Memorandum

To: *Mr. Charles Post*

From: *Mr. Stephen Mirabello*

Date: *March 10, 2017*

Subject: *Former Paul Miller Dry Cleaners Vapor Intrusion Sampling 2017*

Former Paul Miller Dry Cleaners Vapor Intrusion Sampling

CDM Smith is investigating a chlorinated solvent groundwater plume at the Former Paul Miller Dry Cleaners Site (NYSDEC Site #243018) in Staten Island, NY. From December 2013 to February 2014, CDM Smith conducted an indoor air assessment of the Site building, as well as indoor air, sub-slab vapor, interstitial wall vapor, and outdoor ambient air samples. Due to the high concentrations of tetrachloroethylene (PCE) in sub-slab vapor and indoor air, the NYSDOH Vapor Intrusion guidance required mitigation of the Former Paul Miller Dry Cleaners building. A sub-slab depressurization system (SSDS) was installed in February 2016 to mitigate the indoor air concentrations of PCE. In February and March of 2016, CDM Smith collected co-located sub-slab vapor and indoor air samples from the two adjacent buildings as well as an indoor air sample from the Former Paul Miller Dry Cleaners Site facility to analyze for volatile organic compounds (VOCs) including PCE and trichloroethylene (TCE). The purpose was to characterize migration of PCE vapor into the occupied structures and assess the performance of the sub-slab depressurization system.

On January 18, 2017, CDM Smith collected indoor air samples from the Site building and from the bank adjacent to the Site. The Site building sample was collected to confirm the effectiveness of the SSDS. The bank building sample was collected to continue monitoring from 2016 and confirm the absence of vapor intrusion from sub-slab. These samples were collected in 6-liter SUMMA canisters over a 24-hour period. They were analyzed for TO-15 analysis by Alpha Analytical Laboratories. Sample locations are displayed on Figure 1.

At the 95179-IA-02 location, the bank adjacent to the Site, neither PCE or TCE was not detected in indoor air. The indoor air sample collected at 95179-IA-01, the Site building, had a PCE concentration of 15 µg/m^3. Similar to the 2016 indoor air concentrations, this concentration remains lower than the NYSDOH ambient air guideline of 30 µg/m^3. These data are being provided to facilitate a NYSDEC and NYSDOH review in support of recommending future actions at the site as necessary. Sample results are displayed in Tables 1 and 2. A sample property index is included as Table 3.

