

## Washington, D.C. NATTS Network Assessment Review

- Established 2004: Carbonyls, PM<sub>10</sub> Metals, and VOCs
  - Chromium VI added in 2005; ended in in 2013
  - PAHs added in 2008
  - Ethylene oxide added in 2020
- For the NATTS Network Assessment (2004-2022):
  - 15 of 17 Method Quality Objective (MQO) Core HAPs were included in the national trends
    - Beryllium (PM<sub>10</sub>): Completeness less than 75% for 2018
    - 1,3-Butadiene: Bias Percent Difference was outside ± 35% for 2017
  - 296 of 307 pollutant datasets were suitable for trends analysis
  - Annual Average and 3-Year Rolling Average Concentrations were decreasing for benzene, 1,3-butadiene, cadmium (PM<sub>10</sub>), lead (PM<sub>10</sub>), naphthalene, nickel (PM<sub>10</sub>), and tetrachloroethylene.
  - 100% Reporting of Datasets
- Method Quality Objectives (MQO): 2004-2022
  - Completeness: Met 85% completeness in 305 of 307 pollutant datasets
  - Method Detection Limits: Met MDL Target Ratio of 1.00 in 289 of 315 pollutant datasets
  - Bias: Met ±25% for 258 of 273 pollutant datasets
  - Overall Method Precision: Met ≤15% CV for 60 of 98 pollutant datasets
  - Analytical Method Precision: Met ≤15% CV for 76 of 171 pollutant datasets

- Analytical Laboratories for 2022

VOC	Carbonyl	PM <sub>10</sub> Metals	PAHs
MDE	PAMSL	WVDEP	ERG

- Equipment Year Deployed

Equipment Type	VOC	Carbonyl	PM <sub>10</sub> Metals	PAHs
Sampler	2018	2018	2015	2015
Analytical	2020	2022	2021	2021
Preconcentrator	2013	NA	NA	NA
Standards Preparation	2019	NA	NA	NA
Canister Cleaning	2022	NA	NA	NA
Extraction	NA	NA	2017	2019

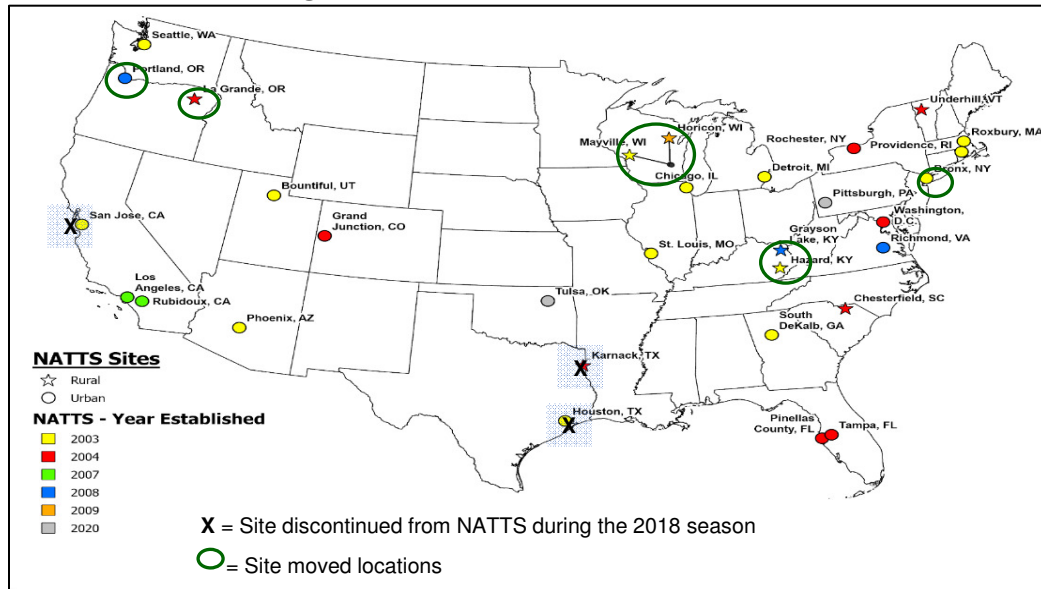
**National Summary:** NATTS data were collected at 27 locations across the United States, with sites beginning in 2003 or later (Figure 1) for 20 core HAPs. Over 670,000 concentrations (primary, secondary, and replicate) were generated and analyzed for this assessment. Pollutant datasets were scored to assess whether they were suitable for trends analysis. Each pollutant dataset was evaluated against four MQOs: Completeness; Sensitivity; Bias; and Precision. Datasets that were suitable (A- or B-rated) for six consecutive years were used for national trends analysis (Table 1).

National trends were determined by comparing the most recent 3-year blocked averages (e.g., 2017-2019 vs. 2020-2022) to determine if the NATTS Trends DQO was being met:

*To be able to detect a 15 percent difference (trend) between the annual mean concentrations of successive 3-year periods within acceptable levels of decision error.*

Of the 20 core HAPs, 17 were assessed for the NATTS Trends DQO. Due to sampling and analytical issues, acrolein and ethylene were not considered for trends analysis (Table 2). Additionally, hexavalent chromium was discontinued as a required pollutant. The assessment showed that across the network, 11 of those 17 pollutants were decreasing between the 3-year blocks, while four of those pollutants were increasing between the 3-year blocks. Two pollutants did not exhibit a noticeable trend.

**Figure 1. NATTS Site and Year Established**



**Table 1. NATTS Network Assessment: Count and Percentage of Suitable Datasets by Pollutant Group**

Pollutant Group	A-rated		B-rated		Does Not Meet	
	#	%	#	%	#	%
VOCs	1,968	58%	864	25%	572	17%
Carbonyls	668	68%	231	24%	77	8%
PM <sub>10</sub> Metals	1,906	66%	775	27%	217	7%
PAHs	571	77%	144	19%	29	4%
Total = 8,704	5,113	64%	2,014	25%	895	11%

**Table 2. Three-Year Block Averages for National Trends**

Pollutant <sup>a,b</sup>	Units	# Sites	Block 1	Block 2	% Difference
Acetaldehyde	µg/m <sup>3</sup>	16	1.48	1.34	-9.2%
Arsenic (PM <sub>10</sub> )	ng/m <sup>3</sup>	18	0.68	0.64	-6.6%
Benzene	µg/m <sup>3</sup>	16	0.529	0.525	-0.8%
Benzo(a)pyrene	ng/m <sup>3</sup>	18	0.086	0.072	-16.6%
Beryllium (PM <sub>10</sub> )	ng/m <sup>3</sup>	18	0.008	0.010	15.0%
Butadiene, 1,3-	µg/m <sup>3</sup>	15	0.057	0.054	-5.1%
Cadmium (PM <sub>10</sub> )	ng/m <sup>3</sup>	20	0.087	0.090	3.7%
Carbon Tetrachloride	µg/m <sup>3</sup>	15	0.53	0.50	-5.3%
Chloroform	µg/m <sup>3</sup>	16	0.173	0.165	-4.8%
Formaldehyde	µg/m <sup>3</sup>	15	2.809	2.482	-11.7%
Lead (PM <sub>10</sub> )	ng/m <sup>3</sup>	20	2.44	2.43	-0.5%
Manganese (PM <sub>10</sub> )	ng/m <sup>3</sup>	20	6.69	7.31	9.2%
Naphthalene	ng/m <sup>3</sup>	17	42.00	35.10	-16.4%
Nickel (PM <sub>10</sub> )	ng/m <sup>3</sup>	19	0.87	0.83	-3.7%
Tetrachloroethylene	µg/m <sup>3</sup>	15	0.12	0.12	1.5%
Trichloroethylene	µg/m <sup>3</sup>	14	0.019	0.022	16.3%
Vinyl Chloride	µg/m <sup>3</sup>	16	0.004	0.001	-69.0%

<sup>a</sup> Acrolein and ethylene oxide were not assessed due to sampling and analytical issues

<sup>b</sup> Hexavalent chromium (not assessed) was discontinued in 2013

NATTS Monitoring Site Report: Washington, DC

Site Information

Region	3
NATTS Site Type	Urban
County	District of Columbia
AQS Site Code	11-001-0043
NATTS Operating Agency	DC Air Pollution District
Latitude	38.921847
Longitude	-77.013178
AQS Land Use	Commercial
AQS Location Setting	Urban/City Center
District Population (2023)	678,972

Figure 2. NATTS Site Location



Pollutant Datasets Evaluation: Suitable for Trends (Y=yes; Y(T)=yes, and used for DQO Trends; N=No; "--"=not rated)

Final Pollutant Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Acetaldehyde	Y	N(a)	Y	N(b)	N(b)	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Arsenic (PM <sub>10</sub> )	--	N(b)	N(b)	Y	Y	N(b)	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Benzene	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Benzo(a)pyrene	--	--	--	--	--	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Beryllium (PM <sub>10</sub> )	--	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N(c)	Y	Y	Y	Y
Butadiene, 1,3-	N(b)	N(b)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N(d)	Y	Y	Y	Y	Y
Cadmium (PM <sub>10</sub> )	--	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Carbon tetrachloride	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Chloroform	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Formaldehyde	Y	N(a)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Lead (PM <sub>10</sub> )	--	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Manganese (PM <sub>10</sub> )	--	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Naphthalene	--	--	--	--	--	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Nickel (PM <sub>10</sub> )	--	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Tetrachloroethylene	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Trichloroethylene	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Vinyl chloride	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)

<sup>a</sup>: Pollutant was sampled, but no MDL data were reported to AQS.

<sup>b</sup>: Reported MDL to NATTS Target Ratio greater than 2.0

<sup>c</sup>: Completeness was less than 75% based on 1-in-6 day sampling.

<sup>d</sup>: Bias % Difference was outside ± 35%.

**Table 3. NATTS Network Assessment Data (2003-2022) - National Distribution Statistics By Type<sup>a</sup>**

Analyte	Units	Site Type	# Data Records	% Detections	Arithmetic Mean <sup>b</sup>	Percentile Value <sup>c</sup>						
						5th	10th	25th	50th	75th	90th	95th
Acetaldehyde	µg/m <sup>3</sup>	Urban	22,000	100%	1.73 ± 0.02	0.50	0.65	0.95	1.42	2.15	3.19	3.96
	µg/m <sup>3</sup>	Rural	6,392	100%	1.17 ± 0.03	0.36	0.45	0.65	0.92	1.35	1.98	2.67
	µg/m <sup>3</sup>	All Sites	28,392	100%	1.61 ± 0.02	0.45	0.58	0.85	1.29	1.97	2.99	3.79
Arsenic (PM <sub>10</sub> )	ng/m <sup>3</sup>	Urban	21,944	95%	0.87 ± 0.03	0.03	0.16	0.32	0.56	0.96	1.65	2.37
	ng/m <sup>3</sup>	Rural	6,385	96%	0.49 ± 0.02	0.03	0.08	0.16	0.35	0.58	0.93	1.30
	ng/m <sup>3</sup>	All Sites	28,329	96%	0.78 ± 0.02	0.03	0.13	0.27	0.51	0.87	1.51	2.16
Benzene	µg/m <sup>3</sup>	Urban	22,246	99%	0.85 ± 0.01	0.23	0.29	0.42	0.64	1.02	1.62	2.20
	µg/m <sup>3</sup>	Rural	5,932	90%	0.52 ± 0.01	ND	0.06	0.20	0.38	0.67	1.08	1.51
	µg/m <sup>3</sup>	All Sites	28,178	97%	0.78 ± 0.01	0.16	0.23	0.36	0.58	0.95	1.52	2.07
Benzo(a)pyrene	ng/m <sup>3</sup>	Urban	17,810	73%	0.10 ± 0.01	ND	ND	ND	0.04	0.10	0.23	0.35
	ng/m <sup>3</sup>	Rural	4,735	37%	0.07 ± 0.01	ND	ND	ND	ND	0.02	0.19	0.38
	ng/m <sup>3</sup>	All Sites	22,545	65%	0.09 ± 0.01	ND	ND	ND	0.03	0.09	0.22	0.35
Beryllium (PM <sub>10</sub> )	ng/m <sup>3</sup>	Urban	21,786	77%	0.042 ± 0.004	ND	ND	0.0005	0.005	0.015	0.043	0.098
	ng/m <sup>3</sup>	Rural	6,062	49%	0.018 ± 0.002	ND	ND	ND	ND	0.004	0.012	0.041
	ng/m <sup>3</sup>	All Sites	27,848	71%	0.037 ± 0.003	ND	ND	ND	0.003	0.011	0.038	0.083
Butadiene, 1,3-	µg/m <sup>3</sup>	Urban	22,220	78%	0.092 ± 0.002	ND	ND	0.018	0.051	0.110	0.215	0.317
	µg/m <sup>3</sup>	Rural	5,940	29%	0.017 ± 0.001	ND	ND	ND	ND	0.011	0.054	0.104
	µg/m <sup>3</sup>	All Sites	28,160	68%	0.076 ± 0.002	ND	ND	ND	0.039	0.092	0.190	0.283
Cadmium (PM <sub>10</sub> )	ng/m <sup>3</sup>	Urban	21,954	93%	0.184 ± 0.014	ND	0.019	0.043	0.081	0.160	0.354	0.572
	ng/m <sup>3</sup>	Rural	6,067	89%	0.092 ± 0.005	ND	ND	0.026	0.055	0.099	0.179	0.270
	ng/m <sup>3</sup>	All Sites	28,021	92%	0.164 ± 0.011	ND	0.012	0.039	0.075	0.143	0.300	0.518
Carbon Tetrachloride	µg/m <sup>3</sup>	Urban	22,202	98%	0.556 ± 0.002	0.336	0.423	0.486	0.550	0.638	0.725	0.784
	µg/m <sup>3</sup>	Rural	5,909	84%	0.494 ± 0.010	ND	ND	0.342	0.533	0.629	0.728	0.807
	µg/m <sup>3</sup>	All Sites	28,111	95%	0.543 ± 0.003	ND	0.363	0.475	0.547	0.636	0.726	0.788
Chloroform	µg/m <sup>3</sup>	Urban	22,218	88%	0.243 ± 0.016	ND	ND	0.094	0.129	0.205	0.398	0.630
	µg/m <sup>3</sup>	Rural	5,942	56%	0.062 ± 0.002	ND	ND	ND	0.049	0.098	0.134	0.228
	µg/m <sup>3</sup>	All Sites	28,160	82%	0.205 ± 0.013	ND	ND	0.076	0.110	0.187	0.342	0.543

**Table 3. NATTS Network Assessment Data (2003-2022) - National Distribution Statistics By Type<sup>a</sup>**

Analyte	Units	Site Type	# Data Records	% Detections	Arithmetic Mean <sup>b</sup>	Percentile Value <sup>c</sup>						
						5th	10th	25th	50th	75th	90th	95th
Formaldehyde	µg/m <sup>3</sup>	Urban	22,024	100%	3.03 ± 0.04	0.69	1.00	1.57	2.42	3.72	5.47	6.95
	µg/m <sup>3</sup>	Rural	6,432	100%	2.16 ± 0.04	0.49	0.64	1.03	1.67	2.69	4.12	5.34
	µg/m <sup>3</sup>	All Sites	28,456	100%	2.83 ± 0.03	0.61	0.86	1.42	2.25	3.50	5.22	6.65
Lead (PM <sub>10</sub> )	ng/m <sup>3</sup>	Urban	21,955	100%	3.97 ± 0.10	0.70	0.95	1.46	2.49	4.34	7.87	11.16
	ng/m <sup>3</sup>	Rural	6,066	99%	1.93 ± 0.14	0.34	0.45	0.75	1.27	2.14	3.59	4.96
	ng/m <sup>3</sup>	All Sites	28,021	100%	3.53 ± 0.09	0.53	0.75	1.22	2.17	3.88	6.99	10.10
Manganese (PM <sub>10</sub> )	ng/m <sup>3</sup>	Urban	21,906	100%	9.76 ± 0.25	1.06	1.49	2.53	4.96	10.43	20.40	30.79
	ng/m <sup>3</sup>	Rural	6,067	99%	3.79 ± 0.12	0.48	0.74	1.34	2.48	4.49	8.08	11.64
	ng/m <sup>3</sup>	All Sites	27,973	100%	8.47 ± 0.20	0.84	1.22	2.16	4.19	8.99	18.13	27.27
Naphthalene	ng/m <sup>3</sup>	Urban	17,811	100%	67.25 ± 0.97	13.42	18.03	28.73	49.00	84.13	136.42	180.00
	ng/m <sup>3</sup>	Rural	4,732	98%	21.76 ± 1.02	2.79	4.04	6.84	12.47	23.51	45.68	69.01
	ng/m <sup>3</sup>	All Sites	22,543	100%	57.70 ± 0.83	5.92	9.77	20.41	40.15	74.11	124.40	167.26
Nickel (PM <sub>10</sub> )	ng/m <sup>3</sup>	Urban	21,958	98%	1.76 ± 0.05	0.29	0.40	0.62	1.02	1.86	3.32	5.05
	ng/m <sup>3</sup>	Rural	5,989	85%	0.56 ± 0.07	ND	ND	0.10	0.26	0.53	0.96	1.63
	ng/m <sup>3</sup>	All Sites	27,947	95%	1.50 ± 0.04	0.00	0.17	0.45	0.84	1.59	2.92	4.47
Tetrachloroethylene	µg/m <sup>3</sup>	Urban	22,209	84%	0.24 ± 0.05	ND	ND	0.05	0.12	0.22	0.43	0.68
	µg/m <sup>3</sup>	Rural	5,936	38%	0.07 ± 0.02	ND	ND	ND	ND	0.04	0.12	0.31
	µg/m <sup>3</sup>	All Sites	28,145	75%	0.21 ± 0.04	ND	ND	ND	0.08	0.20	0.38	0.61
Trichloroethylene	µg/m <sup>3</sup>	Urban	22,204	43%	0.040 ± 0.008	ND	ND	ND	ND	0.043	0.096	0.152
	µg/m <sup>3</sup>	Rural	5,922	19%	0.019 ± 0.003	ND	ND	ND	ND	ND	0.029	0.124
	µg/m <sup>3</sup>	All Sites	28,126	38%	0.036 ± 0.006	ND	ND	ND	ND	0.033	0.085	0.148
Vinyl Chloride	µg/m <sup>3</sup>	Urban	22,021	18%	0.0046 ± 0.0003	ND	ND	ND	ND	ND	0.0126	0.0251
	µg/m <sup>3</sup>	Rural	5,940	13%	0.0070 ± 0.0008	ND	ND	ND	ND	ND	0.0125	0.0304
	µg/m <sup>3</sup>	All Sites	27,961	17%	0.0051 ± 0.0003	ND	ND	ND	ND	ND	0.0126	0.0253

<sup>a</sup> Statistics presented are from pollutant datasets which were suitable for trends.

<sup>b</sup> The arithmetic mean is the average of all samples results which include actual measured values. If no chemical was registered, then a value of zero is used when calculating the mean.

<sup>c</sup> ND: No results of this chemical were registered by the laboratory analytical equipment.

