors other than PERC exposures, such as common lifestyle factors as smoking or drinking alcohol. Data from more limited studies suggest that other types of cancer (esophageal, kidney, lung, liver, cervical, and breast cancer) are associated with PERC exposure. In laboratory studies, PERC caused cancer in rats and mice when they ingested or inhaled high doses almost daily for a lifetime. Based on human and animal data, the United States Environmental Protection Agency (USEPA) classifies PERC as “likely to be carcinogenic in humans by all routes of exposure.”

[1] VCS is a measure of a person's ability to distinguish the contrast between a viewed object and its background. It is easier to detect images of high contrast (e.g., a black cat on snow) than low contrast (e.g., a white cat on snow).

[2] Half the results are less than or equal to this value and half are above this value.

5. WHAT ARE BACKGROUND LEVELS FOR PERC IN OUTDOOR AND INDOOR AIR IN AREAS THAT ARE NOT NEAR A KNOWN ENVIRONMENTAL SOURCE OF PERC?

Various studies provide data on background levels of PERC in outdoor and indoor air. The New York State Department of Environmental Conservation collects data on outdoor air levels of air toxics under the Toxics Monitoring System (also known as Volatile Organics Network). The monitoring sites were selected to provide air quality data from the state's urban, industrial, residential, and rural areas. Based on 5882 samples collected across the state during 1999 to 2008, the 50th percentile (median) and 95th percentile[3] PERC levels were 0.41 mcg/m^3 and 4.8 mcg/m^3, respectively. NYSDOH (2005) conducted a study between 1997 and 2005 on the occurrence of volatile organic chemicals, including PERC, in the indoor and outdoor air of about 100 homes across the state (excluding New York City). Two outdoor samples were collected just outside each home for a total of 200 samples. The 50th percentile and 95th percentile PERC levels were less than 0.25 mcg/m^3 and 1.6 mcg/m^3, respectively. Finally, the 50th percentile and 95% percentile PERC levels in 587 outdoor air samples collected in 1999 - 2011 during the investigation of NYS remedial sites not known to have nor suspected to have sources of PERC were 0.52 mcg/m^3 and 2.6 mcg/m^3, respectively (NYSDOH, 2013b). Collectively, these three data sets, particularly given the low 95% percentile level in the large dataset from the Toxics Monitoring System, indicate that fewer than 5% of the background PERC levels in outdoor air are above 10 mcg/m^3.

The NYSDOH, the USEPA, and others have collected and analyzed information on PERC levels in indoor air. The table below contains the results from air samples collected inside of buildings that were not near known sources of PERC and other chemicals (for example, a home not known to be near a chemical spill, a hazardous waste site, a dry-cleaner, or a factory). The five studies that reported 90th percentile PERC air levels indicate that fewer than 10% of the background PERC levels in indoor air are above 10 mcg/m^3. In addition, the results for six of the eight studies that reported 95th percentiles and contained most of the samples indicate that fewer than 5% of the background PERC levels in indoor air are above 10 mcg/m^3. The other two studies (NYSDOH, 2009, 2013b; USEPA, 2001, 2013) indicate that fewer than 5% of the background indoor air levels are above 20 mcg/m^3.

[3] 95% of the results are less than or equal to this value.

Background Indoor Air Levels in US Buildings (1990-2013).

Study Description (and Sampling Years)	No. of Samples	Air Level Percentiles (mcg/m^3)			Reference
		50th (median)	90th [A]	95th	
Residential Buildings					
13 studies on residential properties (number NR[B]) in North America (1990-2005)	2312[C]	ND[D] - 2.2 (range)[E]	ND[D] - 7 (range)[E]	4.1 - 9.5 (range)[E]	USEPA (2011); also see Dawson & McAlary (2009)
screening study of households (284) in urban or non-urban areas of MN (1997)	284	1.4	NR[B]	4.9	Adgate et al. (2004)
subset of the screened households (101) in MN (1997)	101	1.3	NR[B]	5.2	
single family homes (about 100) heated with fuel oil from across NYS (excluding NYC) (1997-2003)	400	0.34	2.9	3.9	NYSDOH (2005, 2013a)[F]
households (about 100 each) in Elizabeth, NJ, Houston, TX, and Los Angeles, CA (1999-2001)	554	0.56	NR[B]	6.0	Weisel et al. (2005)
apartments (61) in NYC building **without** a co-located dry-cleaner (2001-2003)	61	2.2	8.5	19.09	NYSDOH (2009, 2013b)
Office Buildings					
public & commercial office buildings (70) in US (1994-1996)	209	1.5	9.3	18	USEPA (2001, 2013)
Mixed-Use Buildings					
buildings (number NR[B]) near NYS remedial sites not known nor suspected to have sources of PERC (1999-2011)	1625	0.72	2.8	6.6	NYSDOH (2013b)

[A] 90% of the results are less than or equal to this value.
[B] NR: not reported.
[C] Total number of samples, but number of samples associated with each percentile range is less than 2312, but was not reported.
[D] ND: not detected.
[E] The range from 13, 8, and 5 studies that reported the 50th, 90th, and 95th percentiles, respectively.
[F] One of the 13 studies included in USEPA (2011) and Dawson & McAlary (2009).

6. WHAT IS THE NEW YORK STATE DEPARTMENT OF HEALTH'S NEW GUIDELINE FOR PERC IN AIR?

After consideration of the potential health effects of PERC, background levels of PERC in air, and analytical techniques (the ability and reliability of methods to measure PERC in air), NYSDOH recommends that the average air level not exceed 30 mcg/m^3. This determination considered continuous, lifetime exposure and sensitive people. Three other ways of expressing the new guideline are 0.03 milligrams per cubic meter of air (0.03 mg/m^3), 4.4 parts per billion (ppb) or 0.0044 parts per million (ppm). This replaces the old guideline of 100 mcg/m^3.

An air guideline of 30 mcg/m^3 is below the PERC air levels known to cause noncancer effects, including developmental and reproductive effects, in humans and animals, and should be protective against those effects. It is lower than the USEPA's (2012) reference concentration (RfC)[4] for PERC of 40 mcg/m^3. The estimated excess cancer risk associated with lifetime, continuous exposure to 30 mcg/m^3 is about one-in-one-hundred thousand.

[4] The reference concentration is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

Decisions about whether to take actions to further reduce exposure are generally made on a case-by-case basis at this level of risk.

However, NYSDOH recommends that reasonable and practical actions should be taken to reduce PERC exposure whenever air levels are above background. The purpose of the guideline is to help guide decisions about the urgency of the actions to reduce PERC exposure. The urgency to initiate these actions and to determine, in a timely manner, whether they have reduced exposure, increases with indoor air levels, particularly when air levels are above the guideline.