cc: C. Gurr
Project file

Figures

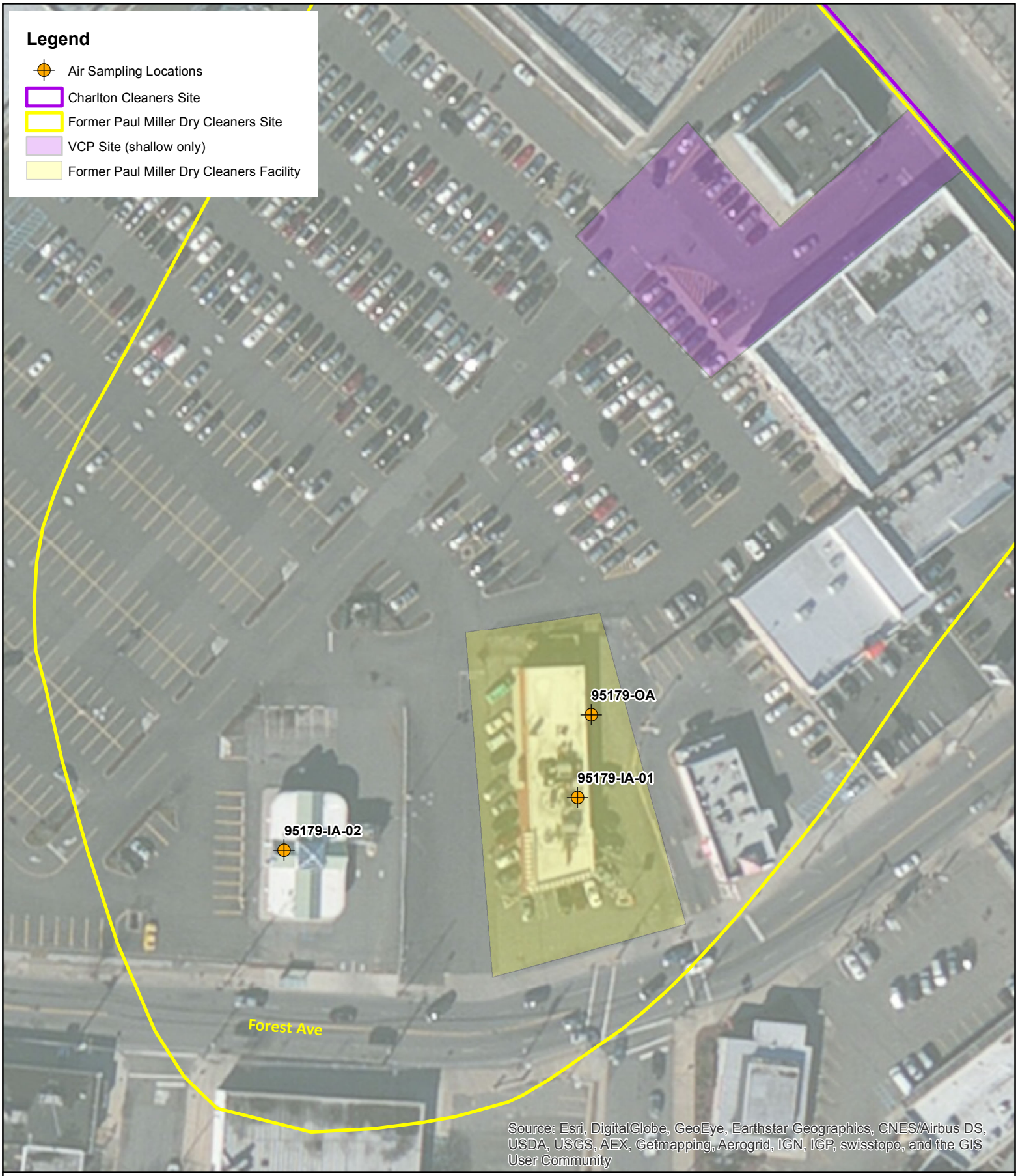

Figure 1
2017 Air Sample Locations
Former Paul Miller Dry Cleaners
NYSDEC Site #243018
Staten Island, NY

N

0 25 50 75 100
Feet

CDM Smith

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Tables

Table 1
Vapor Intrusion Analytical Results
Former Paul Miller Dry Cleaners
NYSDEC Site #243018
Staten Island, NY