**Table 4. Summary Statistics for Washington, DC**

Analyte	Units	# Data Records	% Detection	Arithmetic Mean <sup>a</sup>	Percentile Value <sup>b</sup>						
					5th	10th	25th	50th	75th	90th	95th
Acetaldehyde	µg/m <sup>3</sup>	1,150	100%	1.05 ± 0.04	0.23	0.45	0.65	0.91	1.29	1.81	2.16
Arsenic (PM <sub>10</sub> )	ng/m <sup>3</sup>	1,129	100%	0.73 ± 0.03	0.21	0.26	0.40	0.62	0.89	1.26	1.61
Benzene	µg/m <sup>3</sup>	1,137	100%	0.73 ± 0.03	0.29	0.33	0.44	0.61	0.91	1.24	1.50
Benzo(a)pyrene	ng/m <sup>3</sup>	851	78%	0.06 ± 0.01	ND	ND	0.01	0.03	0.07	0.14	0.18
Beryllium (PM <sub>10</sub> )	ng/m <sup>3</sup>	1,083	66%	0.013 ± 0.003	ND	ND	ND	0.002	0.005	0.022	0.057
Butadiene, 1,3-	µg/m <sup>3</sup>	1,135	65%	0.08 ± 0.01	ND	ND	ND	0.05	0.11	0.21	0.28
Cadmium (PM <sub>10</sub> )	ng/m <sup>3</sup>	1,128	99%	0.14 ± 0.02	0.03	0.04	0.06	0.10	0.16	0.26	0.35
Carbon Tetrachloride	µg/m <sup>3</sup>	1,135	100%	0.57 ± 0.01	0.38	0.44	0.50	0.56	0.64	0.73	0.78
Chloroform	µg/m <sup>3</sup>	1,135	97%	0.26 ± 0.01	0.05	0.10	0.15	0.21	0.34	0.49	0.61
Formaldehyde	µg/m <sup>3</sup>	1,144	100%	3.93 ± 0.22	1.03	1.38	2.04	2.99	4.68	6.73	8.74
Lead (PM <sub>10</sub> )	ng/m <sup>3</sup>	1,129	100%	3.15 ± 0.14	0.83	1.10	1.67	2.47	3.93	5.56	6.98
Manganese (PM <sub>10</sub> )	ng/m <sup>3</sup>	1,128	100%	4.86 ± 0.19	1.47	1.87	2.72	4.14	6.01	8.58	10.76
Naphthalene	ng/m <sup>3</sup>	852	100%	73.41 ± 4.19	19.77	24.39	35.81	53.82	89.13	139.02	179.98
Nickel (PM <sub>10</sub> )	ng/m <sup>3</sup>	1,130	100%	1.13 ± 0.08	0.32	0.37	0.50	0.76	1.24	2.20	2.97
Tetrachloroethylene	µg/m <sup>3</sup>	1,135	82%	0.26 ± 0.02	ND	ND	0.07	0.21	0.35	0.56	0.76
Trichloroethylene	µg/m <sup>3</sup>	1,135	28%	0.025 ± 0.003	ND	ND	ND	ND	0.05	0.06	0.11
Vinyl Chloride	µg/m <sup>3</sup>	1,135	18%	0.014 ± 0.002	ND	ND	ND	ND	ND	0.03	0.0821

<sup>a</sup>:The arithmetic mean is the average of all samples results which included actual measured values. If no chemical was registered, then a value of zero is used.

<sup>b</sup>ND: No results of this chemical were registered by the laboratory analytical equipment.

**Table 5. Analytical Labs Supporting this Site**

Pollutant Group	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
VOCs	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE	MDE
Carbonyls	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL	PAMSL
PM <sub>10</sub> Metals	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP	WVDEP
PAHs	--	--	--	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG

Pollutant Group	2020	2021	2022
VOCs	MDE	MDE	MDE
Carbonyls	PAMSL	PAMSL	PAMSL
PM <sub>10</sub> Metals	WVDEP	WVDEP	WVDEP
PAHs	ERG	ERG	ERG

--: Not Applicable

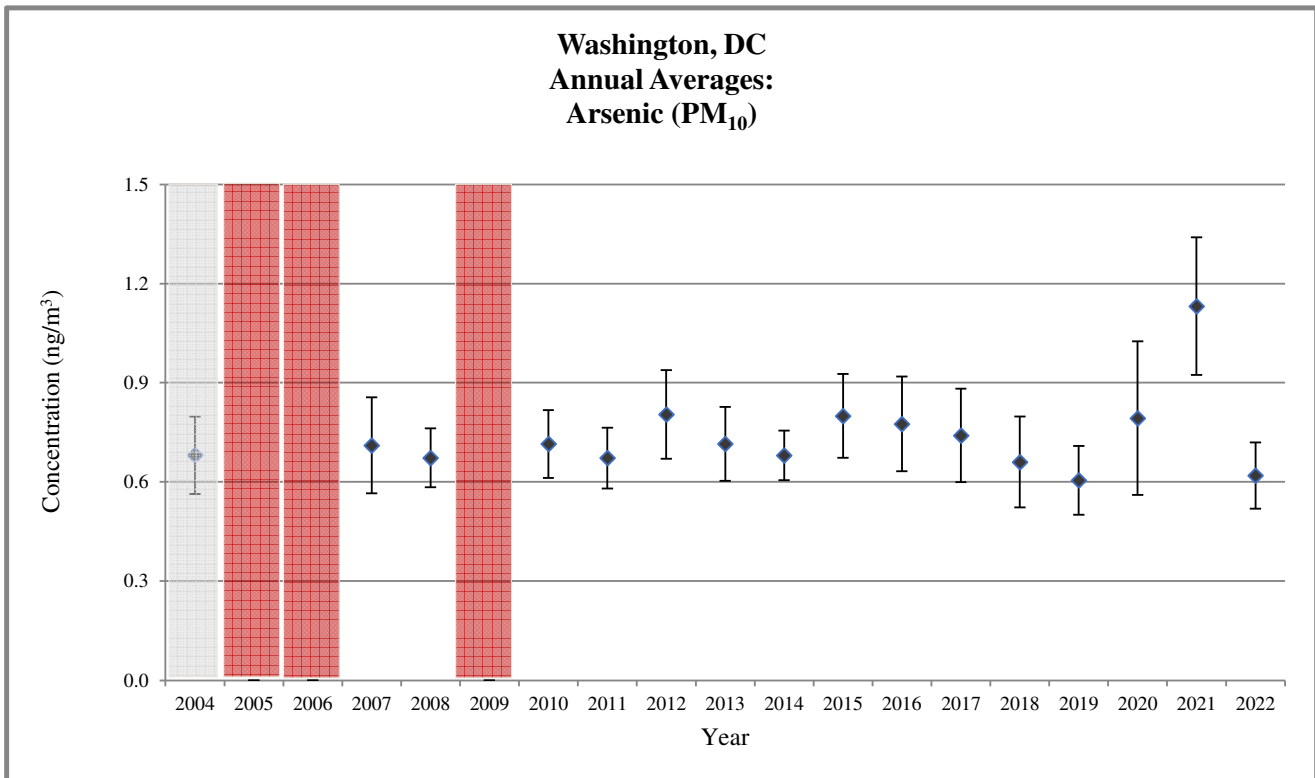
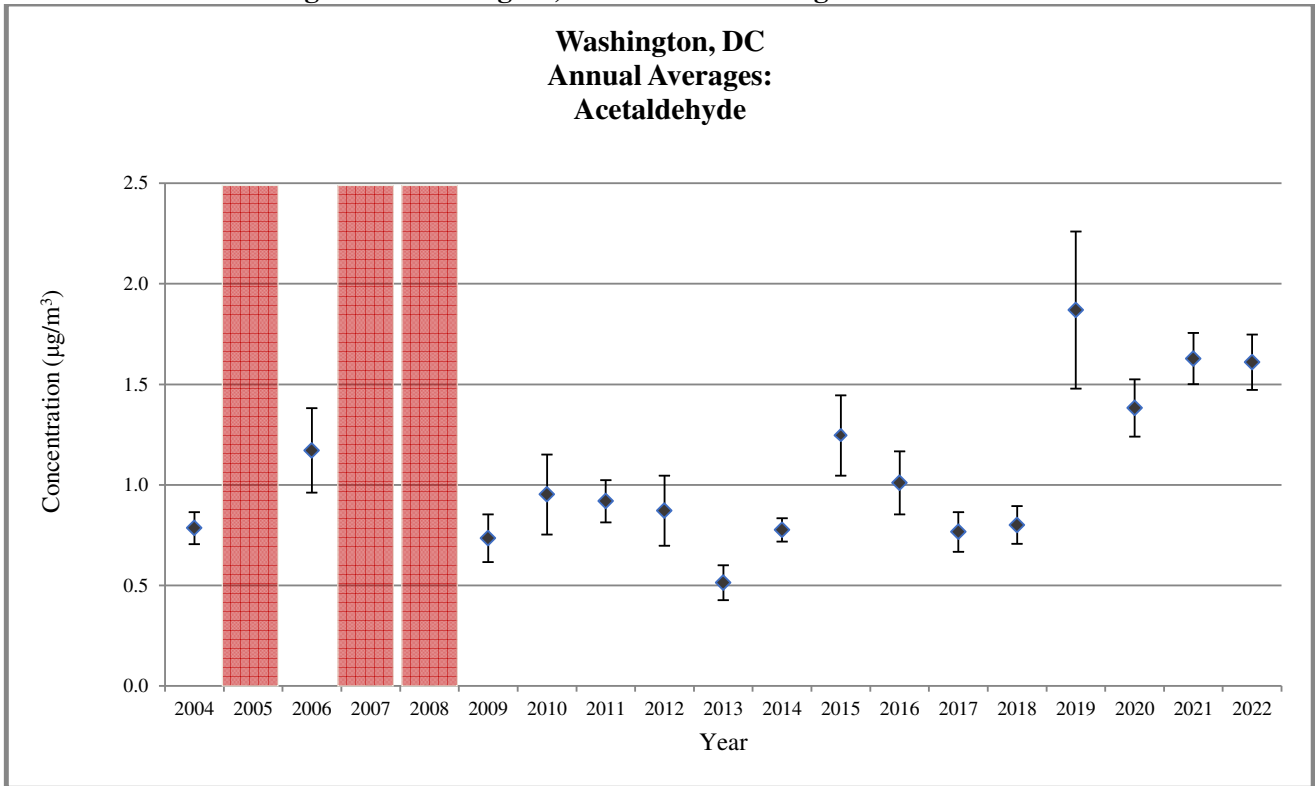
MDE: Maryland Department of the Environment

PAMSL: Philadelphia Air Management Services Laboratory

WVDEP: West Virginia Department of Environmental Protection

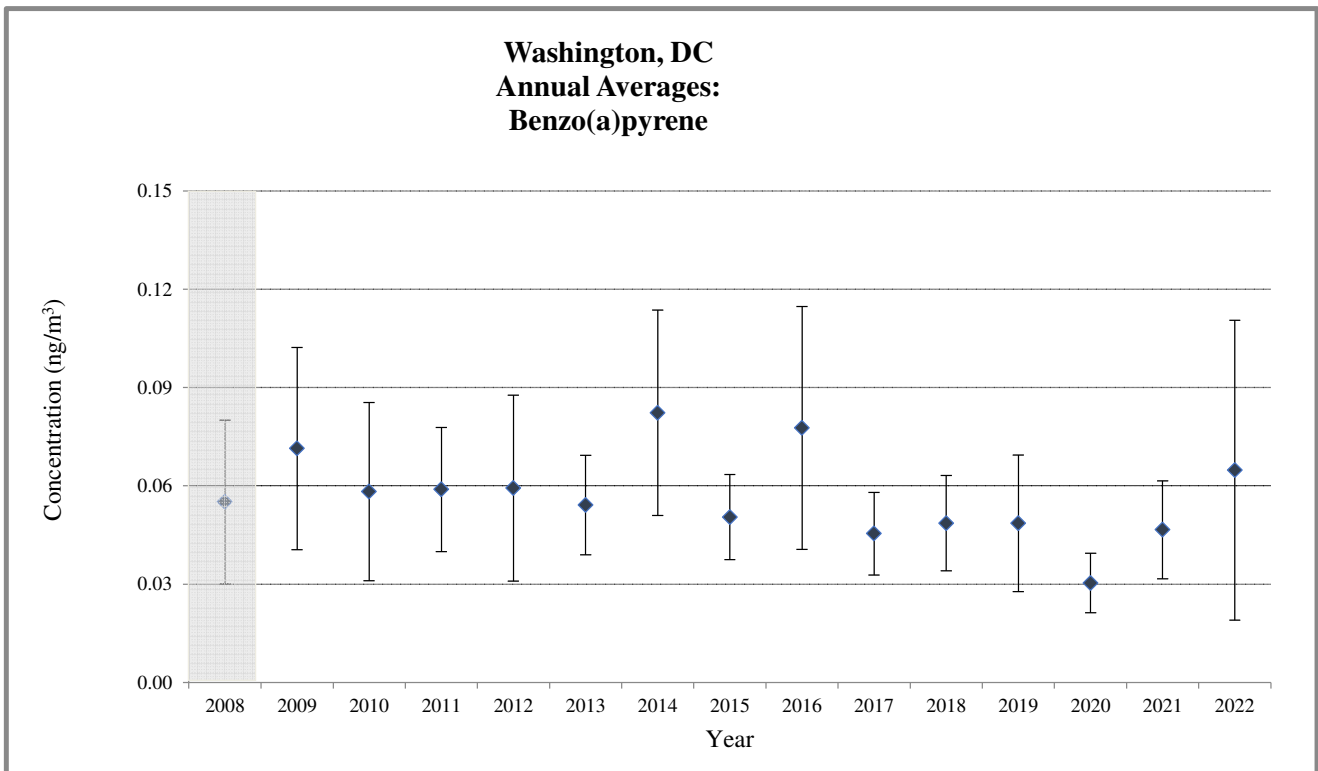
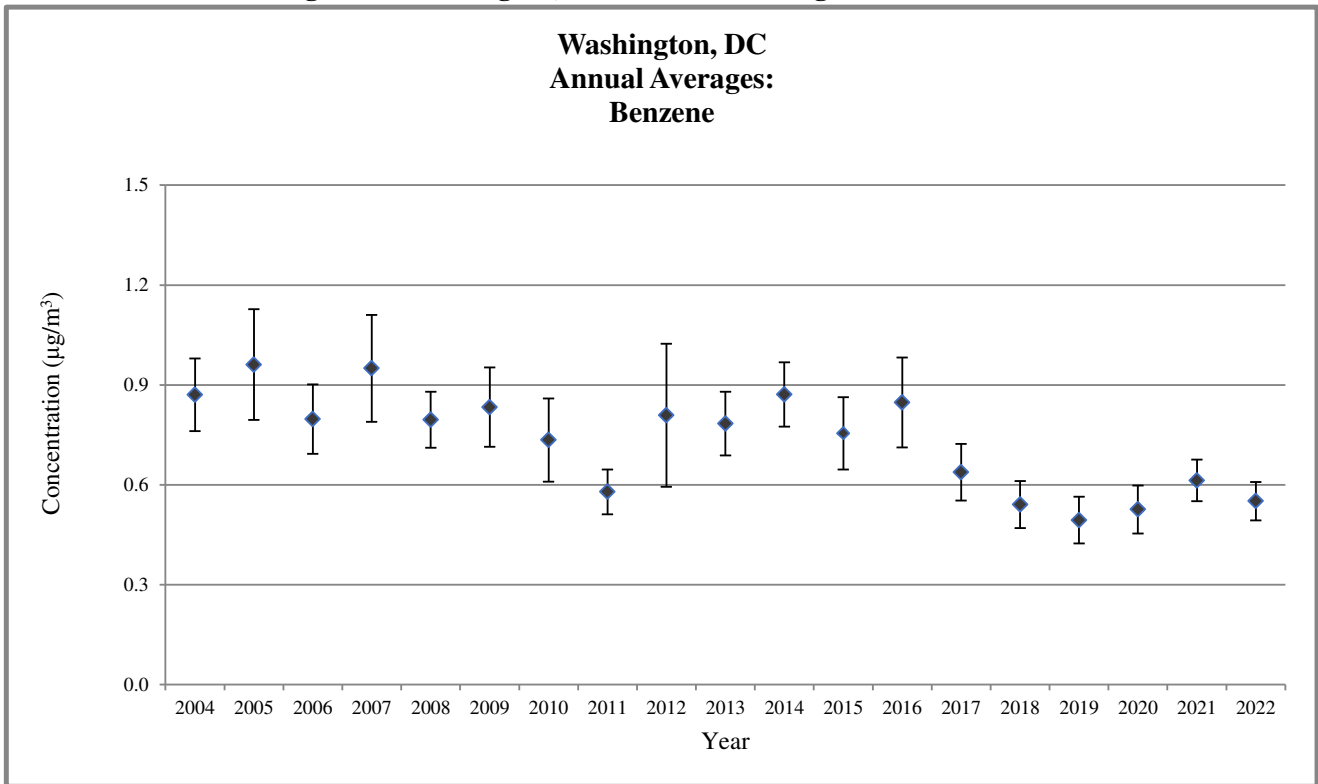
ERG: Eastern Research Group, Inc.