Indoor air levels substantially above the guideline indicate a significant PERC source and may require more immediate remedial action. NYSDOH has concerns about lengthy exposure (months to years) to air levels higher than 300 mcg/m^3 because the results of a recent NYSDOH study suggested that indoor air PERC levels in apartments (median value of 340 mcg/m^3) may have subtle effects on the nervous system (vision function) of children (NYSDOH, 2010 at http://www.health.ny.gov/environmental/investigations/perc/info_sheet.htm). Thus, NYSDOH recommends taking immediate and effective action to reduce exposure when an air level is equal to or above 300 mcg/m^3. In all cases, the specific corrective actions to be taken depend on a case-by-case evaluation of the situation. The goal of the recommended actions is to reduce PERC levels in indoor air to as close to background as practical.

7. WHY DID NEW YORK STATE DEPARTMENT OF HEALTH REDUCE THE GUIDELINE FOR PERC IN AIR FROM 100 MCG/M^3 TO 30 MCG/M^3?

The guideline of 100 mcg/m^3 was issued in 1997 and was based on the toxicological data available at the time. Since then, many new toxicity studies have been published and the USEPA has completed a comprehensive, state-of-the-science, peer-reviewed risk assessment of PERC. Based on the risk assessment, the USEPA recommended values for evaluating the potential for noncancer and cancer effects from exposure to PERC in air [a RfC (40 mcg/m^3) and an air level (4 mcg/m^3) associated with an estimated excess cancer risk of one-in-one million, assuming continuous, lifetime exposure]. NYSDOH staff reviewed the USEPA risk assessment and determined that the recommended values are scientifically robust and should replace the values derived in 1997. The USEPA publication of its RfC (40 mcg/m^3) necessitated a re-evaluation of the health-protectiveness of the old NYSDOH guideline (100 mcg/m^3) because it has been the past practice of NYSDOH to set guidelines at air levels that are equal to or less than a RfC. Consequently, the guideline was reduced to 30 mcg/m^3 after consideration of new toxicity data (e.g., NYSDOH, 2010) and the USEPA risk assessment.

8. SHOULD I BE CONCERNED ABOUT HEALTH EFFECTS IF I AM EXPOSED TO AN AIR LEVEL SLIGHTLY ABOVE THE GUIDELINE?

The guideline is not a bright line between PERC levels that cause health effects and those that do not. The differences between exposure at the guideline and exposure levels known to cause effects in humans and animals are large. Thus, exposure to levels above but near the guideline will not cause health effects in most, if not all, people. In addition, the guideline is based on the assumption that people are continuously exposed to PERC in air all day, every day for as long as a lifetime. Continuous exposure is rarely true for most people, who, if exposed, are more likely to be exposed for a part of the day and part of their lifetime.

9. IS THERE A TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO PERC?

PERC levels can be measured in the breath for weeks following a high exposure to PERC because it is stored in body fat and is slowly released into the bloodstream and then exhaled in the breath. PERC can be measured in blood. Also, breakdown products of PERC can be detected in the blood and urine for several days after exposure to PERC. Because exposure to other chemicals can produce the same breakdown products in the urine and blood as PERC, the tests for breakdown products cannot determine if you have been exposed only to PERC. Although the tests can show if PERC levels in the body are elevated compared to background levels, they

cannot conclusively determine when and for how long a person was exposed, what the source of that exposure was, or whether or not the person will develop adverse health effects.

10. WHEN SHOULD MY CHILDREN OR I SEE A PHYSICIAN?

If you believe you or your children have symptoms that you think are caused by PERC exposure, you and your children should see a physician. You should tell the physician about the symptoms and about when, how, and for how long you think you and/or your children were exposed to PERC.

11. WHERE CAN I GET MORE INFORMATION?

If you have any questions about the information in this fact sheet, would like to know more about PERC, or are concerned that you may be exposed to elevated levels of PERC, please call the New York State Department of Health at 518-402-7800 or 1-800-458-1158, send an e-mail to btsa@health.state.ny.us, or write to us at the following address.

New York State Department of Health
Bureau of Toxic Substance Assessment
Corning Tower, Room 1743
Empire State Plaza,
Albany, NY 12237

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New York State Department of Health
Tenant Notification Fact Sheet for Tetrachloroethene (Perc)

This fact sheet is provided to fulfill New York State Department of Health (NYS DOH) requirements for preparation of generic fact sheets under Article 27 (Title 24, Section 27-2405) of the Environmental Conservation Law.

Tetrachloroethene (Perc)

Tetrachloroethene (also known as perchloroethylene or Perc) is a man-made volatile organic chemical that is widely used in the dry-cleaning of fabrics, including clothes, and in manufacturing other chemicals. It was also used for degreasing metal parts and in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors.

Sources of Perc in Indoor Air

Household products containing Perc could be a possible source for Perc in indoor air. Perc also may evaporate from dry-cleaned clothes or dry-cleaning operations into indoor air. Another source could be evaporation from contaminated well water that is used for household purposes. Perc may also enter homes through soil vapor intrusion, which occurs when the chemical evaporates from groundwater, enters soil vapor (air spaces between soil particles), and migrates through building foundations into the building's indoor air. Perc has also been found at low concentrations in outdoor air.

Levels Typically Found in Air

The NYS DOH reviewed and compiled information from studies in New York State as well as from homes and office buildings across the United States on typical levels of Perc in indoor and outdoor air. Levels of Perc in the indoor air of homes and office settings and in outdoor air are expected to be below 10 micrograms per cubic meter (mcg/m^3).

Health Risks Associated with Exposure

An association exists between exposure of people in the workplace to high levels of Perc in air and certain forms of cancer. Perc causes cancer in laboratory animals exposed to high levels over their lifetimes. Overall, the studies of humans and in animals do not prove that Perc causes cancer in people, but are highly suggestive that there may be an increased risk for cancer in people who are exposed to Perc (particularly at high concentrations) over long periods of time

People exposed to high levels of Perc in air had nervous system effects and slight changes to their liver and kidneys. Some studies show a slightly increased risk for some types of reproductive effects among workers (including dry-cleaning workers) exposed to Perc and other chemicals. The reproductive effects associated with exposure included increased risks for spontaneous abortion, menstrual and sperm disorders, and reduced fertility. The data suggest, but do not prove, that the effects were caused by Perc and not by some other factor or factors. Exposure to high levels of Perc has caused liver and kidney damage in laboratory animals and effects on the nervous system. Taken together, the human and animal studies indicate that human exposure to high levels of Perc causes effects on the nervous system, and suggest that human exposure to high levels of Perc may increase the risk for liver and kidney toxicity.

NYS DOH Air Guideline

The NYS DOH guideline for Perc in air is 30 mcg/m^3. This level is lower than the levels that have caused health effects in animals and humans. The guideline is based on the assumption that people

are continuously exposed to Perc in air all day, every day for as long as a lifetime. This is rarely true for most people who, if exposed, are likely to be exposed for only part of the day and part of their lifetime. In setting this level, the NYS DOH also considered the possibility that certain members of the population (infants, children, the elderly, and those with pre-existing health conditions) may be especially sensitive to the effects of Perc.