			95179-IA-01-011817-20170119	95179-IA-02-011817-20170119	95179-OA-011817-20170119
Sample:			95179-IA-01	95179-IA-02	95179-OA
Location:			1/18/2017 2:17:00 PM	1/18/2017 2:28:00 PM	1/18/2017 2:22:00 PM
Sample Date:			N	N	AB
Sample Type:					
Chemical Name	**CAS Number**	**Unit**			
1,1,1-Trichloroethane	71-55-6	ug/m3	1.1 U	1.1 U	1.1 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/m3	1.4 U	1.4 U	1.4 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/m3	1.5 U	1.5 U	1.5 U
1,1,2-Trichloroethane	79-00-5	ug/m3	1.1 U	1.1 U	1.1 U
1,1-Dichloroethane	75-34-3	ug/m3	0.81 U	0.81 U	0.81 U
1,1-Dichloroethene	75-35-4	ug/m3	0.79 U	0.79 U	0.79 U
1,2,4-Trichlorobenzene	120-82-1	ug/m3	3.7 U	3.7 U	3.7 U
1,2,4-Trimethylbenzene	95-63-6	ug/m3	0.98 U	0.98 U	0.98 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	ug/m3	1.5 U	1.5 U	1.5 U
1,2-Dichlorobenzene	95-50-1	ug/m3	1.2 U	1.2 U	1.2 U
1,2-Dichloroethane	107-06-2	ug/m3	0.81 U	0.81 U	0.81 U
1,2-Dichloropropane	78-87-5	ug/m3	0.92 U	0.92 U	0.92 U
1,2-Dichlorotetrafluoroethane	76-14-2	ug/m3	1.4 U	1.4 U	1.4 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	ug/m3	0.98 U	0.98 U	0.98 U
1,3-Butadiene	106-99-0	ug/m3	0.44 U	0.44 U	0.44 U
1,3-Dichlorobenzene	541-73-1	ug/m3	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	106-46-7	ug/m3	1.2 U	1.2 U	1.2 U
1,4-Dioxane (P-Dioxane)	123-91-1	ug/m3	18 U	18 U	18 U
2,2,4-Trimethylpentane	540-84-1	ug/m3	0.93 U	0.93 U	0.93 U
2-Chlorotoluene	95-49-8	ug/m3	1 U	1 U	1 U
2-Hexanone	591-78-6	ug/m3	2 U	2 U	2 U
4-Ethyltoluene	622-96-8	ug/m3	0.98 U	0.98 U	0.98 U
Acetone	67-64-1	ug/m3	36	19	12 U
Allyl Chloride (3-Chloropropene)	107-05-1	ug/m3	1.6 U	1.6 U	1.6 U
Benzene	71-43-2	ug/m3	1.4	1.3	1.6
Benzyl Chloride	100-44-7	ug/m3	1 U	1 U	1 U
Bromodichloromethane	75-27-4	ug/m3	1.3 U	1.3 U	1.3 U
Bromoform	75-25-2	ug/m3	2.1 U	2.1 U	2.1 U
Bromomethane	74-83-9	ug/m3	0.78 U	0.78 U	0.78 U
Butane	106-97-8	ug/m3	20	25	23
Carbon Disulfide	75-15-0	ug/m3	1.6 U	1.6 U	1.6 U
Carbon Tetrachloride	56-23-5	ug/m3	0.59	0.44	0.53
Chlorobenzene	108-90-7	ug/m3	0.92 U	0.92 U	0.92 U
Chlorodifluoromethane	75-45-6	ug/m3	9.1	33	9.4
Chloroethane	75-00-3	ug/m3	1.3 U	1.3 U	1.3 U
Chloroform	67-66-3	ug/m3	0.98 U	0.98 U	0.98 U
Chloromethane	74-87-3	ug/m3	1.4	1.5	1.6
Cis-1,2-Dichloroethylene	156-59-2	ug/m3	0.79 U	0.79 U	0.79 U
Cis-1,3-Dichloropropene	10061-01-5	ug/m3	0.91 U	0.91 U	0.91 U
Cyclohexane	110-82-7	ug/m3	0.73	0.69 U	1.6
Cymene	99-87-6	ug/m3	1.1 U	1.1 U	1.1 U
Dibromochloromethane	124-48-1	ug/m3	1.7 U	1.7 U	1.7 U
Dichlorodifluoromethane	75-71-8	ug/m3	2.7	2.5	2.6
Dichloroethylenes	540-59-0	ug/m3	1.6 U	1.6 U	1.6 U
Ethylbenzene	100-41-4	ug/m3	0.87 U	0.87 U	0.87 U
Hexachlorobutadiene	87-68-3	ug/m3	2.1 U	2.1 U	2.1 U
Isopropanol	67-63-0	ug/m3	12 U	12 U	12 U
Isopropylbenzene (Cumene)	98-82-8	ug/m3	0.98 U	0.98 U	0.98 U
m,p-Xylene	179601-23-1	ug/m3	2.3	2.2 U	2.2
Methyl Ethyl Ketone (2-Butanone)	78-93-3	ug/m3	27	2.6	1.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	ug/m3	2 U	2 U	2 U
Methyl Methacrylate	80-62-6	ug/m3	2 U	2 U	2 U
Methylene Chloride	75-09-2	ug/m3	1.7 U	1.7 U	1.7 U
Naphthalene	91-20-3	ug/m3	2.6 U	2.6 U	2.6 U
N-Butylbenzene	104-51-8	ug/m3	1.1 U	1.1 U	1.1 U
N-Heptane	142-82-5	ug/m3	1.5	2.1	1.1
N-Hexane	110-54-3	ug/m3	1.8	1.6	2
N-Propylbenzene	103-65-1	ug/m3	0.98 U	0.98 U	0.98 U
O-Xylene (1,2-Dimethylbenzene)	95-47-6	ug/m3	0.9	0.87 U	0.87 U
Sec-Butylbenzene	135-98-8	ug/m3	1.1 U	1.1 U	1.1 U
Styrene	100-42-5	ug/m3	0.85 U	0.85 U	0.85 U
T-Butylbenzene	98-06-6	ug/m3	1.1 U	1.1 U	1.1 U
Tert-Butyl Alcohol	75-65-0	ug/m3	15 U	15 U	15 U
Tert-Butyl Methyl Ether	1634-04-4	ug/m3	0.72 U	0.72 U	0.72 U
Tetrachloroethylene (PCE)	127-18-4	ug/m3	15	1.4 U	2.6
Tetrahydrofuran	109-99-9	ug/m3	15 U	15 U	15 U
Toluene	108-88-3	ug/m3	11	2.2	3.7
Total Xylenes	133-02-07	ug/m3	3.3	3 U	3 U
Trans-1,2-Dichloroethene	156-60-5	ug/m3	0.79 U	0.79 U	0.79 U
Trans-1,3-Dichloropropene	10061-02-6	ug/m3	0.91 U	0.91 U	0.91 U
Trichloroethylene (TCE)	79-01-6	ug/m3	0.32	0.21 U	0.21 U
Trichlorofluoromethane	75-69-4	ug/m3	1.4	2.8	1.4
Vinyl Bromide	593-60-2	ug/m3	0.87 U	0.87 U	0.87 U
Vinyl Chloride	75-01-4	ug/m3	0.1 U	0.1 U	0.1 U

Notes:
N = Normal Field Sample
AB = Ambient Blank Sample
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the sample reporting limit.
UJ = The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.