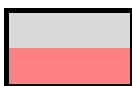
**Figure 3. Washington, D.C. Annual Average Concentrations**



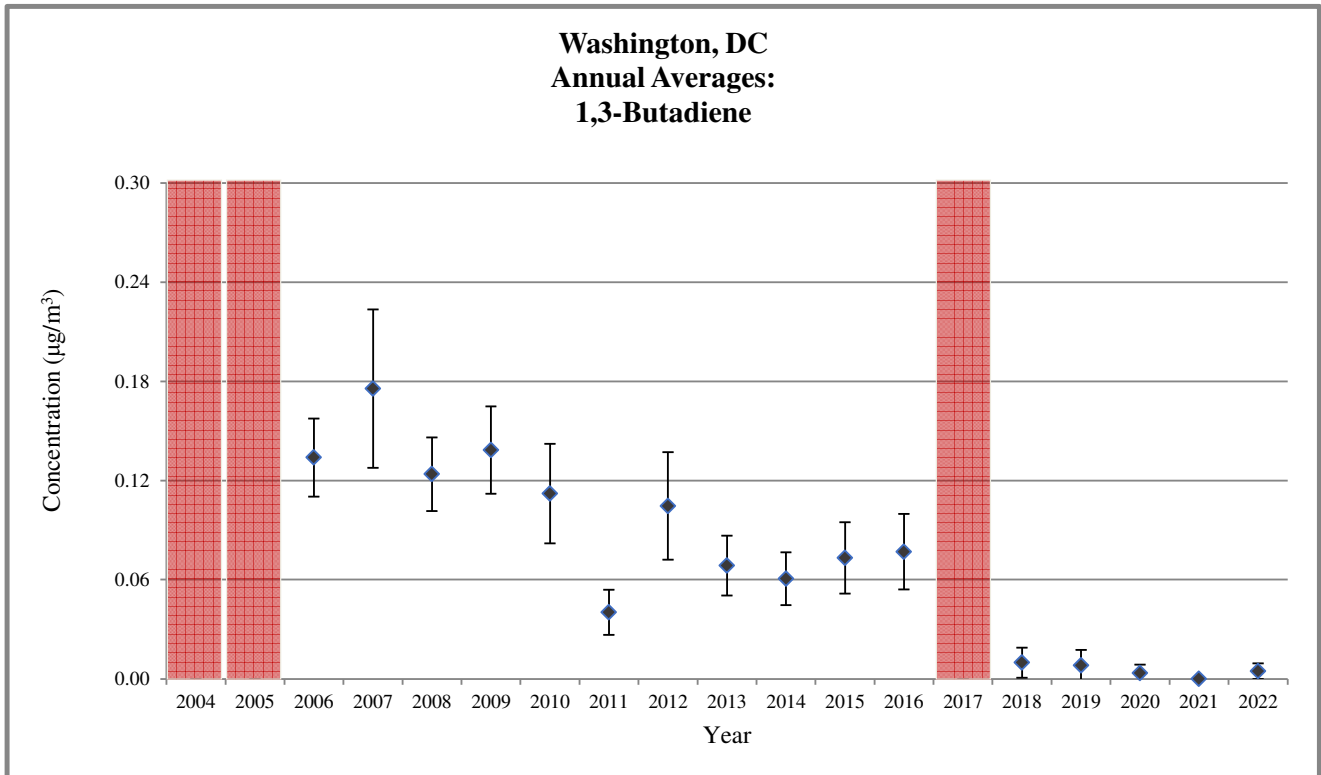
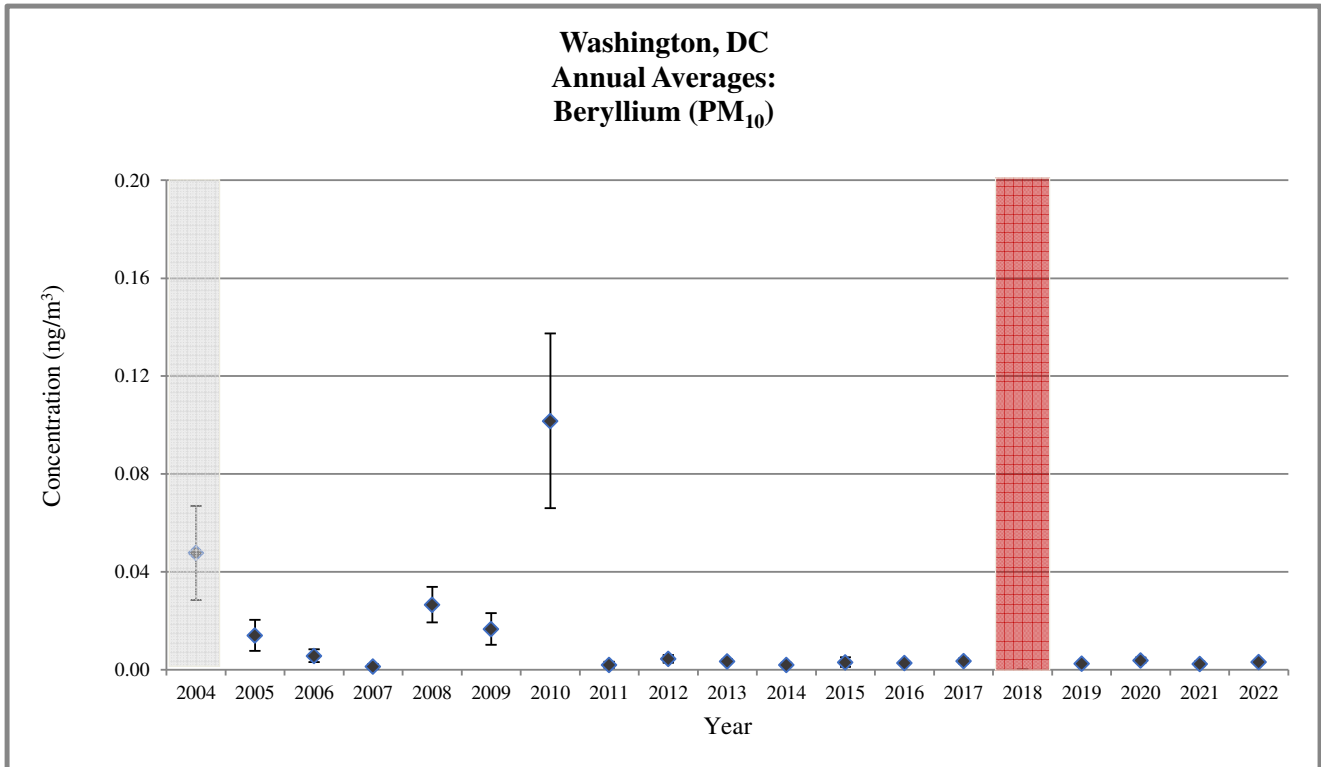
Sampling began midway through the year.  
 Does not meet MQO

Figure 3. Washington, D.C. Annual Average Concentrations



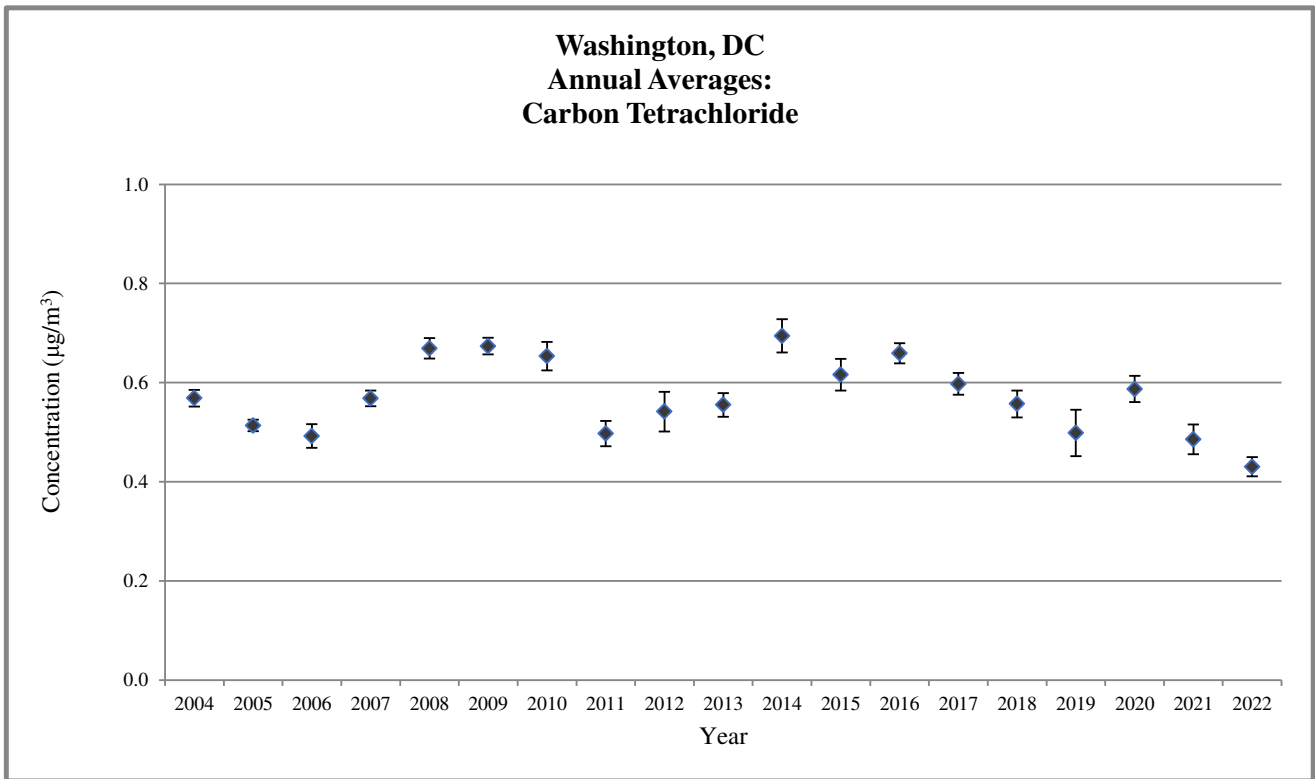
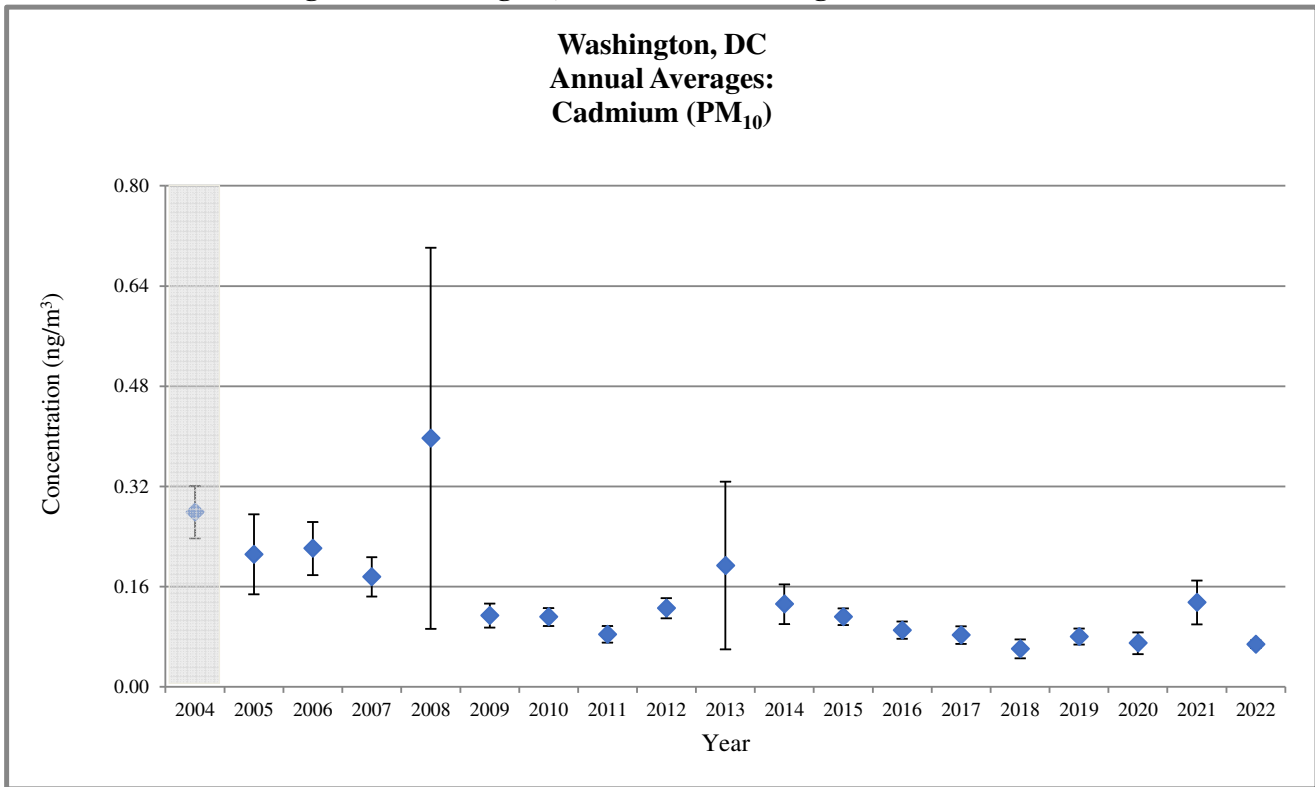
 Sampling began midway through the year.  
Does not meet MQO

**Figure 3. Washington, D.C. Annual Average Concentrations**



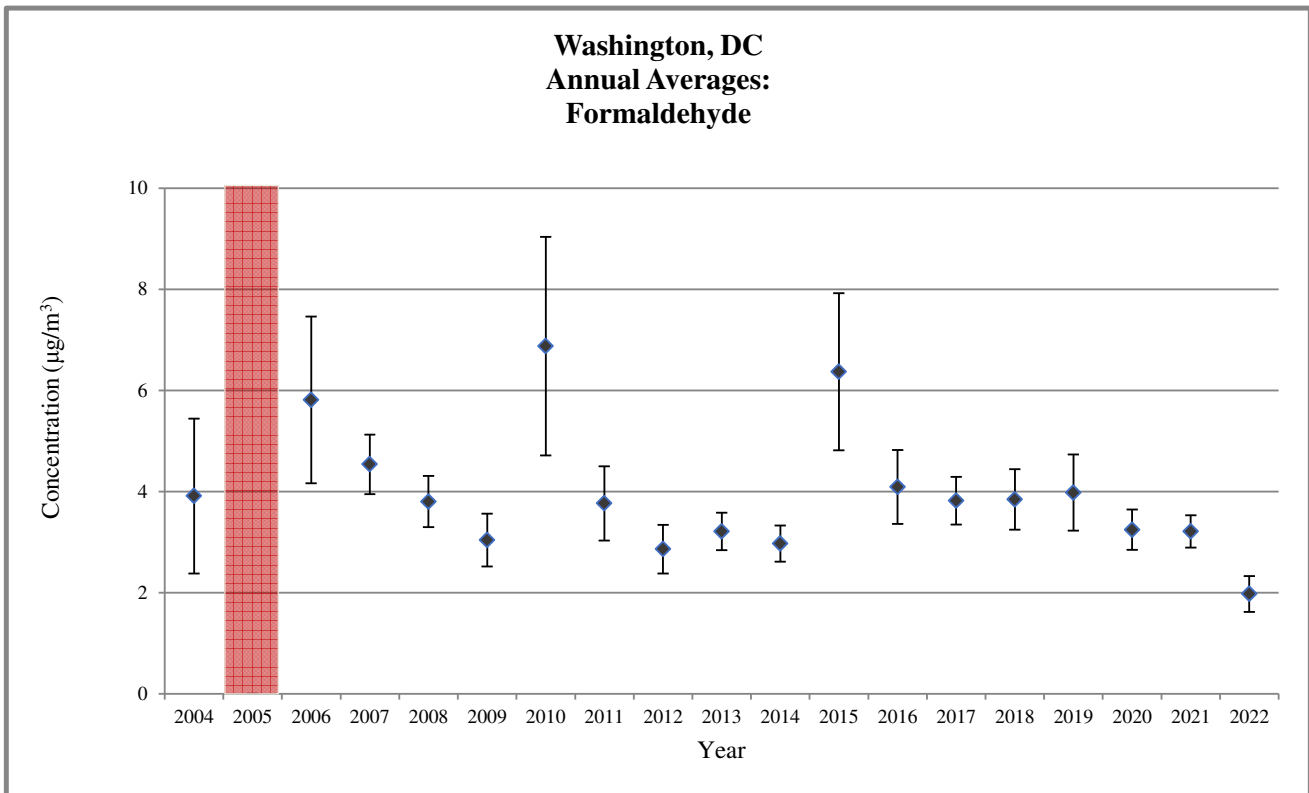
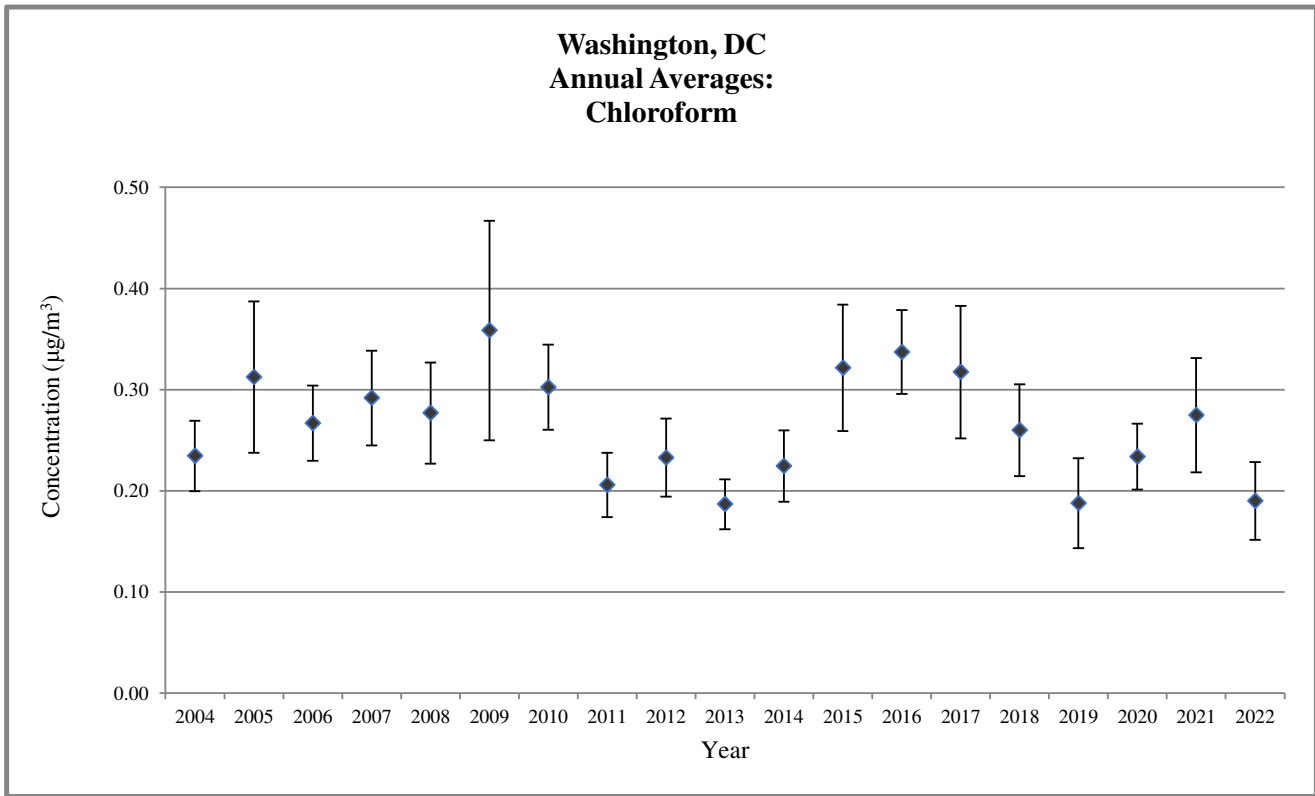
Sampling began midway through the year.  
 Does not meet MQO

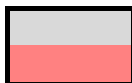
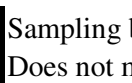
**Figure 3. Washington, D.C. Annual Average Concentrations**