The purpose of the guideline is to help guide decisions about the nature of the efforts to reduce Perc exposure. Reasonable and practical actions should be taken to reduce Perc exposure when indoor air levels are above those typically found in indoor air, even when they are below the guideline of 30 mcg/m^3. The urgency to take actions increases as indoor air levels increase, especially when air levels are above the guideline. The NYS DOH recommends taking immediate action to reduce exposure when an air level is ten times or more higher than the guideline (that is, when the air level is 300 mcg/m^3 or higher).

Ways to Limit Exposure to Perc in Indoor Air

In all cases, the specific actions to limit exposure to Perc in indoor air depend on a case-by-case evaluation of the situation. Removing household sources of Perc and maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of Perc entering indoor air by soil vapor intrusion. Use of an activated carbon filter on the water supply can reduce the amount of the chemical in contaminated well water that could evaporate into indoor air.

Reportable Detection Level

The reportable detection level for a chemical can vary depending on the analytical method used, the laboratory performing the analysis, and several other factors. Most laboratories that use the analytical methods recommended by the NYS DOH for measuring Perc in air (and approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program) can routinely detect the chemical at concentrations below 1 mcg/m^3.

Additional Information

Additional information on Perc, ways to reduce exposure, indoor air contamination resulting from soil vapor intrusion, indoor and outdoor air levels and the Environmental Conservation Law can be found on the NYS DOH website at www.health.state.ny.us/environmental/indoors/air/contaminants.

If you have further questions about Perc and the information in this fact sheet, please call the NYS DOH at 1-518-402-7800 or 1-800-458-1158 (extension 2-7800), e-mail to **ceheduc@health.state.ny.us**, or write to the following address:

New York State Department of Health
Center for Environmental Health
Outreach and Education Group
Empire State Plaza-Corning Tower, Room 1642
Albany, New York 12237

New York State Department of Health
December, 2013

Tenant Notification Information on Trichloroethene (TCE)

This fact sheet fulfills New York State Department of Health requirements under *Article 27 (Title 24, Section 27-2405)* of Environmental Conservation Law.

Trichloroethene

Trichloroethene (also known as trichloroethylene or TCE) is a human-made chemical. TCE is volatile, meaning it readily evaporates into the air at room temperature, where people can sometimes smell it. It is used as a solvent to remove grease from metal, spots from clothing, and as a paint stripper. It is also an ingredient in paints, varnishes, adhesives, and in making other products like furniture and electric/electronic equipment.

Exposure to TCE

People may be exposed to TCE in air, water, and food, or when TCE or material containing TCE (for example, soil) gets on the skin. For most people, almost all TCE exposure is from indoor air.

Sources

TCE can get into indoor air when products containing it are used, like glues, adhesives, paint removers, spot removers, and metal cleaners. TCE can also evaporate into the air from household water that comes from contaminated water wells. TCE can enter homes through soil vapor intrusion, which occurs when chemicals evaporate from contaminated groundwater into the air spaces between soil particles and migrate inside through cracks or other openings in a building's foundation. TCE gets into outdoor air when it is released from industrial facilities and when it evaporates from areas where chemical wastes are stored or disposed.

Levels Typically Found in Air

The background indoor air concentrations in homes and office buildings not near known environmental sources of TCE are almost always 1 microgram per cubic meter of air (1 mcg/m^3) or less. Background outdoor air levels also are almost always 1 mcg/m^3 or less.

Health Risks

TCE exposure can cause health effects on the central nervous system, liver, kidneys, and immune system, and can affect fetal heart development during pregnancy. The United States Environmental Protection Agency classifies TCE as a chemical that causes cancer in humans. As with all exposures, whether or not a person experiences a health effect depends on how much of a chemical they are exposed to, how often the exposure occurs, and how long the exposures last. Individual characteristics such as age, health, lifestyle, and genetics also play a role.

Guidelines

The New York State Department of Health recommends that TCE concentrations in the air not exceed 2 mcg/m^3. This guideline was set at a level below those known or suspected of causing health effects in people and animals. The guideline also assumes that people are continuously exposed to TCE in air, all day, every day, over a lifetime. This is a health protective assumption because most people are not exposed to TCE continuously throughout their life.

The TCE guideline is used to help guide decisions about efforts to reduce TCE exposure. The higher the concentration that TCE is above the guideline level, the greater the urgency to take action to reduce exposure. However, as with all chemicals, reducing exposure is always recommended when concentrations in the air are above background levels.

There is usually a significant TCE source when indoor air concentrations are much greater than the TCE guideline level. New York State Department of Health recommends taking immediate and effective action to reduce exposures when TCE levels in the air are 20 mcg/m^3 and greater. This concentration is based on concerns about TCE exposure during pregnancy, particularly during the first trimester, because TCE exposure is a risk factor for fetal heart defects.

Ways to Limit Indoor Air Exposure

The specific recommended action depends on a case-by-case evaluation of the situation. In many cases, removing household sources and maintaining adequate ventilation will help reduce indoor air levels. A sub-slab depressurization system can reduce the amount of TCE entering indoor air by soil vapor intrusion. TCE can also evaporate into the air from household water that comes from contaminated water wells. In these cases, using an activated carbon filter on the water supply also can help reduce the amount of TCE in indoor air.

Concerns about Exposure

Most people are exposed to TCE at concentrations that are much lower than those known to cause health effects. If you are concerned about exposure to TCE, talk with a health care provider.

Reportable Detection Level

The reportable detection level for any chemical can vary depending on the analytical method used, the laboratory performing the analysis, and other factors. Most laboratories that use the analytical methods recommended by the New York State Department of Health for measuring TCE in air can routinely detect the chemical at levels below 1 mcg/m^3. These labs are approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program. Find a certified lab at www.wadsworth.org/regulatory/elap or contact us at btsa@health.ny.gov for assistance.

More Information

- Visit www.health.ny.gov/environmental/indoors/air/contaminants/ for more about tenant notification law requirements, TCE and other indoor air contaminants, and ways to reduce exposure.
- Contact us with any questions or concerns about TCE exposure
  phone: 1-518-402-7800, e-mail btsa@health.ny.gov, or mail:

  New York State Department of Health
  Bureau of Toxic Substance Assessment Corning Tower, Room 1743
  Empire State Plaza, Albany, NY 12237

Volatile Organic Compounds (VOCs) in Commonly Used Products

People spend most of their time indoors – at home, school and work. This makes the quality of the indoor air you breathe important. This fact sheet focuses on certain kinds of chemicals called *volatile organic compounds* or *VOCs* that are found in many products that we commonly use. It is designed to help you think about what VOCs may be present in your indoor air and steps you can take to reduce them.

What are VOCs?

VOCs are chemicals that easily enter the air as gases from some solids or liquids. They are ingredients in many commonly used products and are in the air of just about every indoor setting. The table to the right shows some examples of products that contain VOCs.

How do VOCs get into indoor air?