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Table 2
Vapor Intrusion Field Duplicate Analytical Results
Former Paul Miller Dry Cleaners
NYSDEC Site #243018
Staten Island, NY

			Sample:	95179-IA-01-011817-20170119	95179-IA-901-011817-20170119
			Location:	95179-IA-01	95179-IA-01
			Sample Date:	1/18/2017 2:17:00 PM	1/18/2017 2:17:00 PM
			Sample Type:	N	FD
Chemical Name	**CAS Number**	**Unit**			
1,1,1-Trichloroethane	71-55-6	ug/m3		1.1 U	1.1 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/m3		1.4 U	1.4 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/m3		1.5 U	1.5 U
1,1,2-Trichloroethane	79-00-5	ug/m3		1.1 U	1.1 U
1,1-Dichloroethane	75-34-3	ug/m3		0.81 U	0.81 U
1,1-Dichloroethene	75-35-4	ug/m3		0.79 U	0.79 U
1,2,4-Trichlorobenzene	120-82-1	ug/m3		3.7 U	3.7 U
1,2,4-Trimethylbenzene	95-63-6	ug/m3		0.98 U	0.98 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	ug/m3		1.5 U	1.5 U
1,2-Dichlorobenzene	95-50-1	ug/m3		1.2 U	1.2 U
1,2-Dichloroethane	107-06-2	ug/m3		0.81 U	0.81 U
1,2-Dichloropropane	78-87-5	ug/m3		0.92 U	0.92 U
1,2-Dichlorotetrafluoroethane	76-14-2	ug/m3		1.4 U	1.4 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	ug/m3		0.98 U	0.98 U
1,3-Butadiene	106-99-0	ug/m3		0.44 U	0.44 U
1,3-Dichlorobenzene	541-73-1	ug/m3		1.2 U	1.2 U
1,4-Dichlorobenzene	106-46-7	ug/m3		1.2 U	1.2 U
1,4-Dioxane (P-Dioxane)	123-91-1	ug/m3		18 U	18 U
2,2,4-Trimethylpentane	540-84-1	ug/m3		0.93 U	0.93 U
2-Chlorotoluene	95-49-8	ug/m3		1 U	1 U
2-Hexanone	591-78-6	ug/m3		2 U	2 U
4-Ethyltoluene	622-96-8	ug/m3		0.98 U	0.98 U
Acetone	67-64-1	ug/m3		36	25
Allyl Chloride (3-Chloropropene)	107-05-1	ug/m3		1.6 U	1.6 U
Benzene	71-43-2	ug/m3		1.4	1.4
Benzyl Chloride	100-44-7	ug/m3		1 U	1 U
Bromodichloromethane	75-27-4	ug/m3		1.3 U	1.3 U
Bromoform	75-25-2	ug/m3		2.1 U	2.1 U
Bromomethane	74-83-9	ug/m3		0.78 U	0.78 U
Butane	106-97-8	ug/m3		20	19
Carbon Disulfide	75-15-0	ug/m3		1.6 U	1.6 U
Carbon Tetrachloride	56-23-5	ug/m3		0.59	0.56
Chlorobenzene	108-90-7	ug/m3		0.92 U	0.92 U
Chlorodifluoromethane	75-45-6	ug/m3		9.1	8.6
Chloroethane	75-00-3	ug/m3		1.3 U	1.3 U
Chloroform	67-66-3	ug/m3		0.98 U	0.98 U
Chloromethane	74-87-3	ug/m3		1.4	1.7
Cis-1,2-Dichloroethylene	156-59-2	ug/m3		0.79 U	0.79 U
Cis-1,3-Dichloropropene	10061-01-5	ug/m3		0.91 U	0.91 U
Cyclohexane	110-82-7	ug/m3		0.73	0.69
Cymene	99-87-6	ug/m3		1.1 U	1.1 U
Dibromochloromethane	124-48-1	ug/m3		1.7 U	1.7 U
Dichlorodifluoromethane	75-71-8	ug/m3		2.7	2.5
Dichloroethylenes	540-59-0	ug/m3		1.6 U	1.6 U
Ethylbenzene	100-41-4	ug/m3		0.87 U	0.87 U
Hexachlorobutadiene	87-68-3	ug/m3		2.1 U	2.1 U
Isopropanol	67-63-0	ug/m3		12 U	21
Isopropylbenzene (Cumene)	98-82-8	ug/m3		0.98 U	0.98 U
m,p-Xylene	179601-23-1	ug/m3		2.3	2.6
Methyl Ethyl Ketone (2-Butanone)	78-93-3	ug/m3		27	2
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	ug/m3		2 U	2 U
Methyl Methacrylate	80-62-6	ug/m3		2 U	2 U
Methylene Chloride	75-09-2	ug/m3		1.7 U	1.7 U
Naphthalene	91-20-3	ug/m3		2.6 U	2.6 U
N-Butylbenzene	104-51-8	ug/m3		1.1 U	1.1 U
N-Heptane	142-82-5	ug/m3		1.5	1.5
N-Hexane	110-54-3	ug/m3		1.8	1.6
N-Propylbenzene	103-65-1	ug/m3		0.98 U	0.98 U
O-Xylene (1,2-Dimethylbenzene)	95-47-6	ug/m3		0.9	0.86
Sec-Butylbenzene	135-98-8	ug/m3		1.1 U	1.1 U
Styrene	100-42-5	ug/m3		0.85 U	0.85 U
T-Butylbenzene	98-06-6	ug/m3		1.1 U	1.1 U
Tert-Butyl Alcohol	75-65-0	ug/m3		15 U	15 U
Tert-Butyl Methyl Ether	1634-04-4	ug/m3		0.72 U	0.72 U
Tetrachloroethylene (PCE)	127-18-4	ug/m3		15	15
Tetrahydrofuran	109-99-9	ug/m3		15 U	15 U
Toluene	108-88-3	ug/m3		11	12
Total Xylenes	133-02-07	ug/m3		3.3	3.5
Trans-1,2-Dichloroethene	156-60-5	ug/m3		0.79 U	0.79 U
Trans-1,3-Dichloropropene	10061-02-6	ug/m3		0.91 U	0.91 U
Trichloroethylene (TCE)	79-01-6	ug/m3		0.32	1.2
Trichlorofluoromethane	75-69-4	ug/m3		1.4	1.3
Vinyl Bromide	593-60-2	ug/m3		0.87 U	0.87 U
Vinyl Chloride	75-01-4	ug/m3		0.1 U	0.1 U