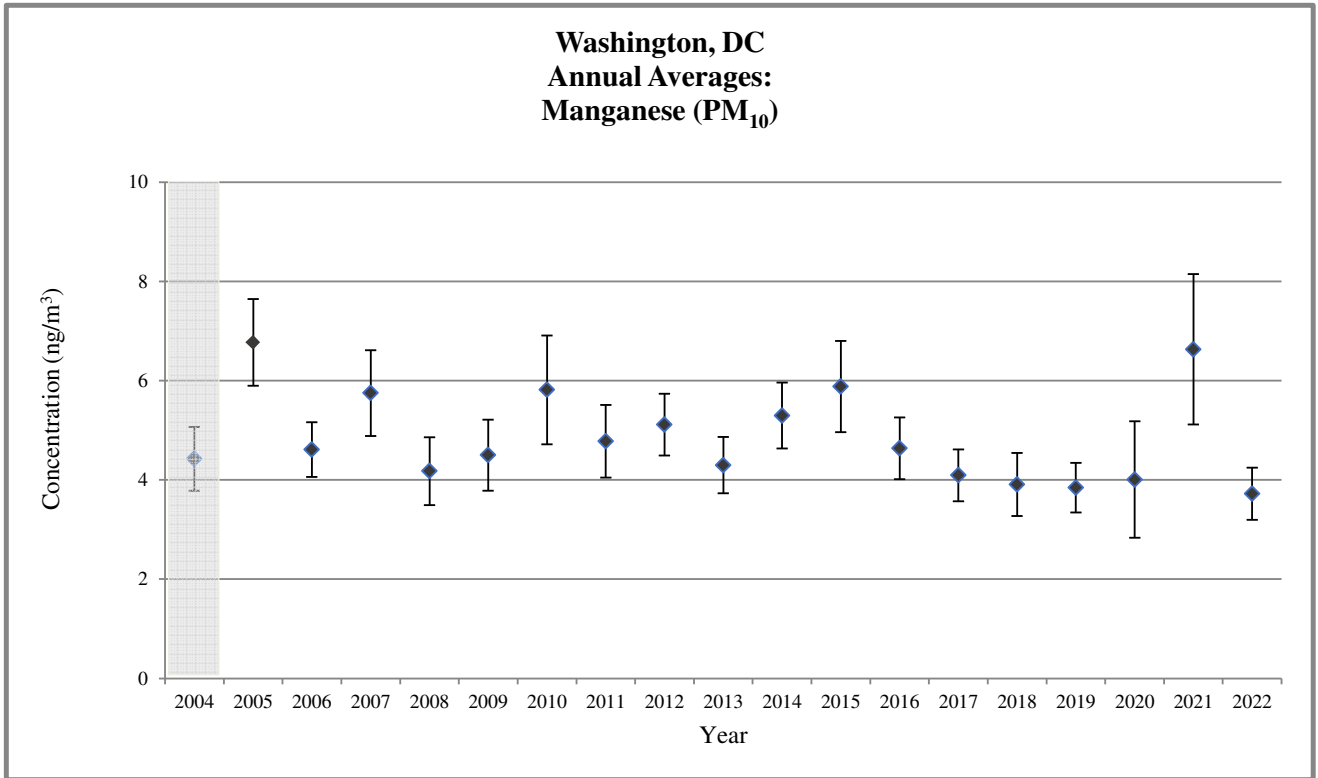
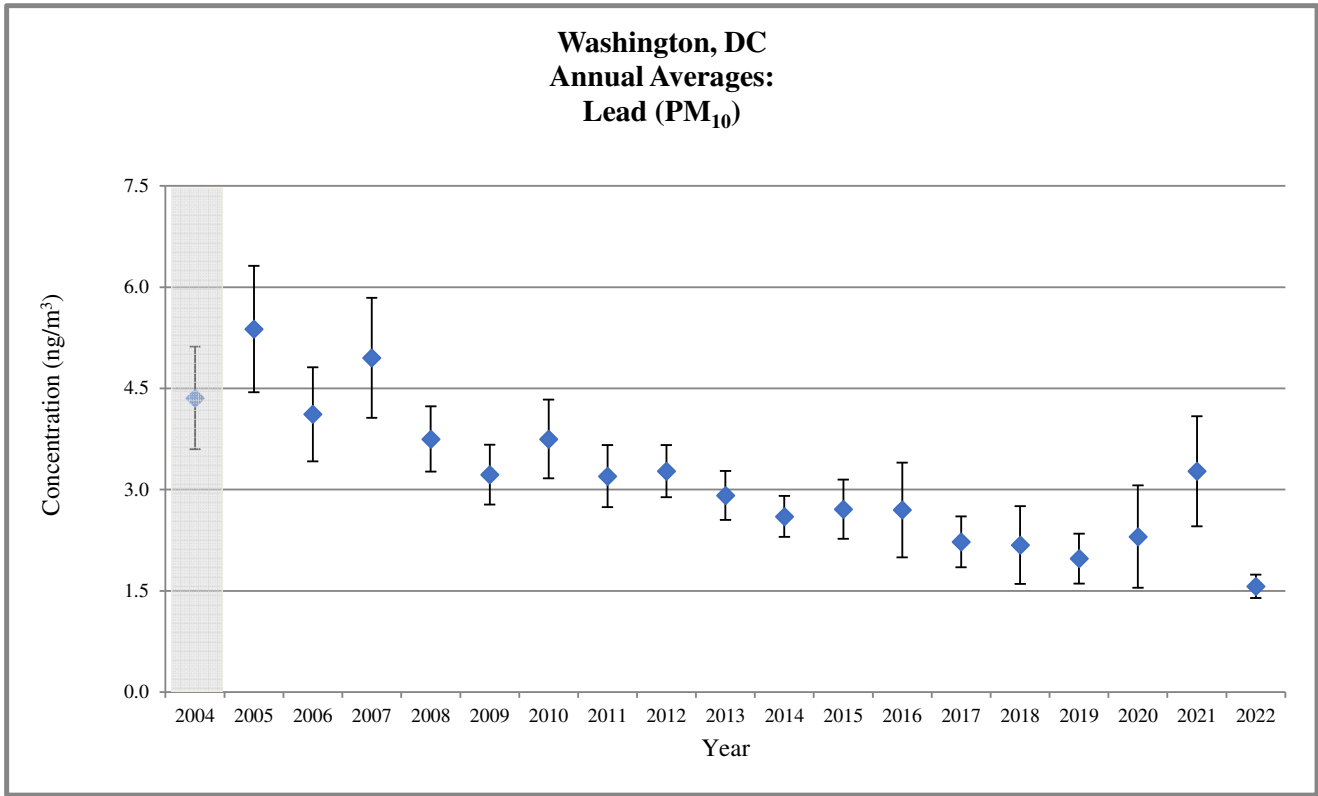
Sampling began midway through the year.  
 Does not meet MQO

Figure 3. Washington, D.C. Annual Average Concentrations



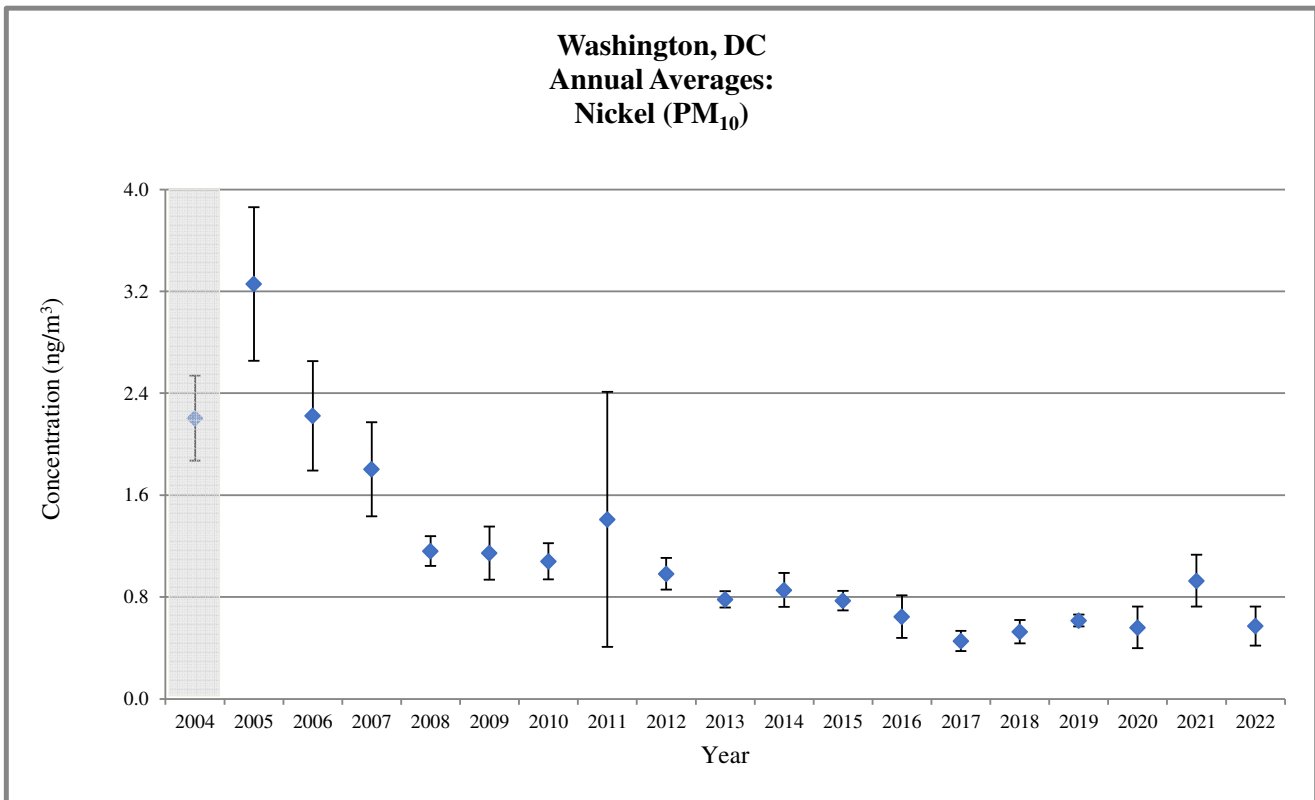
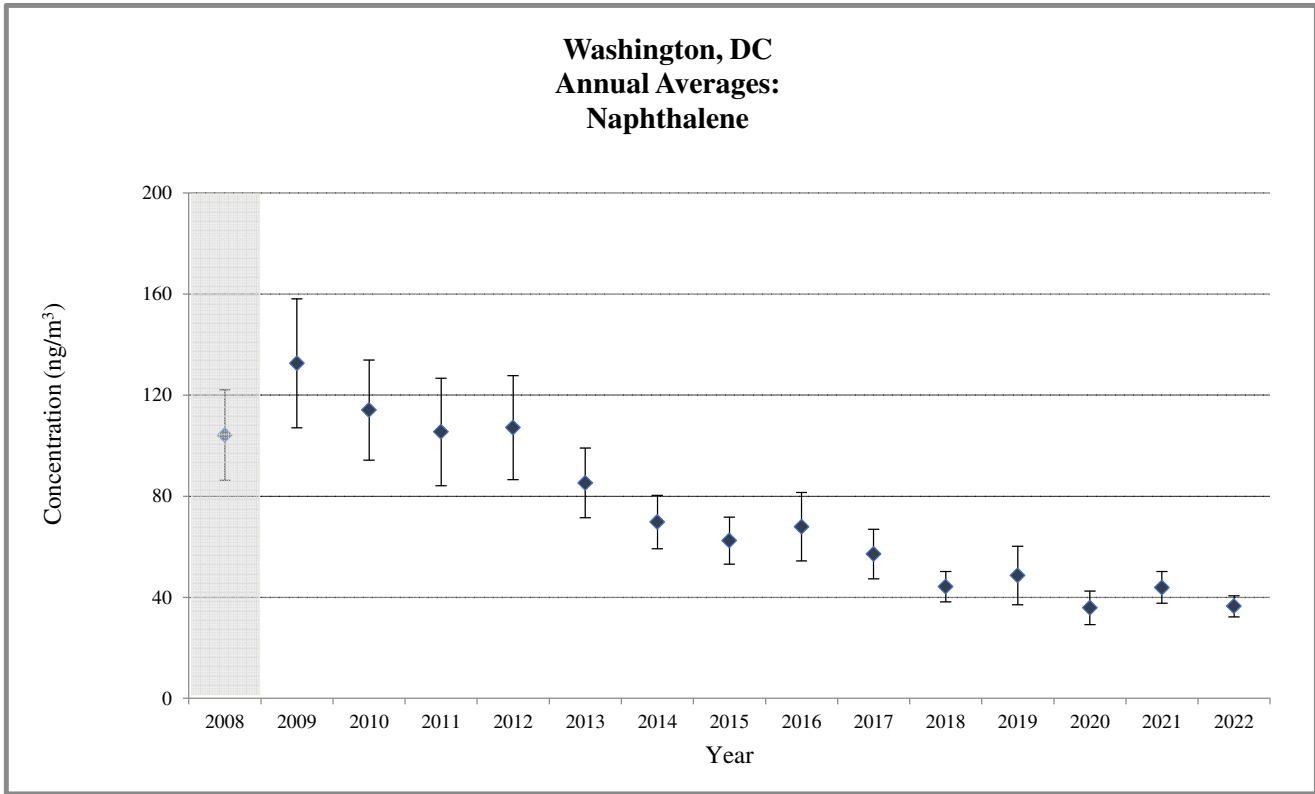
 Sampling began midway through the year.  
 Does not meet MQO

**Figure 3. Washington, D.C. Annual Average Concentrations**



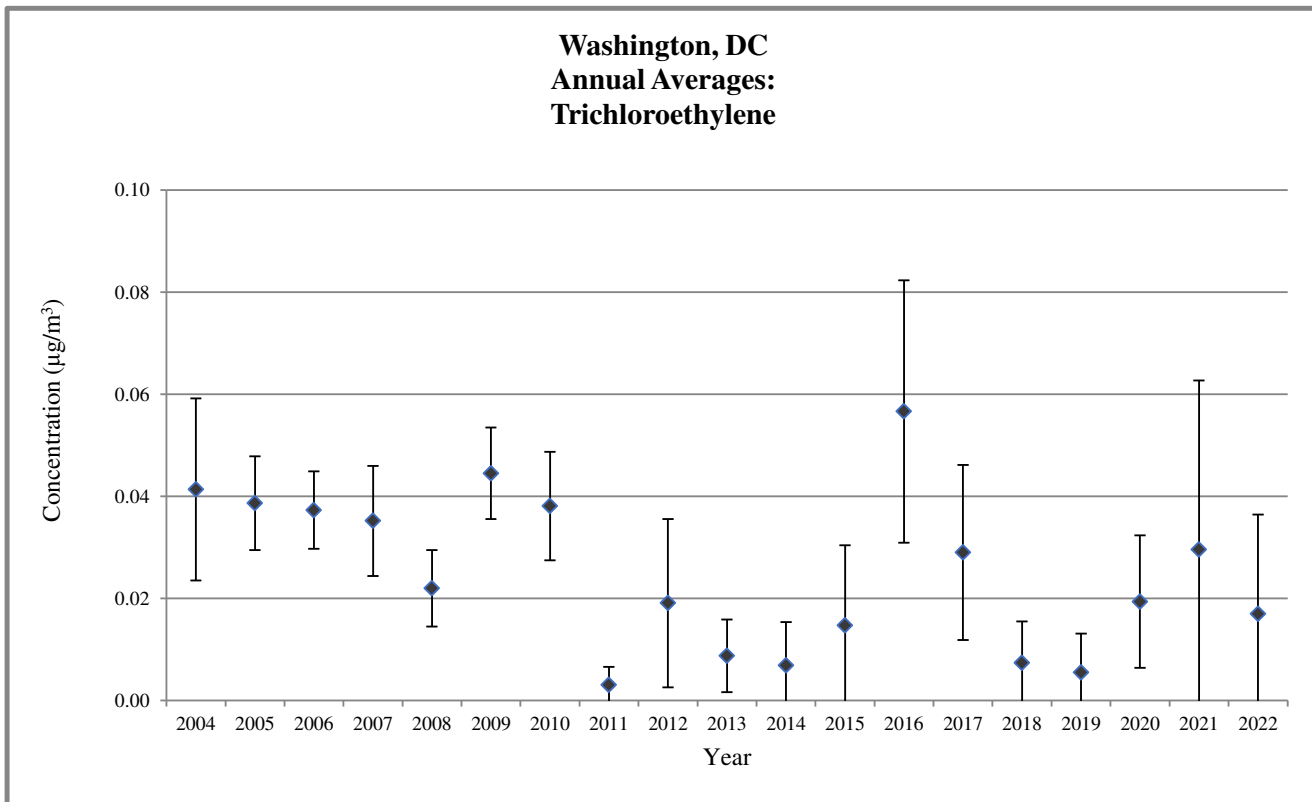
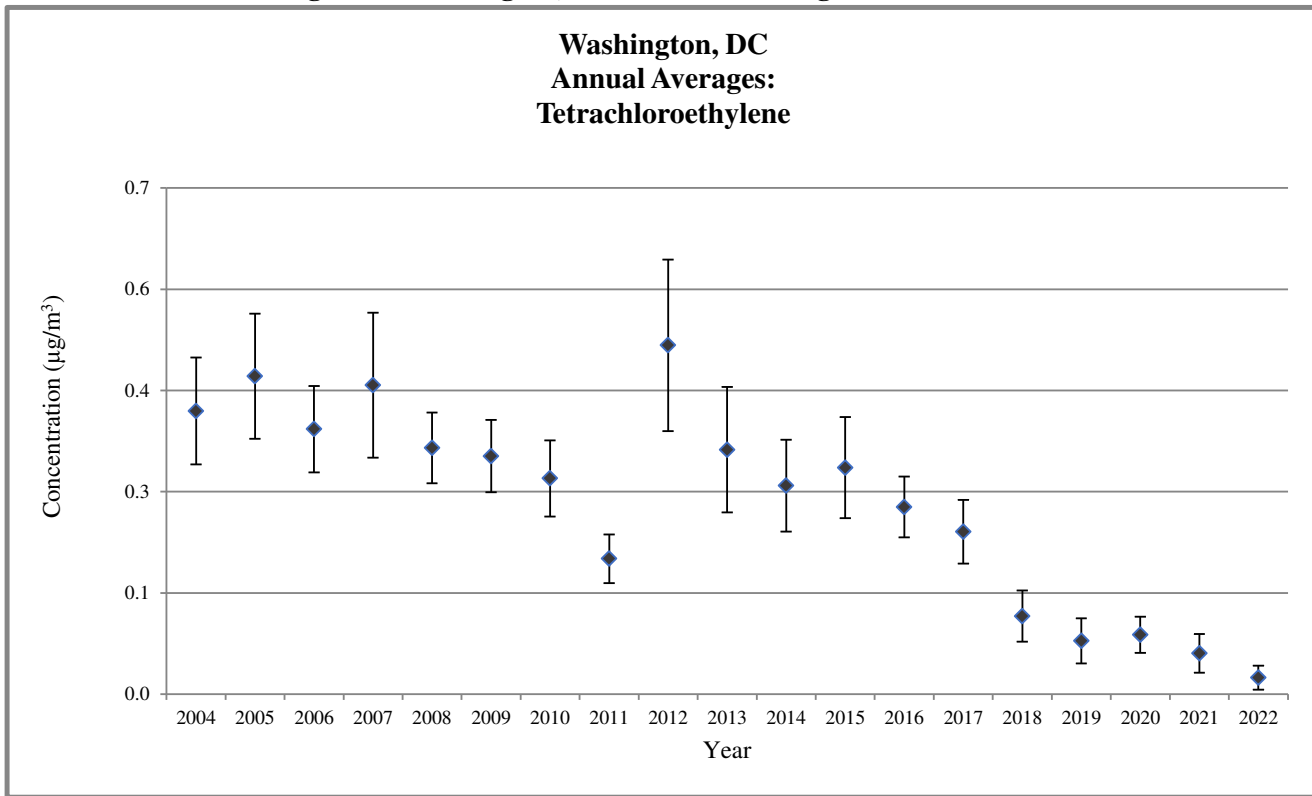
Sampling began midway through the year.  
 Does not meet MQO