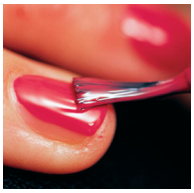
Products containing VOCs can release these chemicals when they are used and when they are stored. Many times you'll notice an odor when using these products. Product labels often list VOC ingredients and recommend that they should be used in well ventilated areas. *Ventilation* means bringing in fresh, outdoor air to mix with indoor air.

When you use a product containing VOCs indoors, the levels of these chemicals in the air increase, then decrease over time after you stop using them. The amount of time the chemical stays in the air depends on how quickly fresh air enters the room and the amount of the chemical used. Levels of VOCs will decrease faster if you open windows or doors, or use exhaust fans.

Building materials and furnishings, such as new carpets or furniture, slowly release VOCs over time. It may be necessary to ventilate areas with new carpeting or furniture for longer time periods because VOC levels can build up again after the windows are closed. If possible, unroll new carpets or store furniture outside your home (in a shed or detached garage) to minimize odors before bringing them in the home. If that's not possible, open windows, close doors and try to stay out of rooms until odors are reduced.

If VOC containing products are used outdoors near your home, you may want to close windows and nearby vents to prevent chemicals from coming inside.

Products used at home or work can release VOCs into the air when used and stored.



Examples of Household Products	Possible VOC Ingredients
Fuel containers or devices using gasoline, kerosene, fuel oil and products with petroleum distillates: paint thinner, oil-based stains and paint, aerosol or liquid insect pest products, mineral spirits, furniture polishes	BTEX (benzene, toluene, ethylbenzene, xylene), hexane, cyclohexane, 1,2,4-trimethylbenzene
Personal care products: nail polish, nail polish remover, colognes, perfumes, rubbing alcohol, hair spray	Acetone, ethyl alcohol, isopropyl alcohol, methacrylates (methyl or ethyl), ethyl acetate
Dry cleaned clothes, spot removers, fabric/ leather cleaners	Tetrachloroethene (perchloroethene (PERC), trichloroethene (TCE))
Citrus (orange) oil or pine oil cleaners, solvents and some odor masking products	d-limonene (citrus odor), a-pinene (pine odor), isoprene
PVC cement and primer, various adhesives, contact cement, model cement	Tetrahydrofuran, cyclohexane, methyl ethyl ketone (MEK), toluene, acetone, hexane, 1,1,1-trichloroethane, methyl-iso-butyl ketone (MIBK)
Paint stripper, adhesive (glue) removers	Methylene chloride, toluene, older products may contain carbon tetrachloride
Degreasers, aerosol penetrating oils, brake cleaner, carburetor cleaner, commercial solvents, electronics cleaners, spray lubricants	Methylene chloride, PERC, TCE, toluene, xylenes, methyl ethyl ketone, 1,1,1-trichloroethane
Moth balls, moth flakes, deodorizers, air fresheners	1,4-dichlorobenzene, naphthalene
Refrigerant from air conditioners, freezers, refrigerators, dehumidifiers	Freons (trichlorofluoromethane, dichlorodifluoromethane)
Aerosol spray products for some paints, cosmetics, automotive products, leather treatments, pesticides	Heptane, butane, pentane
Upholstered furniture, carpets, plywood, pressed wood products	Formaldehyde

VOCs can also get into indoor air from contaminated soils and groundwater under buildings. The chemicals enter buildings through cracks and openings in basements or slabs. When nearby soil or groundwater is contaminated, you might be asked for permission to investigate indoor air at your property. More information can be found at *www.nyhealth.gov/environmental/indoors/vapor_intrusion/*.

Should I be surprised if VOCs are in the air I breathe?

No. Because they are commonly used, some VOCs are almost always found in indoor air. The New York State Department of Health (DOH) and other agencies have studied typical levels of VOCs that may be present in indoor and outdoor air. Sometimes these levels are called "*background levels*".

The term "background levels" can be confusing because they can vary depending on where an air sample was collected and whether VOCs were used or stored. For example, a study of VOCs in urban areas might find higher levels than another study in rural areas. Some studies look at office environments, others examine residences. Please keep in mind study findings may or may not make sense for your setting.

More information about levels of VOCs collected by DOH is available in Appendix C of the guidance for evaluating vapor intrusion at *www.nyhealth.gov/environmental/investigations/soil_gas/svi_guidance.*

How can VOCs affect human health?

Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*. No matter how dangerous a substance or activity is, it cannot harm you without exposure.

Whether or not a person will have health effects after breathing in VOCs depends on:

1. The *toxicity* of the chemical (the amount of harm that can be caused by contact with the chemical).
2. How much of the chemical is in the air.
3. How long and how often the air is breathed.

Differences in age, health condition, gender and exposure to other chemicals also can affect whether or not a person will have health effects.

Short-term exposure to high levels of some VOCs can cause headaches, dizziness, light-headedness, drowsiness, nausea, and eye and respiratory irritation. These effects usually go away after the exposure stops. In laboratory animals, long-term exposure to high levels of some VOCs has caused cancer and affected the liver, kidney and nervous system. In general, we recommend minimizing exposure to chemicals, if possible.

How can I reduce the levels of VOCs indoors?

- Find out if products used or stored in your home contain VOCs. Information about the chemicals in many household products are listed on the front of this fact sheet and a larger list is on the National Institute of Health's website at *hpd.nlm.nih.gov/products.htm*.
- If you must store products containing VOCs, do so in tightly sealed, original containers in a secure and well-ventilated area. If possible store products in places where people do not spend much time, such as a garage or outdoor shed. Better yet, buy these products in amounts that are used quickly.
- Dispose of unneeded products containing VOCs. Many of these products are considered *household hazardous wastes* and should be disposed of at special facilities or during special household hazardous waste collection programs in your area. Contact your town or visit the New York State Department of Environmental Conservation's website at *www.dec.ny.gov/chemical/8485.html* for more information about disposing of these products.
- Use products containing VOCs in well-ventilated areas or outdoors. Open windows and doors or use an exhaust fan to increase ventilation. Repeated or prolonged ventilation may be necessary for reducing levels from building materials (new carpeting or furniture) that release VOCs slowly over time.
- Carefully read labels and follow directions for use.

Where can I find out more?

- **New York State Department of Health**
  (800) 458-1158
  www.nyhealth.gov/environmental/
- **Indoor Air Quality and Your Home** from the New York State Energy Research and Development Authority *www.nyserda.org/publications/iaq.pdf*
- **The Inside Story: A Guide to Indoor Air Quality**
  www.epa.gov/iaq/pubs/insidest.html
- **New York State Department of Environmental Conservation** website for information about household hazardous waste disposal
  www.dec.ny.gov/chemical/8485.html
- **National Institute of Health's** website for information about chemicals found in many household products.
  hpd.nlm.nih.gov/products.htm

December 2007

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau C
625 Broadway, 12th Floor, Albany, NY 12233-7014
P: (518) 402-9543 | F: (518) 402-9722
www.dec.ny.gov

Transmitted Via Email Only

October 3, 2024

Monica Roth - Regency Centers
321 Railroad Avenue
Greenwich, CT 06830
(monicaroth@regencycenters.com)

Re: Carmel Shop-Rite Plaza
Revised Soil Vapor Intrusion Results/Recommendations
180 Gleneida Avenue
Carmel, New York
Site No.: V00104

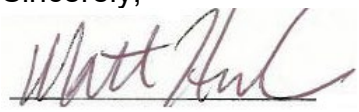
Dear Monica Roth:

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has reviewed the revised July 2024 Soil Vapor Intrusion (SVI) Summary Report prepared by your consultant, Groundwater & Environmental Services, Inc, for the Carmel Shop-Rite Plaza Site.