Notes:
N = Normal Field Sample
FD = Field Duplicate Sample
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
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UJ = The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.

CDM Smith

Table 3
Property Sample Index
Former Paul Miller Dry Cleaners
NYSDEC Site #243018
Staten Island, NY

Sample Location	Property Address	Indoor Air Sample	Notes
95179-IA-01	1465 Forest Avenue	95179-IA-01-011817-2017011	Commercial restaurant property
95179-IA-02	1481 Forest Avenue	95179-IA-02-011817-2017011	Commercial bank property

Note: All addresses are located in Staten Island, NY
NA = Not applicable
NC = Not collected

CDM Smith

Post, Charles H (DEC)

From: Post, Charles H (DEC)
Sent: Tuesday, September 05, 2017 3:10 PM
To: 'Mirabello, Stephen'
Cc: Tomaselli, Travis; Gurr, Christopher
Subject: RE: 2017 Paul Miller VI Tech Memo

All,
I believe this is repetition, but for the sake of electronic housekeeping I am resending this message. The Department has received and reviewed the 2017 Paul Miller VI Technical Memo and hereby approves it.
Charlie

Charles Post
Project Manager, Division of Environmental Remediation

New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-1706
P: 518-402-9768 | Charles.Post@dec.ny.gov

www.dec.ny.gov | |

From: Mirabello, Stephen [mailto:MirabelloSA@cdmsmith.com]
Sent: Friday, March 10, 2017 4:11 PM
To: Post, Charles H (DEC) <charles.post@dec.ny.gov>
Cc: Tomaselli, Travis <tomasellit@cdmsmith.com>; Gurr, Christopher <gurrc@cdmsmith.com>
Subject: 2017 Paul Miller VI Tech Memo

Charlie,

CDM Smith is pleased to submit a technical memorandum for the 2017 vapor sampling at the Paul Miller site. The purpose of this memo is to submit the data for NYSDEC and NYSDOH review and recommendations. Please let me know if there are any questions or concerns.

Thank you,

Stephen A Mirabello, P.E. | Project Manager | CDM Smith | 110 Fieldcrest Ave #8, 6th Floor | Edison, NJ 08837
T: 732.225.7000| Direct: 732-590-4681 |F: 732.225.7851| mirabellosa@cdmsmith.com |www.cdmsmith.com