**Figure 3. Washington, D.C. Annual Average Concentrations**



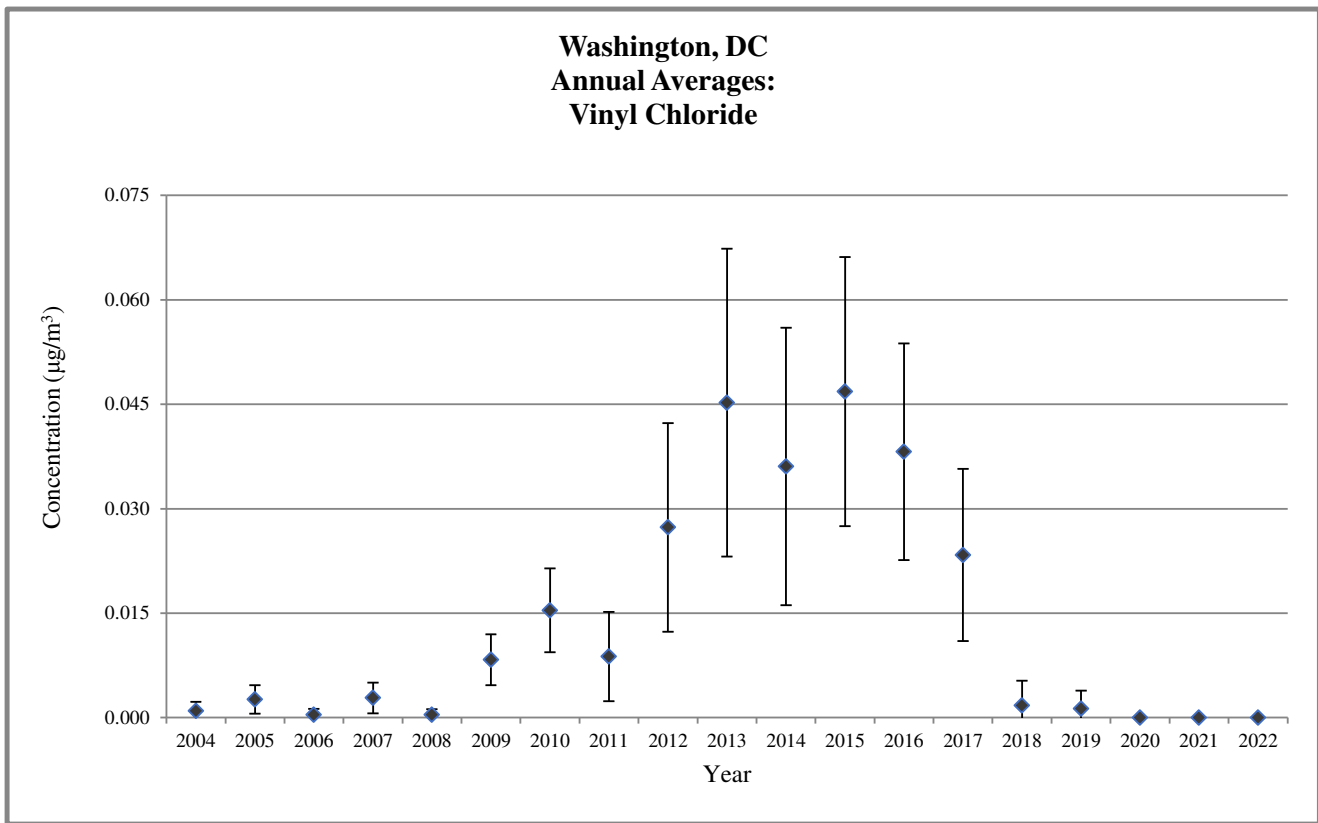
Sampling began midway through the year.  
 Does not meet MQO


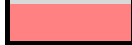
**Figure 3. Washington, D.C. Annual Average Concentrations**



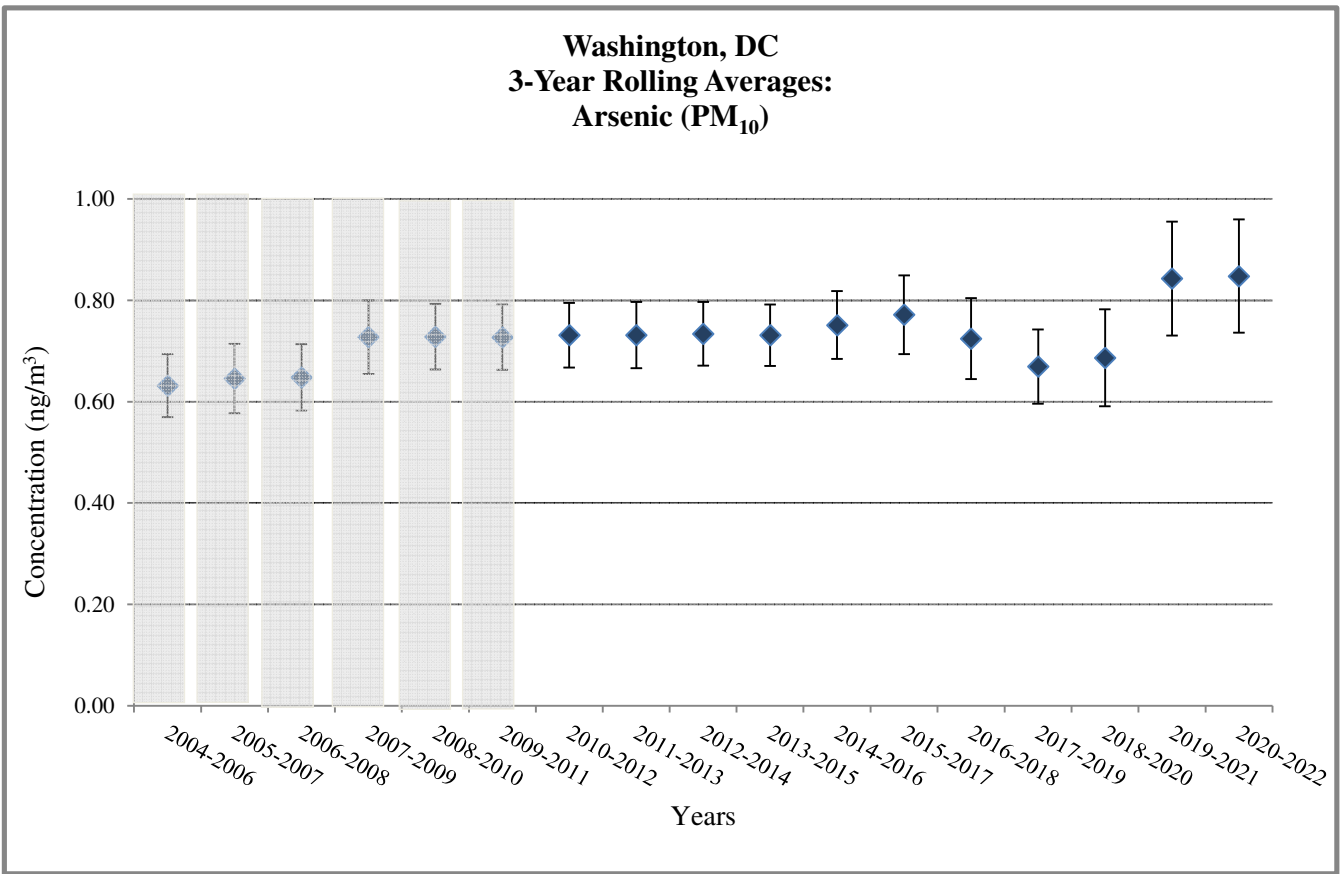
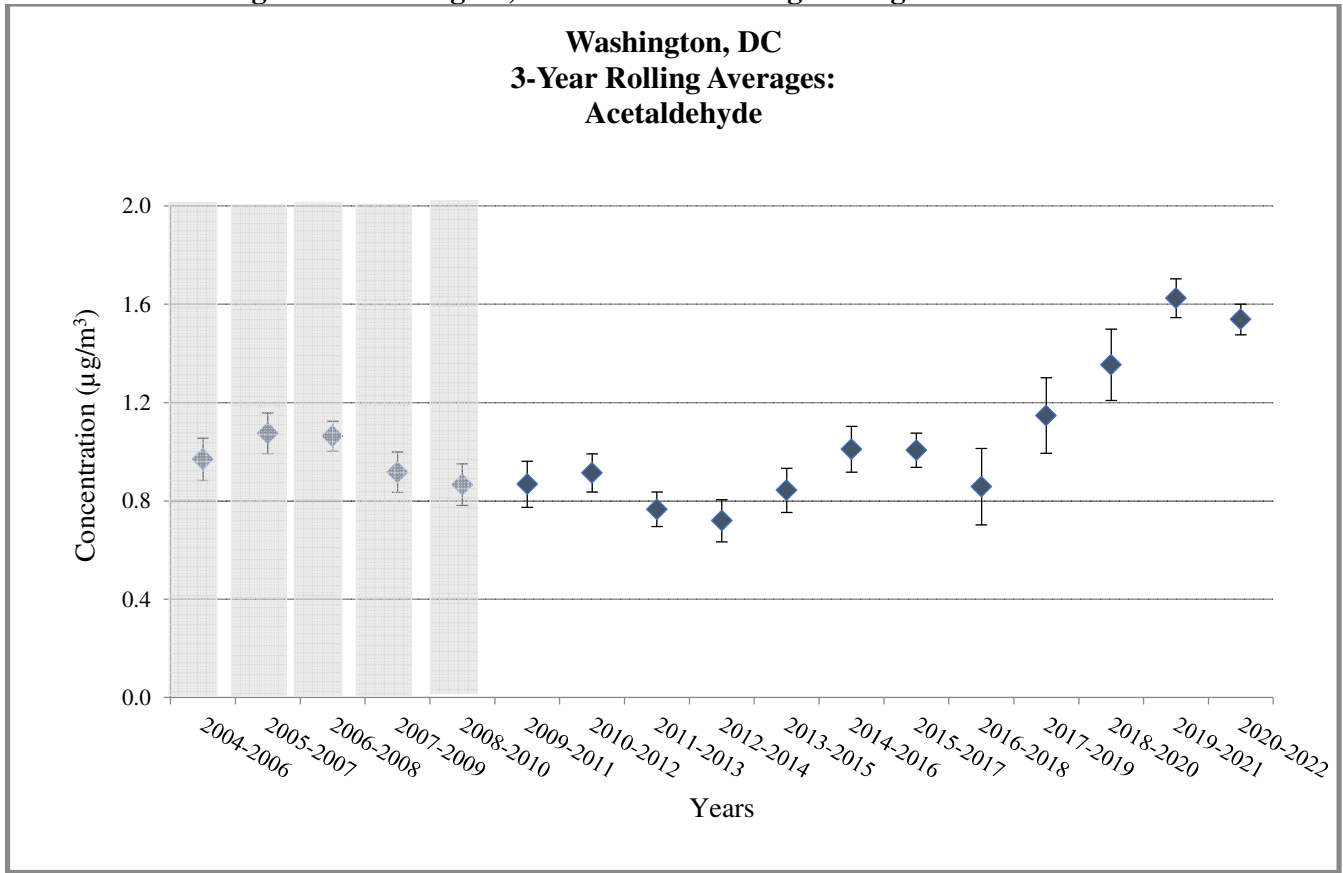
Sampling began midway through the year.  
 Does not meet MQO

Figure 3. Washington, D.C. Annual Average Concentrations



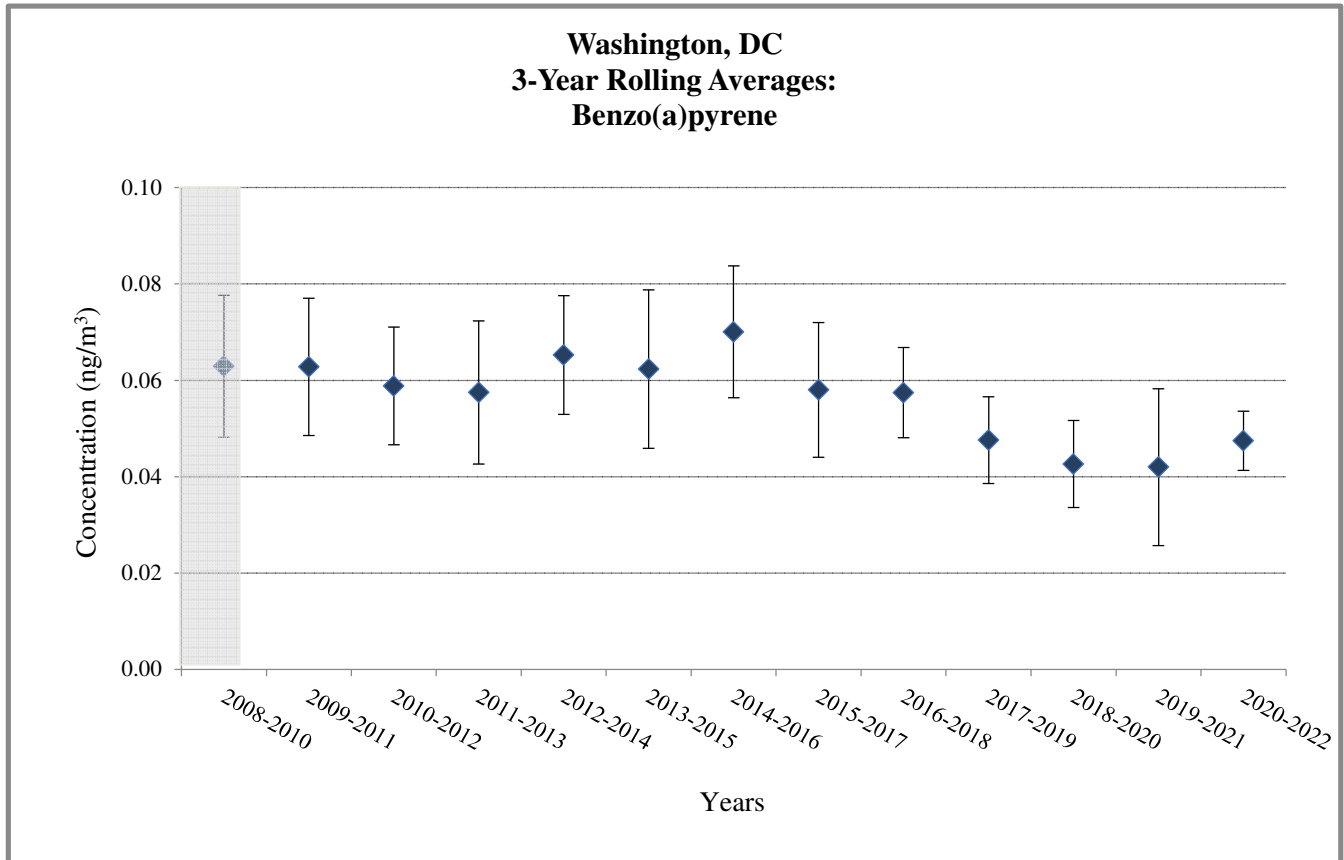
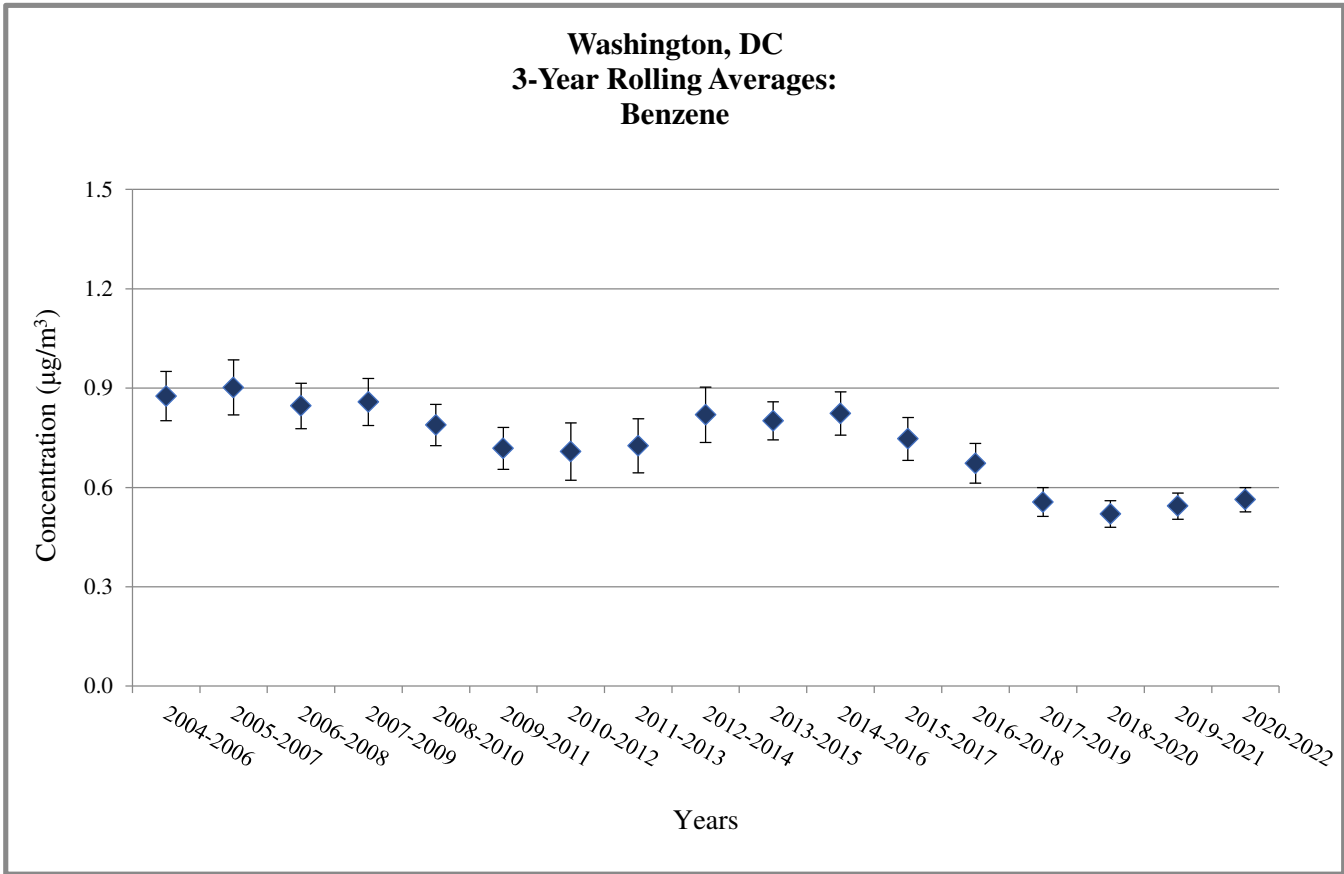
 Sampling began midway through the year.  
 Does not meet MQO