The Department disagrees with the recommendation for no further SVI testing in three of the four tenant spaces and would like additional sampling conducted on all four tenant spaces during this heating season. The Department would like the system to be shut down for a period of 45-60 days prior to resampling.

I can be reached at (518) 402-9605 or by email at matthew.hubicki@dec.ny.gov with any questions. Please allow 7-days' notice prior to start of any work at the site.

Sincerely,



Matthew Hubicki, Project Manager

Michael C. DeGloria

From: Hubicki, Matthew S (DEC) <matthew.hubicki@dec.ny.gov>
Sent: Tuesday, October 8, 2024 1:25 PM
To: Michael C. DeGloria
Cc: Jessica Montaldo
Subject: RE: NYSDEC Site Number V00104 - Carmel Shop-Rite Center - SVI Summary Report (Revised)

Michael – I got your message yesterday, and we are OK with the SSDS being capped/locked out this Friday 10/11/24, and sampled on 12/10/24.

I'm working from home today if you need to discuss further.

Thanks
Matt

Matthew Hubicki
Assistant Environmental Engineer, Remedial Bureau C
Division of Environmental Remediation

New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-7014
P: (518) 402-9605 | F: (518) 402-9679 | matthew.hubicki@dec.ny.gov
New York State Department of Environmental Conservation (ny.gov) | | |

From: Michael C. DeGloria <MDeGloria@gesonline.com>
Sent: Wednesday, September 25, 2024 12:04 PM
To: Hubicki, Matthew S (DEC) <matthew.hubicki@dec.ny.gov>
Cc: Jessica Montaldo <JMontaldo@gesonline.com>
Subject: RE: NYSDEC Site Number V00104 - Carmel Shop-Rite Center - SVI Summary Report (Revised)

Hi Matthew – we're getting ready to prepare the PRR for the Carmel ShopRite Center and will update section 6.3 Site Closeout to reflect the SVI testing completed earlier this year. I was wondering if any additional correspondence is forthcoming relative to recommendations made in the SVI summary report as I begin to prepare for the next event:

Table 10 – Recommendations

Tenant Space Location	Recommendation
178 Route 52 – Europa Pizza	No additional SVI testing based on the outcomes, discontinue SSD ope
176 Route 52 – Carmel Nails	No additional SVI testing based on the outcomes, discontinue SSD ope
174 Route 52 – Electric Paradise Tanning Salon	Complete one additional SVI sampling e sub-slab, indoor air) sample collection, pe SVI workplan, during the next heatin
170 Route 52 – Chinatown Restaurant	No additional SVI testing based on the outcomes, discontinue SSD ope

Thank you,

Michael DeGloria, PG
Principal Project Manager

Office: 866.839.5195 ext. 3839

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Safety: Plan, Prevent, Protect

Groundwater & Environmental Services, Inc.

63 E Main Street, Unit 3
Pawling, New York 12564

T. 800.360.9405

November 3, 2023

Mr. Matthew Hubicki
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway – 11th Floor
Albany, New York 12233-7014

Re: 4th Quarter 2023 SSDS Inspection Letter
NYSDEC Site Number V00104
Carmel Shop-Rite Plaza
180 Gleneida Avenue
Carmel, New York
NYSDEC Site Number V00104

Dear Mr. Hubicki:

Groundwater & Environmental Services, Inc. (GES) on behalf of Regency Centers has prepared this 4th Quarter 2023 Sub-Slab Depressurization System (SSDS) Inspection Letter for the above referenced Site.

On October 30, 2023, a periodic SSDS inspection was completed at the Carmel Shop-Rite Center (the Site), located at 180 Gleneida Avenue, Carmel, New York. All sub-slab depressurization system (SSDS) fans were operational at the time of the site inspection. A copy of the SSDS Operation & Maintenance (O&M) Checklist from October 30, 2023 is included as **Attachment A**.

The next SSD inspections will be completed during the first quarter of 2024.

If you have any questions or comments regarding this submittal, please contact Michael DeGloria of GES at (800) 866-839-5195, extension 3839.

Sincerely,

Michael C. DeGloria, P.G.
Principal Project Manager

cc: Monica Roth, Regency Centers

Europa Pizzeria

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 10/30/2023

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✔	Check that the fan is running.
✔	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✔	If possible, observe suction point where PVC pipe enters the floor slab.
✔	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

✔	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✔	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

New Journey Nail and spa

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 10/30/2023

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✔	Check that the fan is running.
✔	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

NA	If possible, observe suction point where PVC pipe enters the floor slab.
NA	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

NA	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✔	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Electric Paradise

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 10/30/2023

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✔	Check that the fan is running.
✔	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

NA	If possible, observe suction point where PVC pipe enters the floor slab.
NA	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

NA	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✔	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Chinatown Restaurant

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 10/30/2023

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✔	Check that the fan is running.
✔	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

NA	If possible, observe suction point where PVC pipe enters the floor slab.
NA	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

NA	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✔	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✔	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Groundwater & Environmental Services, Inc.

63 E Main Street, Unit 3
Pawling, New York 12564

T. 800.360.9405

March 8, 2024

Mr. Matthew Hubicki
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway
Albany, New York 12233-7014

Re: Non-Routine Maintenance Report
Carmel Shop-Rite Plaza
180 Gleneida Avenue
Carmel, New York
NYSDEC Site Number V00104

Dear Mr. Hubicki:

Groundwater & Environmental Services, Inc. (GES) on behalf of Regency Centers has prepared this *Non-Routine Maintenance Report* for the above referenced Site.

On January 29, 2024, a site inspection was completed at the Carmel Shop-Rite Center (the Site), located at 180 Gleneida Avenue, Carmel, New York. All sub-slab depressurization system (SSDS) components were operational at the time of the site inspection except for the Radon-Away HS-5000 fan located at the Europa Pizza tenant space. Following the site inspection, the New York State Department of Environmental Conservation (NYSDEC) was contacted via email on January 29, 2024 to provide notification of the system status as required by the Site Management Plan. A copy of the SSDS Operation and Maintenance (O&M) Checklist from January 29, 2024 is included as **Attachment A**.

Per the NYSDEC approved *Soil Vapor Intrusion Work Plan* dated December 22, 2023, all SSDS fans at the Site were shutdown following the January 29, 2024 site inspection in preparation for soil vapor intrusion (SVI) sampling activities. Additionally, the exhaust ports on all SSDS fans at the Site were capped. Photographs of the capped exhaust ports are included as **Attachment B**.