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



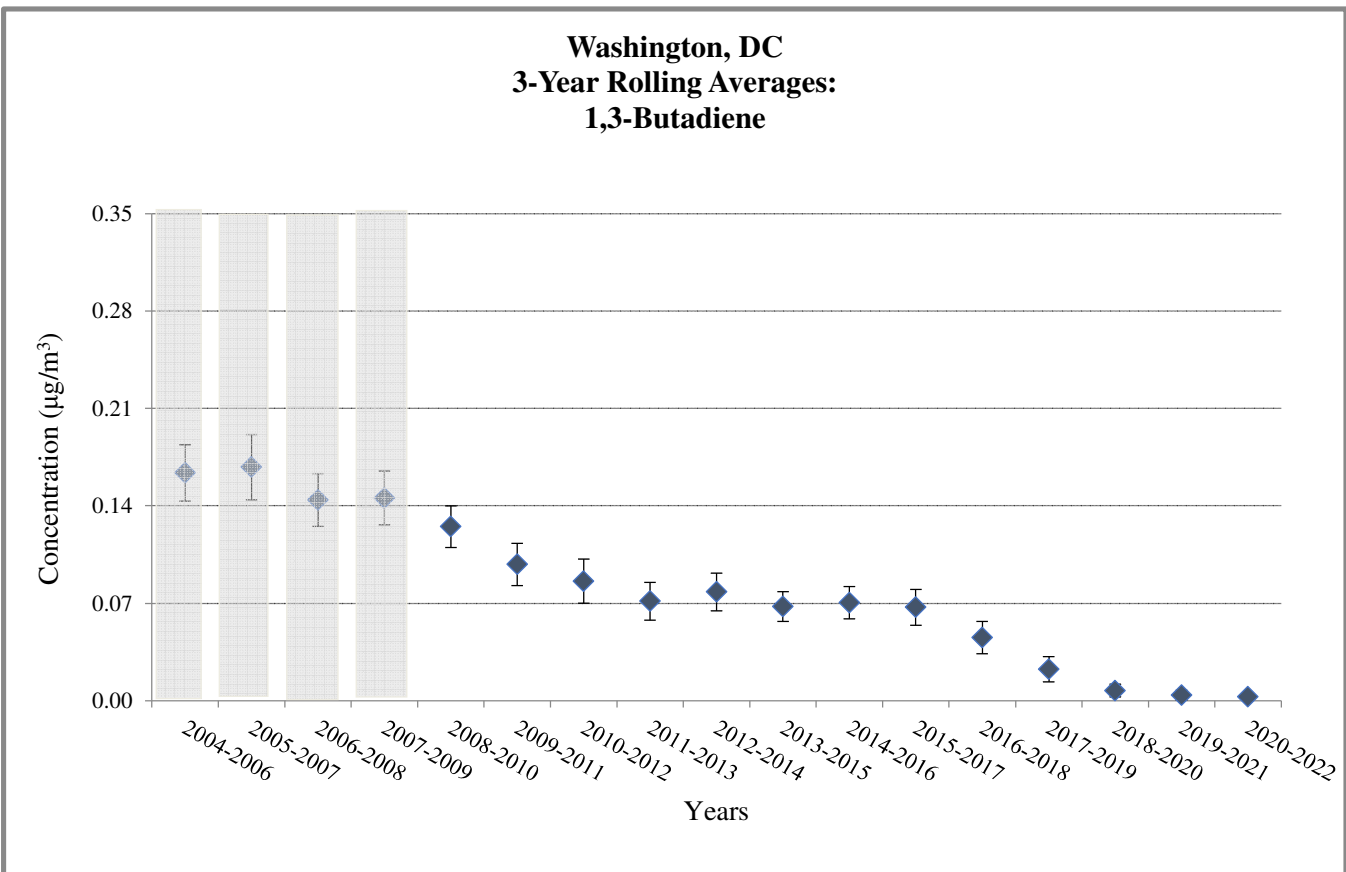
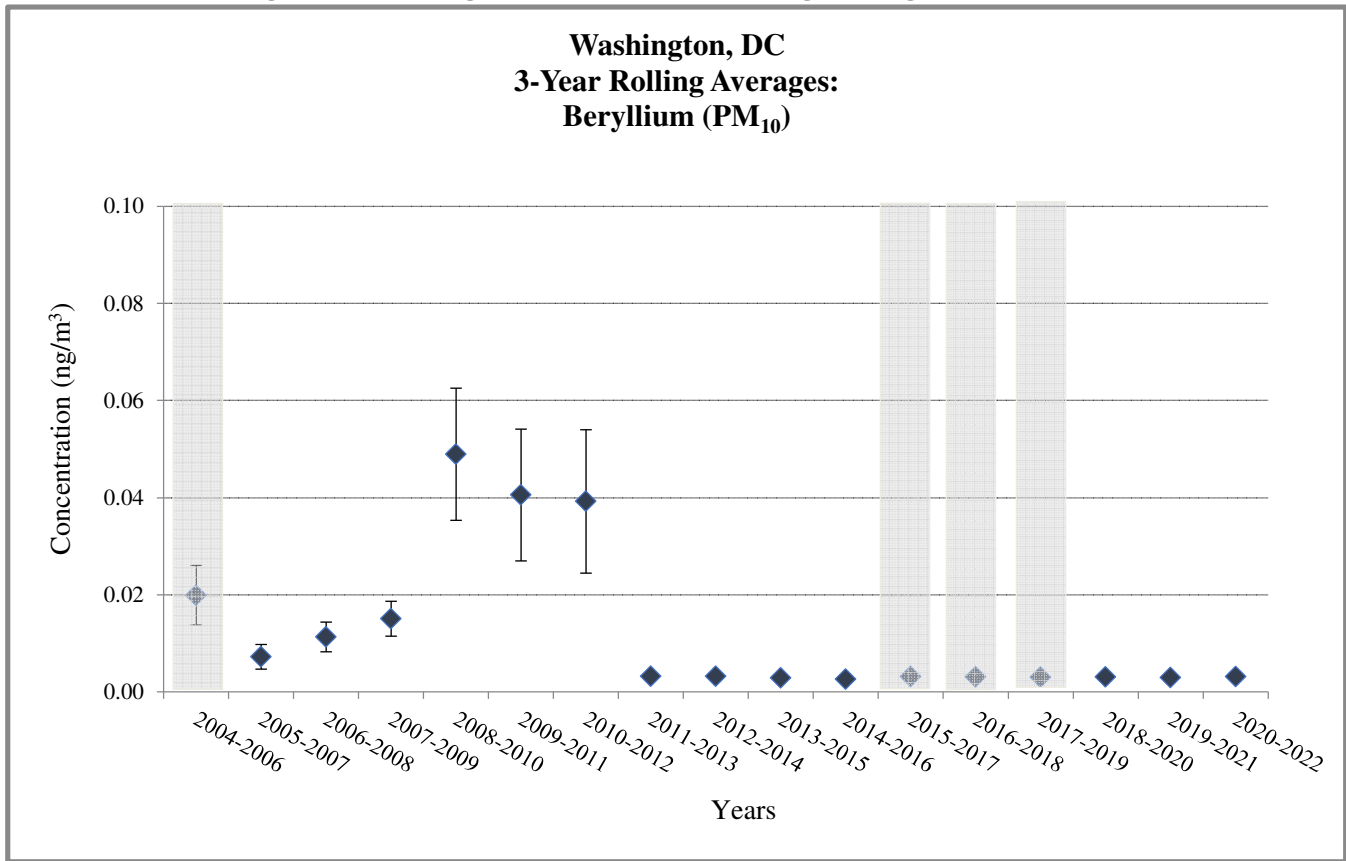
Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



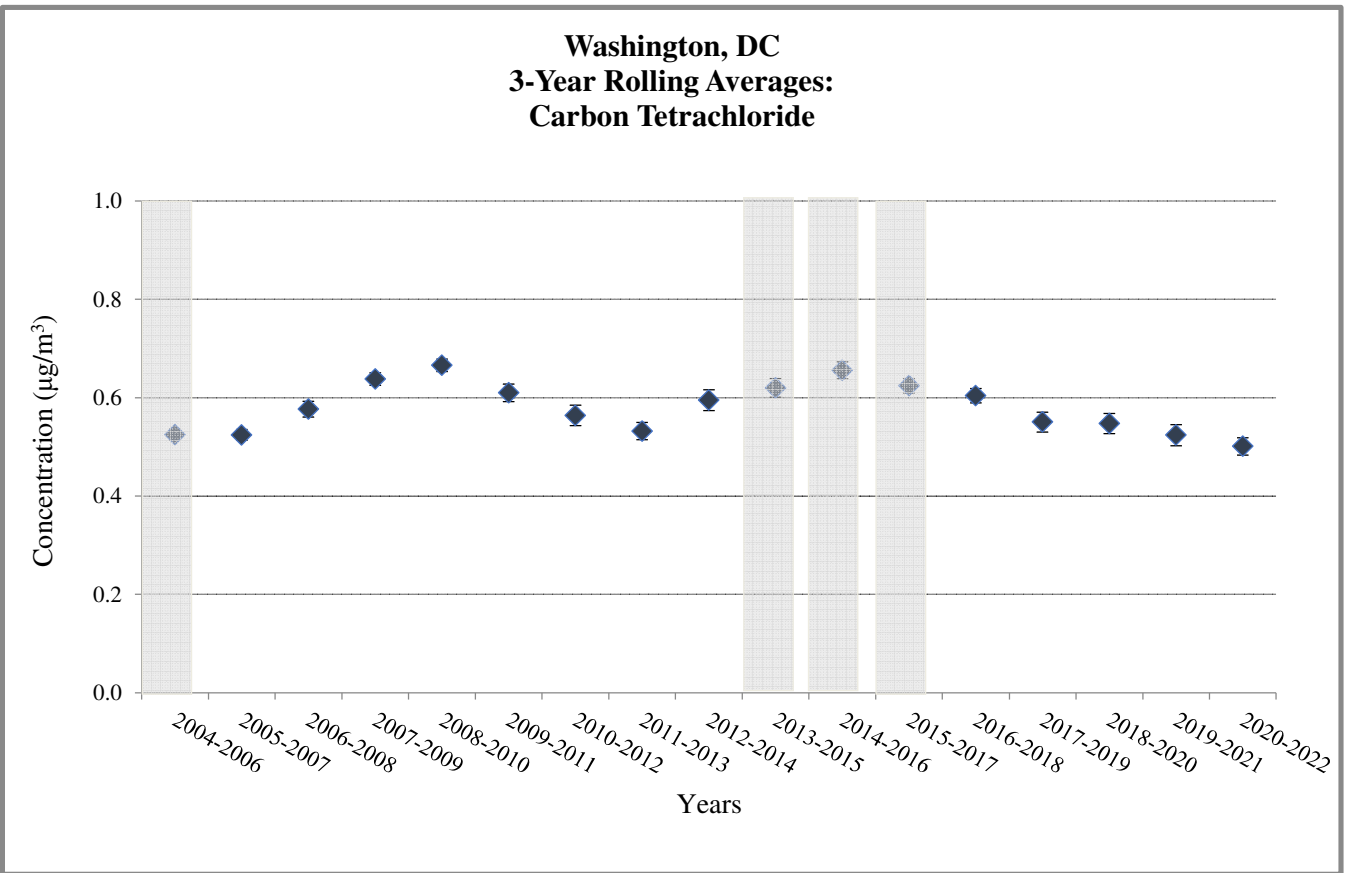
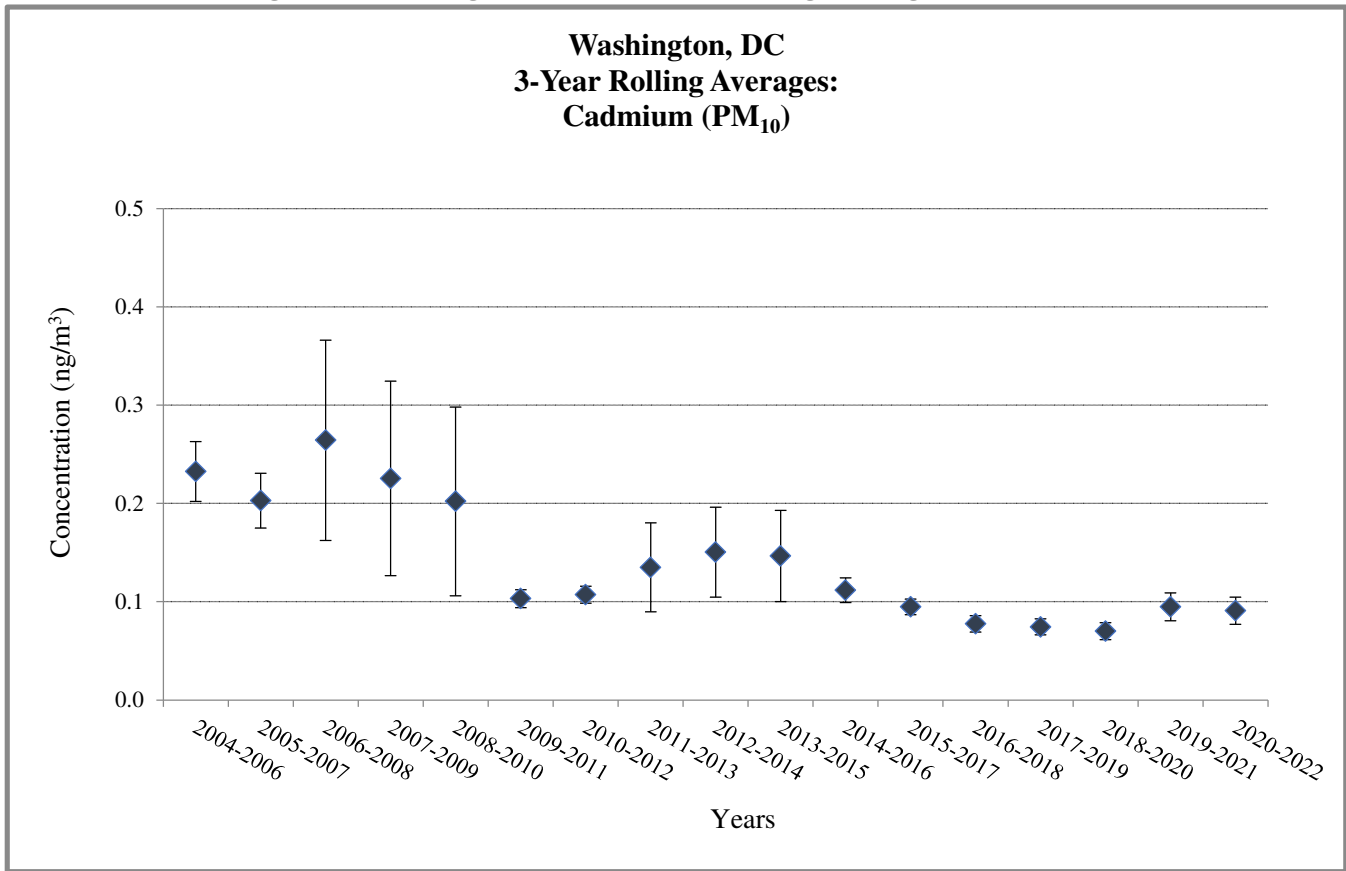
Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



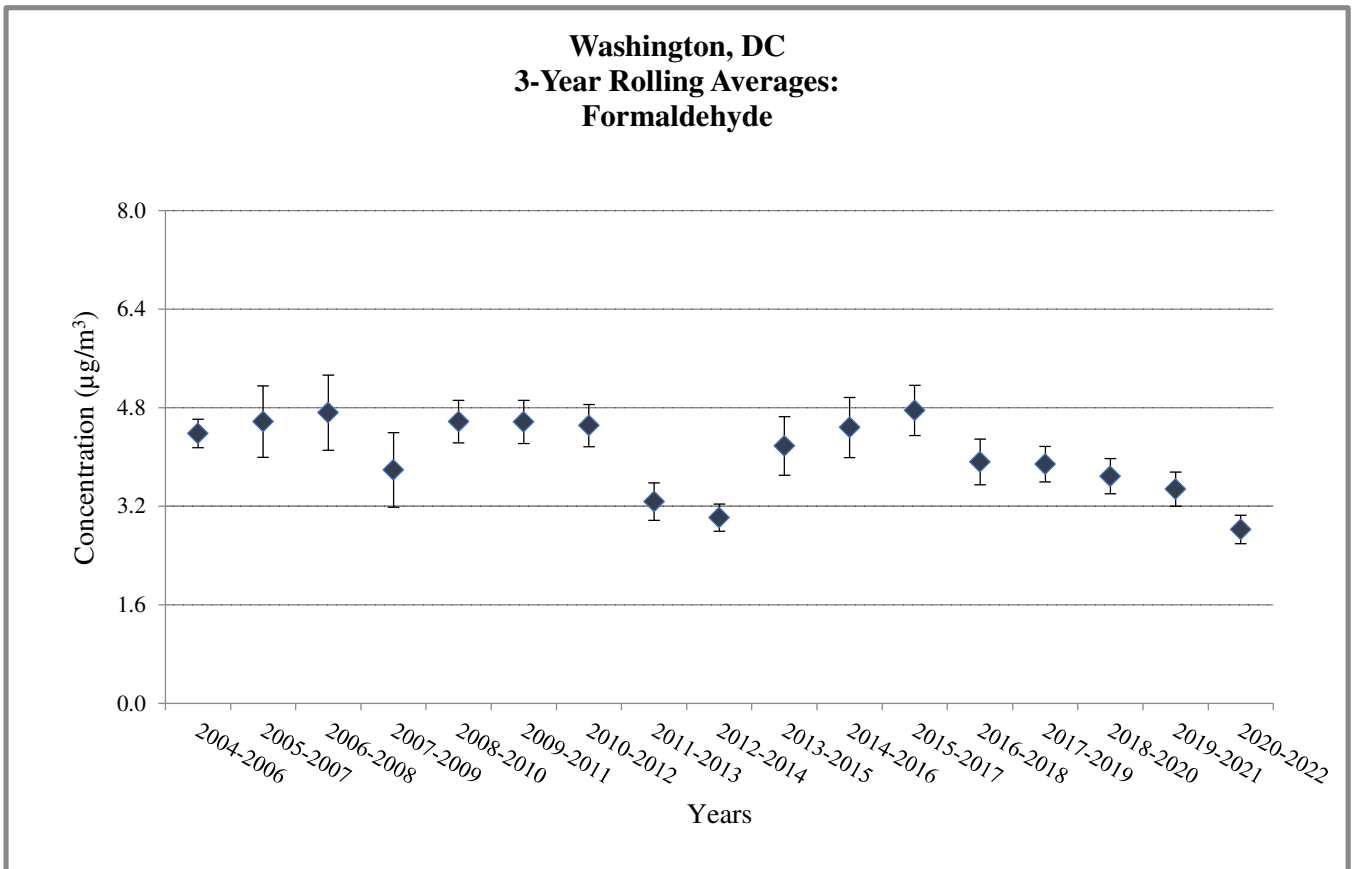
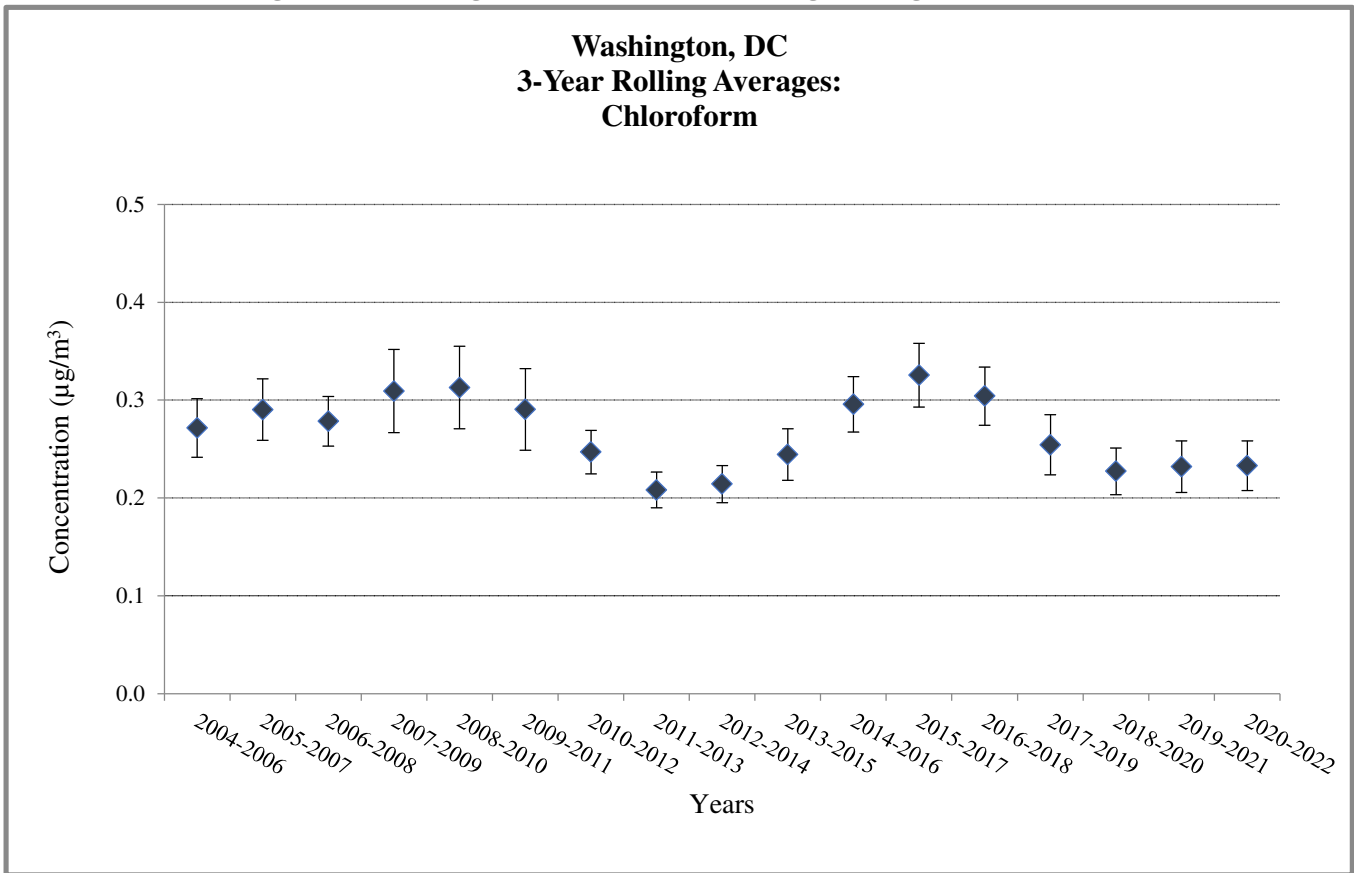
Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



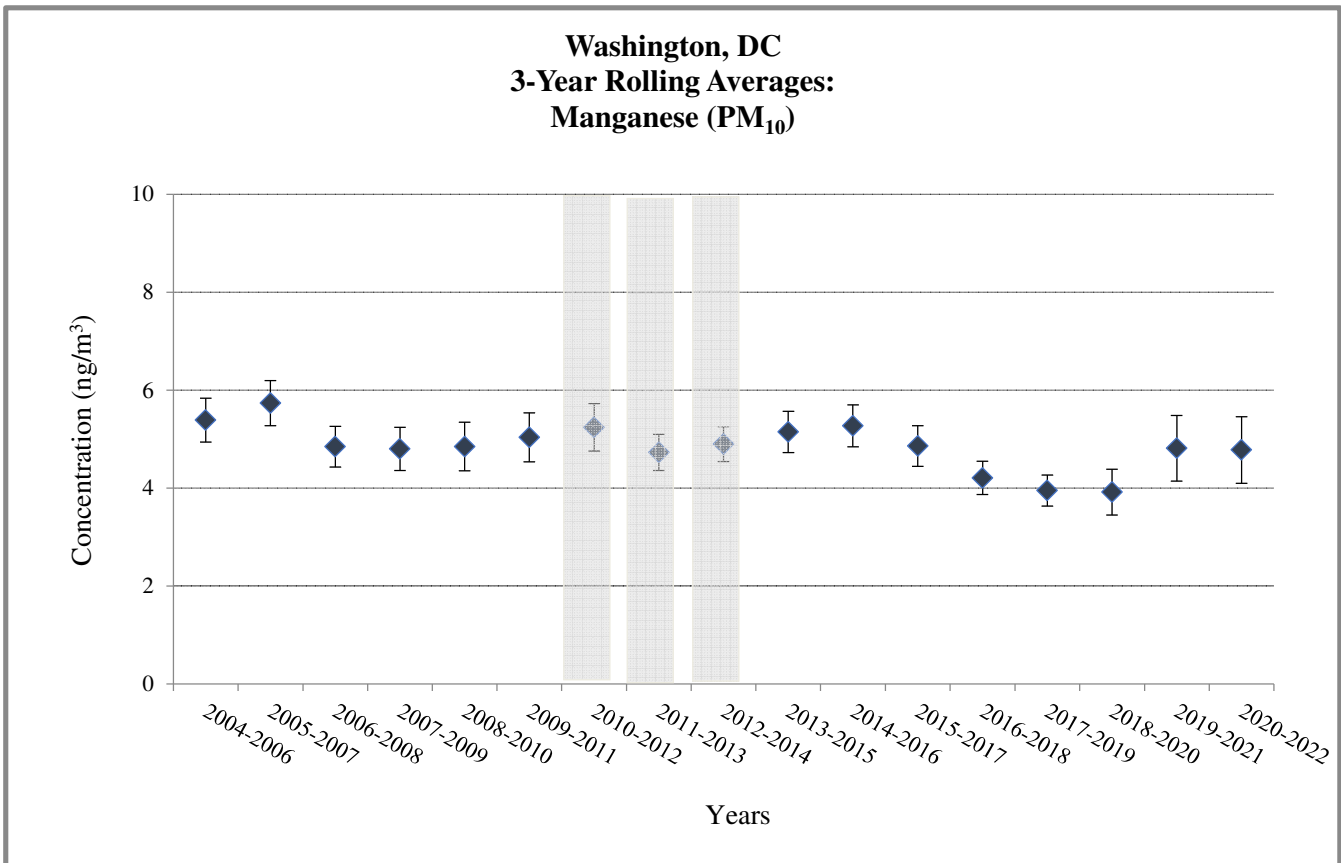
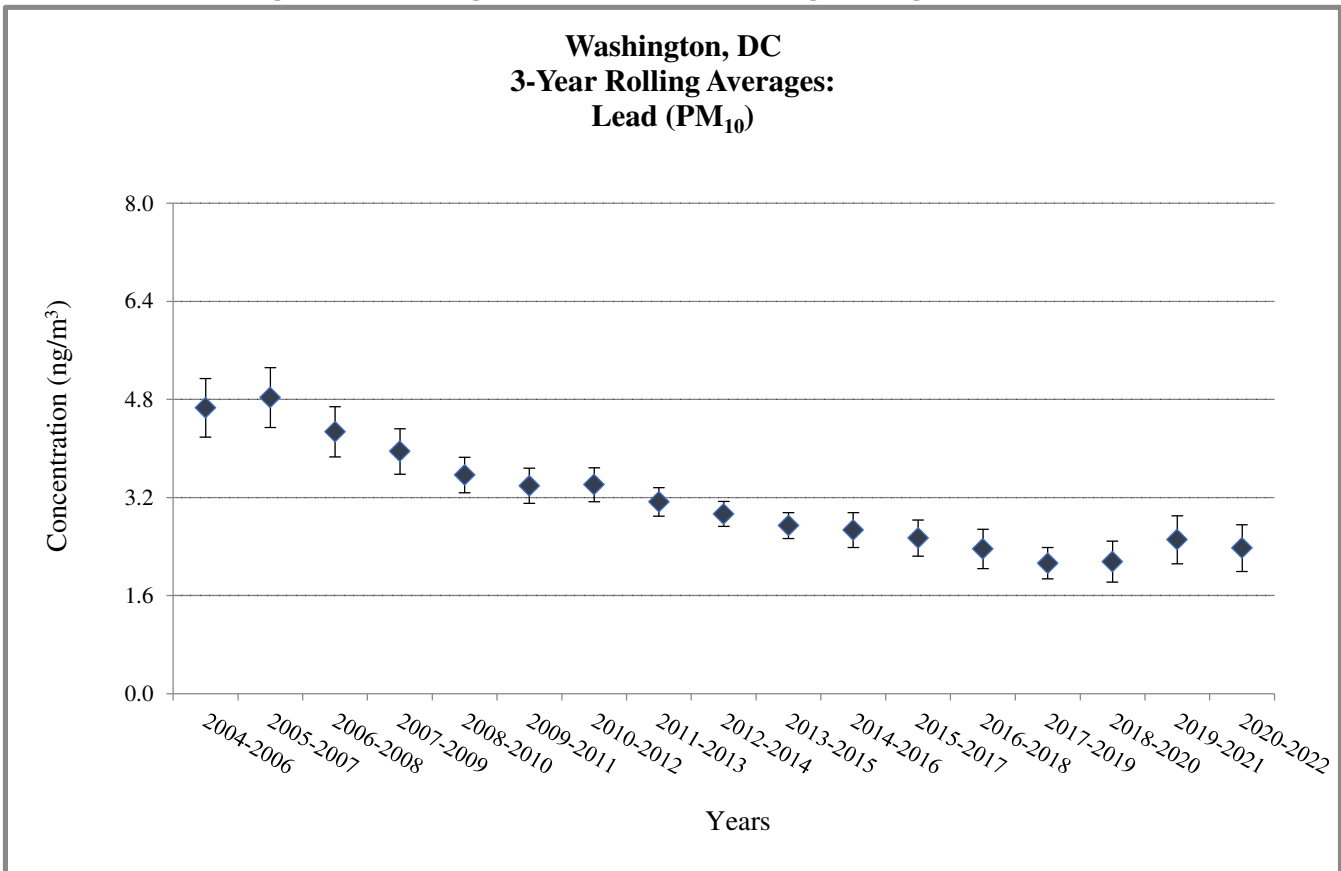
Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



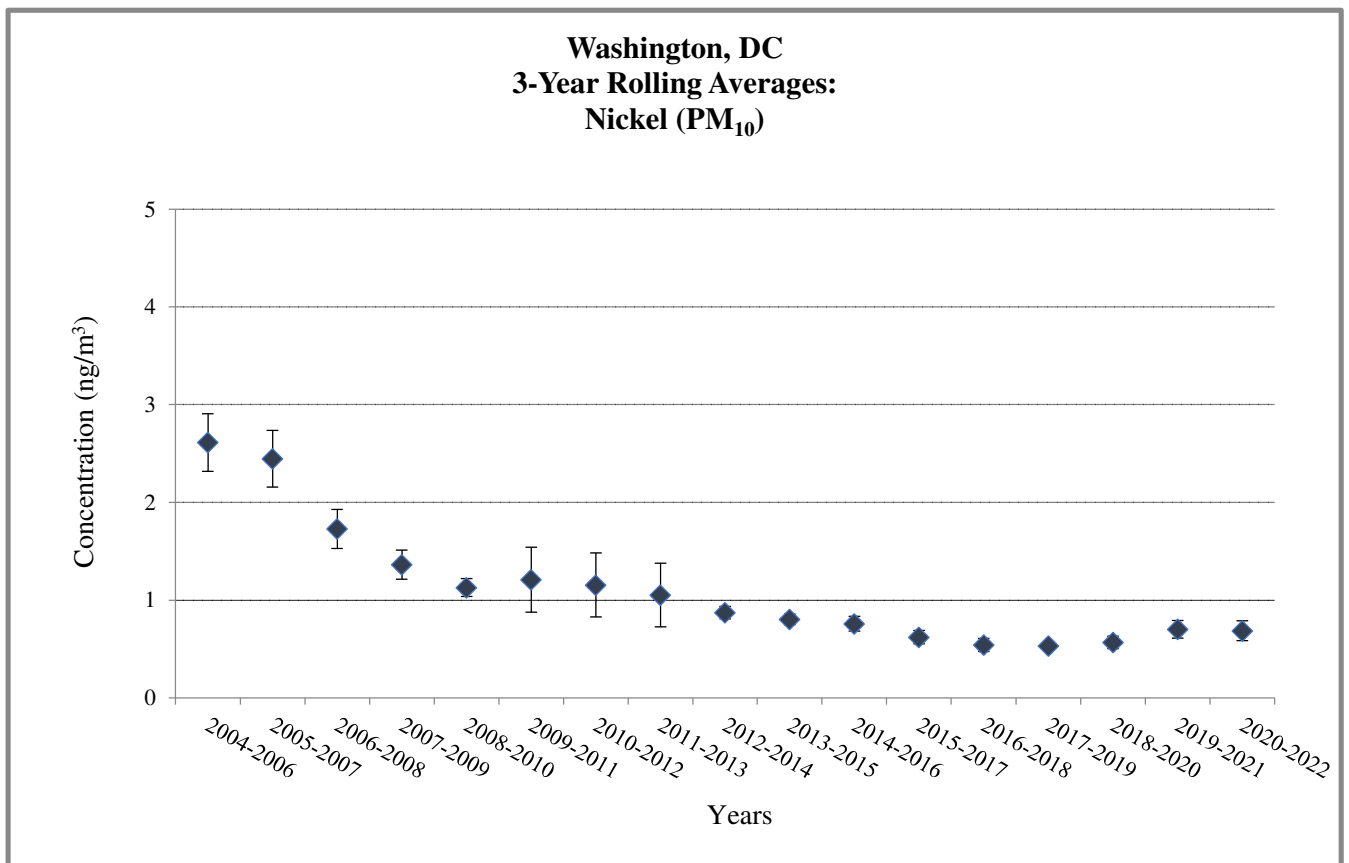
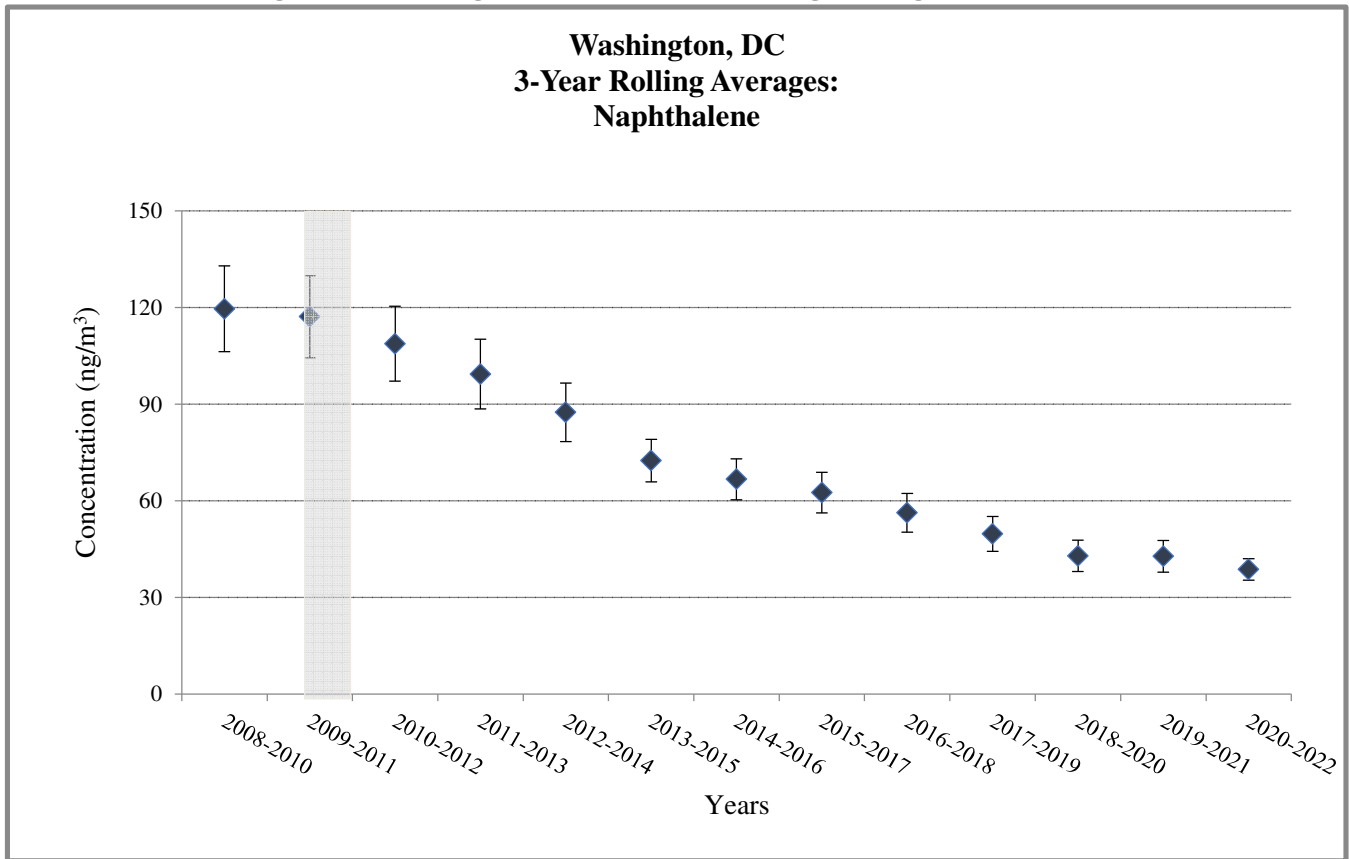
Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