GES completed the replacement of the Radon-Away HS-5000 fan for the Europa Pizza tenant space mentioned above, on March 6, 2024 following completion of the SVI sampling activities on March 5, 2024. Startup of all SSD fans was initiated following installation of the Europa Pizza tenant space fan and removal of the afore mentioned exhaust port caps. A copy of the SSDS O&M Checklist from March 6, 2024 is included as **Attachment C**.

The next SSD inspections will be completed during the second quarter of 2024.

If you have any questions or comments regarding this submittal, please contact Michael DeGloria of GES at (800) 866-839-5195, extension 3839.

Sincerely,

Michael C. DeGloria, P.G.
Principal Project Manager

cc: Monica Roth, Regency Centers

Appendix A

Europa Pizza

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 01/29/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

x	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

✓	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

New Journey Nails

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 01/29/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

- [✓] Check that the fan is running.
- [✓] Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

- [✓] If possible, observe suction point where PVC pipe enters the floor slab.
- [✓] Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

- [✓] Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
- [✓] Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
- [✓] Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
- [✓] Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Electric Paradise

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 01/29/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

N/A	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Chinatown Restaurant

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 01/29/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

N/A	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Appendix B

Client: Regency Center (formerly Urstadt Biddle Properties Inc) **Site Name:** UBPI/CarmelNY/GleneidaAve180	**Project:** 1192323 - 05 - 260 **Site Location:** UB Carmel

Photo #:	1
Date:	01/29/2024
Direction:	East

Comments:

6" fan plugged

Client: Regency Center (formerly Urstadt Biddle Properties Inc) **Site Name:** UBPI/CarmelNY/GleneidaAve180	**Project:** 1192323 - 05 - 260 **Site Location:** UB Carmel

Photo #:	2
Date:	01/29/2024
Direction:	West

Comments:

4- 2" fans plugged as shown

Client: Regency Center (formerly Urstadt Biddle Properties Inc) **Site Name:** UBPI/CarmelNY/GleneidaAve180	**Project:** 1192323 - 05 - 260 **Site Location:** UB Carmel

Photo #:	3
Date:	01/29/2024
Direction:	South

Comments:

Stacks from fans stored in electrical room

Appendix C

Chinatown

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 03/06/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

N/A	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

N/A	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Electric Paradise

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 03/06/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

N/A	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

N/A	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

New Journey Nails

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 03/06/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

✓	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
N/A	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Europa Pizzeria

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 03/06/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

- [✓] Check that the fan is running.
- [✓] Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

- [✓] If possible, observe suction point where PVC pipe enters the floor slab.
- [✓] Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

- [✓] Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
- [✓] Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
- [✓] Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
- [✓] Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Groundwater & Environmental Services, Inc.

63 E Main Street, Unit 3
Pawling, New York 12564

T. 800.360.9405

May 16, 2024

Mr. Matthew Hubicki
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway
Albany, New York 12233-7014

Re: Non-Routine Maintenance Report
Carmel Shop-Rite Plaza
180 Gleneida Avenue
Carmel, New York
NYSDEC Site Number V00104

Dear Mr. Hubicki:

Groundwater & Environmental Services, Inc. (GES) on behalf of Regency Centers has prepared this *Non-Routine Maintenance Report* for the above referenced Site.

On April 26, 2024, a periodic site inspection was completed at the Carmel Shop-Rite Center (the Site), located at 180 Gleneida Avenue, Carmel, New York. All sub-slab depressurization system (SSDS) components were operational at the time of the site inspection. A copy of the SSDS Operation and Maintenance (O&M) Checklist from April 26, 2024 is included as **Attachment A**.

The next SSD inspections will be completed during the third quarter of 2024.

If you have any questions or comments regarding this submittal, please contact Michael DeGloria of GES at (800) 866-839-5195, extension 3839.

Sincerely,

Michael C. DeGloria, P.G.
Principal Project Manager

cc: Monica Roth, Regency Centers

Attachment A

Europa Pizza

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 04/26/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

✓	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

New Journey nails and spa

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 04/26/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

FANS:

✓	Check that the fan is running.
✓	Check that no new air intakes have been installed within 20 feet of exhaust pipe.

SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

PIPING:

NA	Check liquid manometers (look like U-shaped thermometers) for a difference in water level on each side of the U-shape.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no damage has occurred.
✓	Inspect all system pipes and/or pipe enclosures to ensure that no unauthorized piping connections have been made.
✓	Where piping is visible check that labeling and liquid manometers remain in place.

IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Electric Paradise

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 04/26/2024

ROUTINE SYSTEM MAINTENANCE:

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Chinatown

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 04/26/2024

ROUTINE SYSTEM MAINTENANCE:

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SEALS:

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IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Groundwater & Environmental Services, Inc.

63 E Main Street, Unit 3
Pawling, New York 12564

T. 800.360.9405

September 26, 2024

Mr. Matthew Hubicki
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway
Albany, New York 12233-7014

Re: Non-Routine Maintenance Report
Carmel Shop-Rite Plaza
180 Gleneida Avenue
Carmel, New York
NYSDEC Site Number V00104

Dear Mr. Hubicki:

Groundwater & Environmental Services, Inc. (GES) on behalf of Regency Centers has prepared this *Non-Routine Maintenance Report* for the above referenced Site.

On July 23, 2024, a periodic site inspection was completed at the Carmel Shop-Rite Center (the Site), located at 180 Gleneida Avenue, Carmel, New York. All sub-slab depressurization system (SSDS) components were operational at the time of the site inspection. A copy of the SSDS Operation and Maintenance (O&M) Checklist is included as **Attachment A**.

The next SSD inspections will be completed during the fourth quarter of 2024.

If you have any questions or comments regarding this submittal, please contact Michael DeGloria of GES at (800) 866-839-5195, extension 3839.

Sincerely,

Michael C. DeGloria, P.G.
Principal Project Manager

cc: Monica Roth, Regency Centers

Attachment A

Europa Pizza

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 07/23/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

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SEALS:

✓	If possible, observe suction point where PVC pipe enters the floor slab.
✓	Observe the seal around PVC pipes for visual cracks or a loud audible hissing. Indications of leaks should be reported to GES as soon as possible.

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New Journey nails and spa

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

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Electric Paradise

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 07/23/2024

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IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

Chinatown

SUB-SLAB DEPRESSURIZATION O&M CHECKLIST

Name: Richard Brown **Date:** 07/23/2024

ROUTINE SYSTEM MAINTENANCE:

Note: the following checklist should be performed for each slab entry point.

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IF THE INTEGRITY OF THE SYSTEM HAS BEEN COMPROMISED PLEASE REPORT TO GES AS SOON AS POSSIBLE AT 866-839-5195

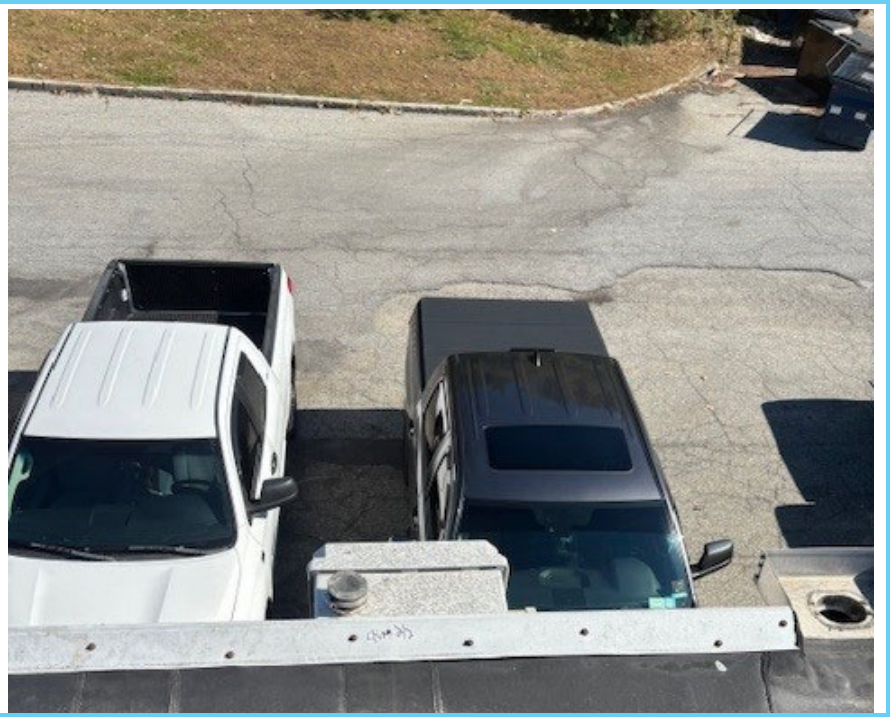
Appendix C – Photograph Log

Client: Regency Centers **Site Name:** Carmel Shop-Rite Plaza	**Project:** 1192323/05/139 **Site Location:** Carmel, NY

Photo #:	1
Date:	10/11/2024
Direction:	East

Comments:

SSD exhaust capped in advance of the December soil vapor intrusion testing.

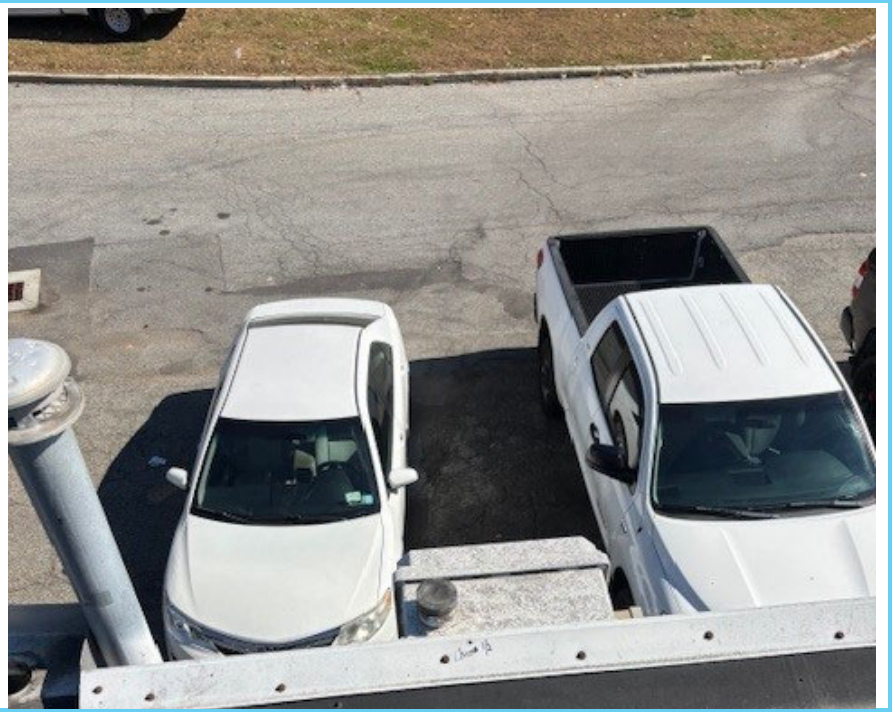


Client: Regency Centers **Site Name:** Carmel Shop-Rite Plaza	**Project:** 1192323/05/139 **Site Location:** Carmel, NY

Photo #:	2
Date:	10/11/2024
Direction:	East

Comments:

SSD exhaust capped in advance of the December soil vapor intrusion testing.

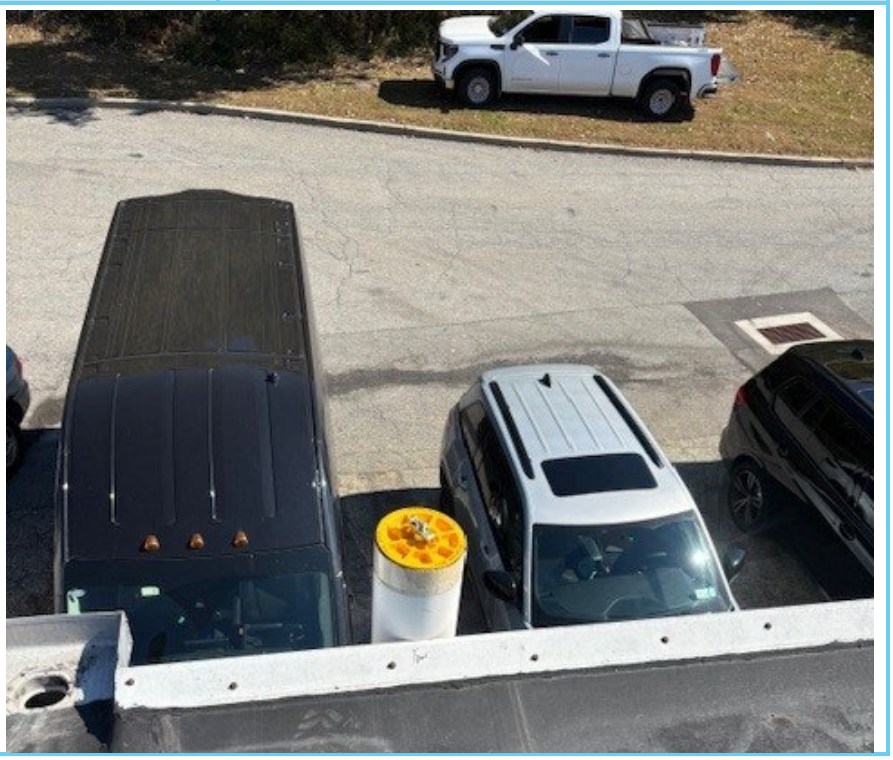


Client: Regency Centers	**Project:** 1192323/05/139
Site Name: Carmel Shop-Rite Plaza	**Site Location:** Carmel, NY

Photo #:	3
Date:	10/11/2024
Direction:	East

Comments:

SSD exhaust capped in advance of the December soil vapor intrusion testing.

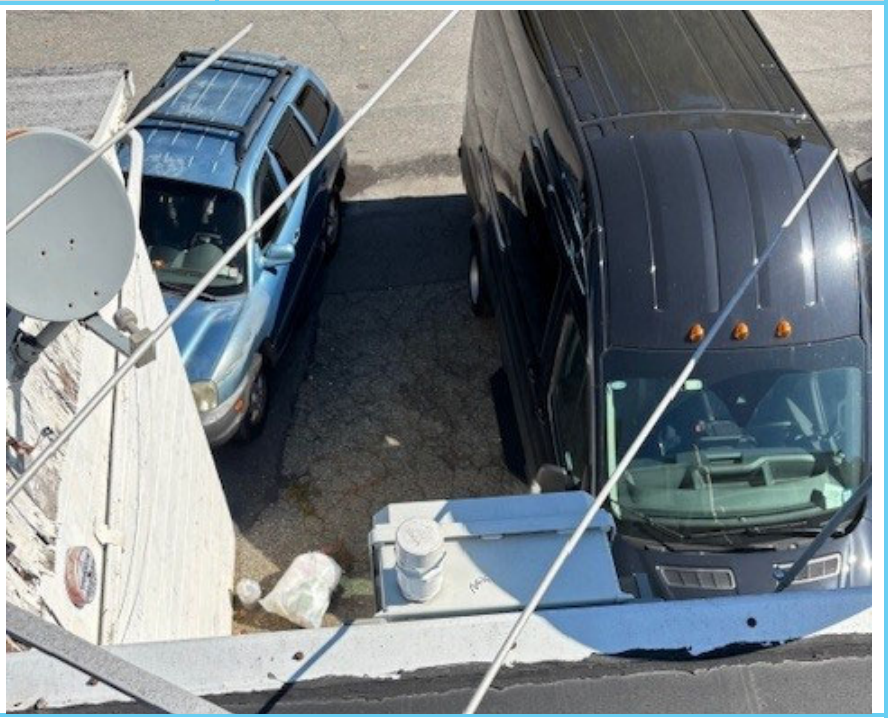


Client: Regency Centers	**Project:** 1192323/05/139
Site Name: Carmel Shop-Rite Plaza	**Site Location:** Carmel, NY

Photo #:	4
Date:	10/11/2024
Direction:	East

Comments:

SSD exhaust capped in advance of the December soil vapor intrusion testing.

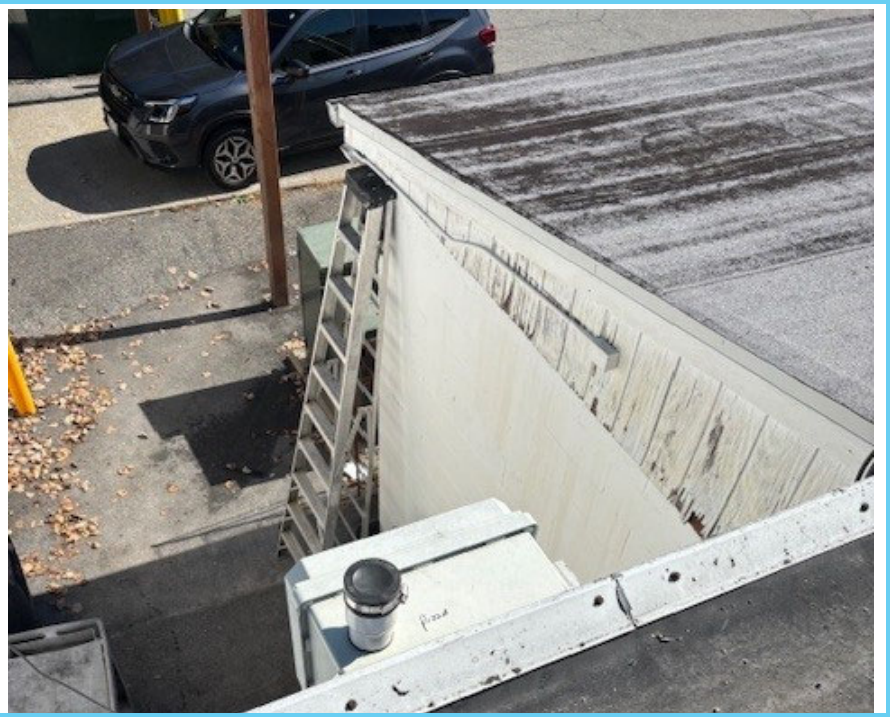


Client: Regency Centers **Site Name:** Carmel Shop-Rite Plaza	**Project:** 1192323/05/139 **Site Location:** Carmel, NY

Photo #:	5
Date:	10/11/2024
Direction:	East

Comments:

SSD exhaust capped in advance of the December soil vapor intrusion testing.



Appendix D – EC/IC Form

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. V00104

Site Name Carmel Shop-Rite Plaza

Site Address: 180 Gleneida Avenue Zip Code: 10512-
City/Town: Carmel
County: Putnam
Site Acreage: 19.000

Reporting Period: October 26, 2023 to October 26, 2024

	YES	NO
1. Is the information above correct?	☒	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☒
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☒
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☒
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	☒

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial	☒	☐
7. Are all ICs in place and functioning as designed?	☒	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_____ _____
Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. V00104 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
44.9-1-9	Regency Centers	Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan IC/EC Plan

The owner of the property shall prohibit the property from ever being used for purposes other than for commercial (including, without limitation, retail and office) or Industrial use as defined in 6 NYCRR Part 375-1.8, without the express written waiver of such prohibition by the Department of Relevant Agency.

The owner of the property shall prohibit the use of the groundwater underlying the property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Department or Relevant Agency.

The owner of the property shall prohibit agriculture or vegetable gardens on the property.

The owner of the property shall provide a periodic certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional and engineering controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
44.9-1-9	Vapor Mitigation

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

   (a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
X	

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_____ _____

Signature of Owner, Remedial Party or Designated Representative Date

IC CERTIFICATIONS
SITE NO. V00104

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Michael C. DeGloria (print name) at GES 63 E Main Street, Unit 3, Pawling, NY 12564 (print business address),

am certifying as Remedial Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Michael DeGloria Digitally signed by Michael DeGloria Date: 2024.11.21 15:46:42 -05'00' — 11/21/2024

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification — Date

EC CERTIFICATIONS

Box 7

Qualified Environmental Professional Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Genevieve F. Bock (print name) at GES 1777 Veterans Memorial Highway, Suite 20, Islandia, NY 11749 (print business address),

am certifying as a Qualified Environmental Professional for the Remedial Party (Owner or Remedial Party)

STATE OF NEW YORK
GENEVIEVE F BOCK
090811
LICENSED PROFESSIONAL ENGINEER

Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification	Stamp (Required for PE)	Date
G F Bock		11/20/24