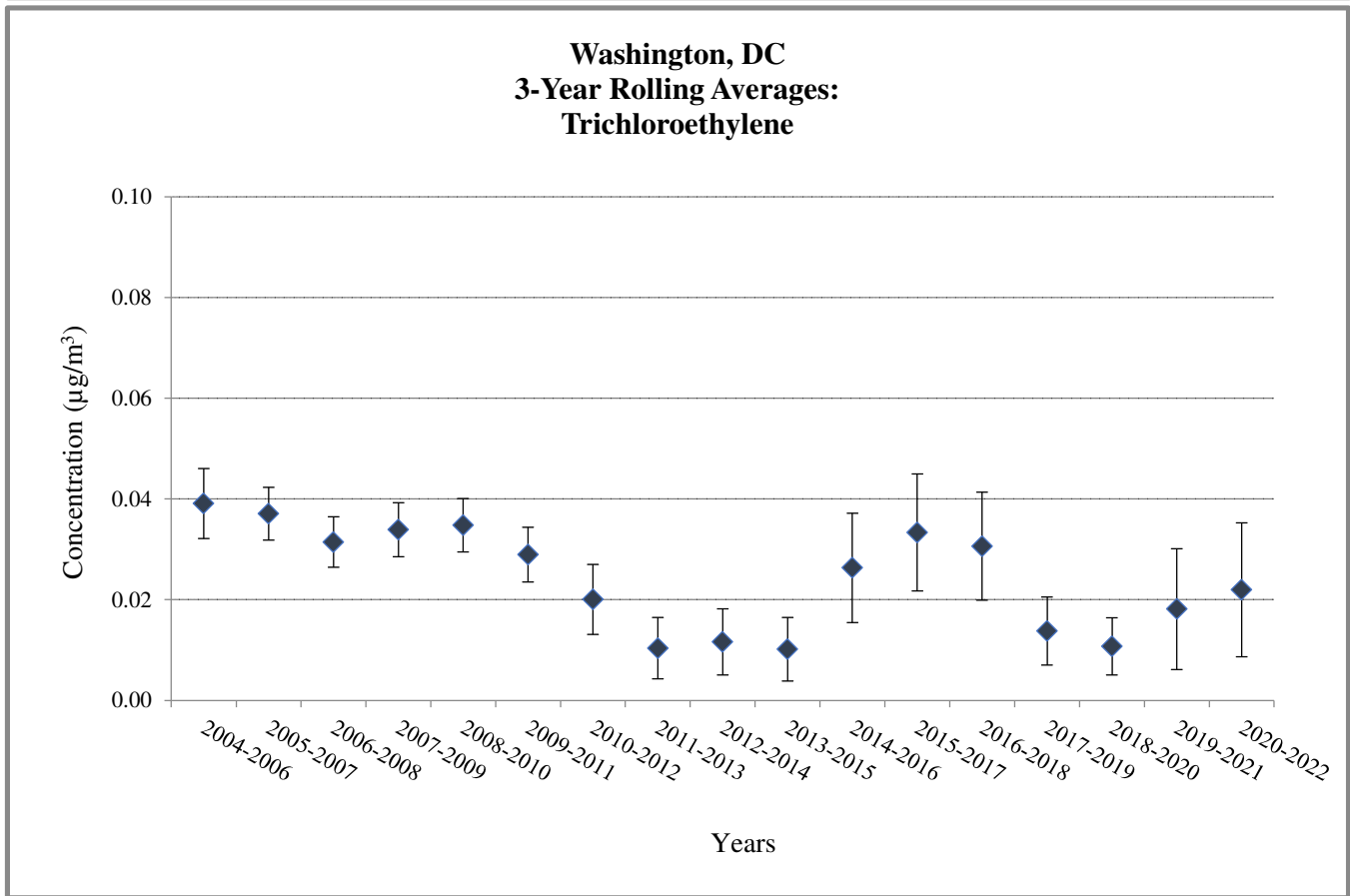
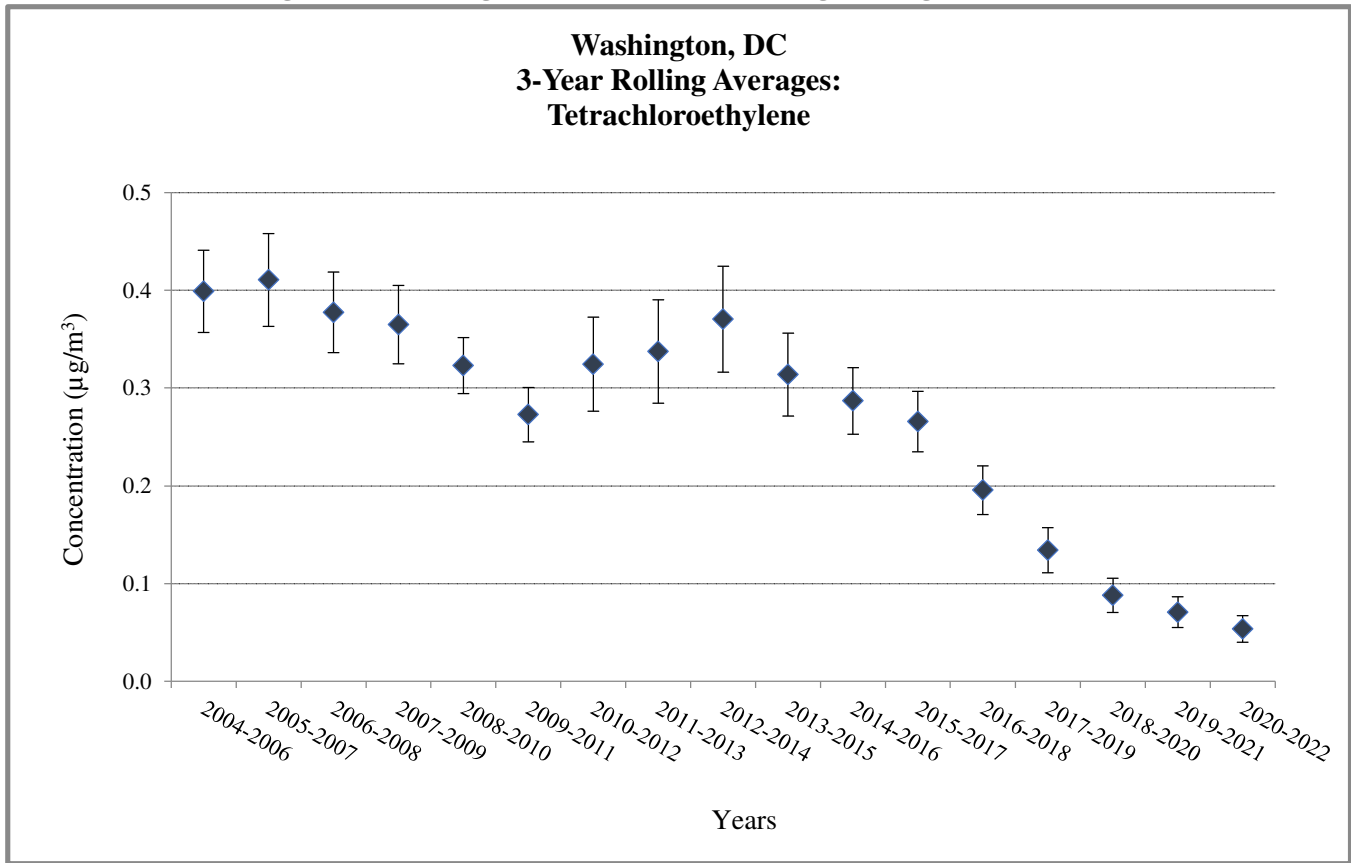
Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**



Does not meet MQO or wasn't able to collect enough samples

**Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations**




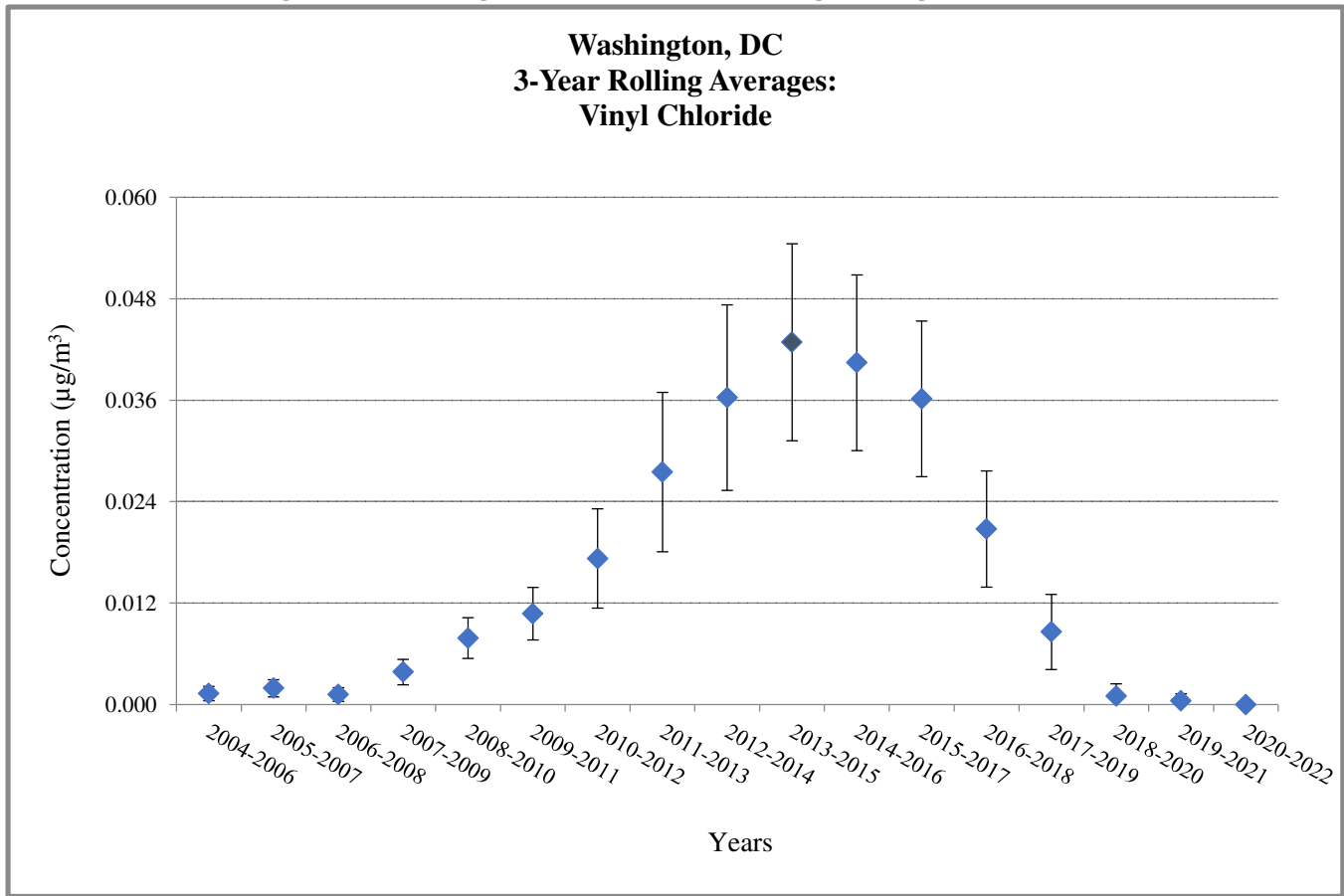
 Does not meet MQO or wasn't able to collect enough samples

Figure 4. Washington, D.C. - 3-Year Rolling Average Concentrations



Does not meet MQO or wasn't able to collect enough samples

Table 6. NATTS Network Assessment: MQO#1 - Completeness Percentage at Washington, D.C.

Year	Benzene	Butadiene, 1,3-	Carbon tetrachloride	Chloroform	Tetrachloroethylene	Trichloroethylene	Vinyl chloride	Acetaldehyde	Formaldehyde	Arsenic (PM10)	Beryllium (PM10)	Cadmium (PM10)	Lead (PM10)	Manganese (PM10)	Nickel (PM10)	Benzo(a)pyrene	Naphthalene
	VOCs							Carbonyls		PM10 Metals						PAHs	
<i>Washington, D.C. (AQS Site Code: 11-001-0043)</i>																	
2004	97	97	97	97	97	97	97	98	89	--a	--a	--a	--a	--a	--a	--	--
2005	98	98	98	98	98	98	98	100	100	100	100	100	100	100	100	--	--
2006	100	100	100	100	100	100	100	100	100	93	93	93	93	93	93	--	--
2007	98	98	98	98	98	98	98	100	100	95	92	95	95	95	95	--	--
2008	100	100	100	100	100	100	100	100	100	93	93	93	93	93	93	--a	--a
2009	100	100	100	100	100	100	100	100	100	102	102	102	102	102	102	95	95
2010	93	93	93	93	93	93	93	100	100	102	102	102	102	102	102	95	95
2011	93	93	93	93	93	93	93	97	97	98	98	98	98	98	98	100	100
2012	97	97	97	97	97	97	97	100	100	102	77	102	102	102	102	100	100
2013	100	100	100	100	100	100	100	100	100	102	102	102	102	102	102	98	98
2014	92	92	92	92	92	92	92	98	98	100	100	100	100	100	100	98	98
2015	100	100	100	100	100	100	100	100	100	98	97	98	98	98	98	100	100
2016	97	97	97	97	97	97	97	98	98	95	97	97	97	97	97	95	95
2017	97	97	97	97	97	97	97	100	100	102	102	102	102	102	102	90	90
2018	102	102	102	102	102	102	102	98	98	102	54	102	102	102	102	95	97
2019	103	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	97
2020	100	100	100	100	100	100	100	102	102	102	102	102	102	102	102	93	93
2021	100	100	100	100	100	100	100	100	100	100	100	100	98	98	100	97	97
2022	100	100	100	100	100	100	100	97	97	100	100	97	100	98	100	97	97

	A-rated: ≥85%
	B-rated: Between 75% to 85%
	Does not meet: ≤75%
	-- No data available

<sup>a</sup>: Scheduled sampling ended midway through the year, thus, the site did not have the opportunity to collect enough samples to meet the 85% MQO.

**Table 7. NATTS Network Assessment: MQO#2 - Reported Method Detection Limits (MDLs) at Washington, D.C.**

Year	Benzene	Butadiene, 1,3-	Carbon tetrachlorid	Chloroform	Tetrachloroethylene	Trichloroethylene	Vinyl chloride	Acetaldehyde	Formaldehyde	Arsenic (PM10)	Beryllium (PM10)	Cadmium (PM10)	Lead (PM10)	Manganese (PM10)	Nickel (PM10)	Benzo(a)pyrene	Naphthalene
	VOCs							Carbonyls		PM10 Metals						PAHs	
<i>Washington, D.C. (AQS Site Code: 11-001-0043)</i>																	
2004	0.25	3.30	1.47	0.30	0.82	0.22	0.91	0.07	0.04	5.22	0.81	0.63	0.07	0.17	0.67	--	--
2005	0.36	3.30	1.65	0.28	0.65	0.17	1.00	--a	--a	6.63	1.60	1.05	0.07	0.32	1.83	--	--
2006	0.15	0.33	0.59	0.15	0.24	0.11	0.37	0.03	0.02	2.30	0.52	0.25	0.04	0.13	0.39	--	--
2007	0.41	0.22	0.74	0.20	0.80	0.32	0.46	2.41	0.13	0.57	0.10	0.02	0.001	0.01	0.03	--	--
2008	0.41	0.44	0.74	0.20	0.80	0.11	0.70	2.41	0.13	0.57	0.10	0.02	0.001	0.01	0.18	0.08	0.02
2009	0.49	0.44	0.74	0.20	0.80	0.21	0.46	0.06	0.03	2.57	0.32	0.13	0.02	0.11	0.48	0.09	0.01
2010	0.25	0.22	0.37	0.10	0.40	0.11	0.23	0.05	0.03	1.60	0.32	0.13	0.02	0.06	0.19	0.07	0.06
2011	0.25	0.22	0.37	0.20	0.40	0.11	0.46	0.02	0.03	1.60	0.25	0.23	0.01	0.02	0.09	0.06	0.01
2012	0.49	0.22	0.74	0.10	0.80	0.11	0.70	0.02	0.01	0.92	0.25	0.24	0.01	0.02	0.09	0.09	0.01
2013	0.49	0.88	0.37	0.20	0.80	0.54	0.46	0.002	0.14	0.72	0.34	0.26	0.01	0.01	0.10	0.09	0.01
2014	0.49	0.88	1.11	0.39	1.20	0.81	0.46	0.02	0.12	0.07	0.32	0.12	0.01	0.01	0.09	0.03	0.01
2015	0.49	0.71	1.11	0.20	0.80	0.81	0.70	0.02	0.31	0.85	0.32	0.12	0.01	0.02	0.09	0.13	0.01
2016	0.27	0.88	0.74	0.13	0.52	0.51	0.19	0.04	0.31	0.85	0.32	0.12	0.01	0.02	0.09	0.06	0.02
2017	0.27	1.53	1.70	0.13	0.52	0.51	0.19	0.02	0.38	0.09	0.01	0.37	0.01	0.06	0.12	0.02	0.06
2018	0.27	0.77	0.78	0.13	0.52	0.51	0.19	0.06	0.60	0.09	0.01	0.05	0.01	0.03	0.07	0.01	0.05
2019	0.41	0.77	0.78	0.20	0.72	0.67	0.58	0.24	1.33	0.06	0.02	0.03	0.01	0.03	0.07	0.01	0.03
2020	0.29	0.49	0.74	0.23	1.28	0.46	0.46	0.22	1.30	0.06	0.02	0.03	0.01	0.08	0.16	0.01	0.03
2021	0.42	0.71	0.78	0.20	0.72	0.51	0.58	0.21	1.01	0.06	0.02	0.03	0.01	0.08	0.16	0.01	0.03
2022	0.42	0.62	0.63	0.20	0.68	0.40	0.42	0.01	0.03	0.06	0.02	0.03	0.01	0.08	0.16	0.01	0.03

- A-rated: MDL to Target MDL ratio ≤ 1
- B-rated" MDL to Target MDL ratio between 1 and 2
- Does Not Meet MDL to Target MDL ratio>2
- No data available

<sup>a</sup>: Pollutant was sampled, but no MDL data were reported to AQS.

**Table 8. NATTS Network Assessment: MQO#3 - Bias Percent Difference at Washington, D.C.**

Year	Benzene	Butadiene, 1,3-	Carbon tetrachloride	Chloroform	Tetrachloroethylene	Trichloroethylene	Vinyl chloride	Acetaldehyde	Formaldehyde	Arsenic (PM10)	Beryllium (PM10)	Cadmium (PM10)	Lead (PM10)	Manganese (PM10)	Nickel (PM10)	Benzo(a)pyrene	Naphthalene
	VOCs							Carbonyls		PM10 Metals						PAHs	
<i>Washington, D.C (AQS Site Code: 11-001-0043)</i>																	
2004	2.2	-10.3	-7.6	3.2	-1.0	-11.6	-12.9	-2.2	-3.9	--a	--a	--a	--a	--a	--a	--	--
2005	-2.3	-5.3	3.0	-5.8	-6.8	-8.7	-19.3	4.4	-6.7	-2.8	18.4	-6.3	-0.6	-7.2	-6.5	--	--
2006	-2.4	2.6	-2.2	-5.2	-9.2	10.3	-10.6	2.7	-8.2	-23.0	-13.8	-16.5	-3.4	-11.7	6.6	--	--
2007	-3.3	3.0	5.3	-3.8	-3.2	2.3	3.3	0.7	-13.2	-3.1	9.6	1.6	5.5	-0.4	7.4	--	--
2008	-1.5	8.8	6.6	-10.1	-1.5	1.1	-8.5	17.1	12.0	4.4	0.8	4.3	0.7	-29.2	-2.5	--a	--a
2009	6.0	2.3	4.6	6.0	6.8	-3.0	12.8	-9.4	-6.8	23.7	41.6	27.7	181.8	3.7	25.7	-1.7	-7.7
2010	1.1	22.0	16.3	-4.1	-1.1	3.7	5.9	1.6	-0.8	17.6	20.0	12.8	3.5	5.9	8.2	-2.3	-17.1
2011	4.0	6.2	-4.9	-14.0	-0.4	-9.7	-5.4	-5.6	-5.8	--a	--a	--a	--a	--a	--a	-2.1	-13.9
2012	--a	--a	--a	--a	--a	--a	--a	--a	--a	-0.1	7.2	8.5	11.4	5.6	-7.4	25.2	21.4
2013	-1.6	-2.0	-12.2	-6.2	-29.5	-4.5	-11.1	7.3	6.3	-7.1	-5.2	-7.6	-4.7	-12.6	-12.4	-5.7	25.5
2014	2.6	11.9	4.1	-1.7	-9.6	2.6	4.7	-13.9	-0.9	-0.6	--b	--b	-5.2	5.3	--c	-16.3	0.7
2015	22.5	-4.3	24.5	2.5	-4.4	-0.6	8.0	--a	--a	--a	--a	--a	--a	--a	--a	-14.2	-11.4
2016	31.0	2.4	53.5	13.9	2.3	7.7	12.2	0.4	-11.5	-6.0	-0.2	-0.5	0.5	2.7	20.8	-10.5	-9.5
2017	8.2	-40.9	15.5	16.6	9.7	4.3	-4.6	15.2	7.1	-2.9	-12.6	-1.3	-2.1	-0.8	10.1	-22.4	-11.6
2018	9.9	-4.5	22.1	9.5	15.1	5.8	4.5	-15.7	5.3	-4.1	-3.7	-1.0	4.5	0.7	5.3	-14.8	-20.7
2019	-0.8	0.9	-7.4	-4.1	-18.8	-5.2	5.8	6.1	19.7	0.8	0.3	0.0	3.9	7.2	0.2	29.3	18.5
2020	1.1	-4.9	20.5	4.0	0.2	0.6	0.6	-10.7	12.9	-2.7	-5.6	-6.7	1.0	-1.6	-6.4	13.1	15.8
2021	28.3	-31.8	-6.9	-4.8	-13.0	-3.8	-14.0	9.9	9.5	-5.9	-7.4	-5.4	-2.9	-3.8	-8.7	0.1	-2.0
2022	64.9	12.6	9.2	13.2	-4.4	5.7	17.1	18.0	9.5	--a	--a	--a	--a	--a	--a	--a	--a

	A-rated: ±25%
	B-rated: Between 25% to 35% or between -25% to -35%
	Does not meet: >35% or <-35%
	-- No data available

<sup>a</sup>: No Proficiency Test samples were sent for this pollutant and year.

<sup>b</sup>: The Proficiency Test sample for this pollutant was 0; the site reported a concentration as "< MDL", rather than 0. EPA accepted this result.

<sup>c</sup>: Although a Proficiency Test sample was sent to the lab supporting this site and year, the results were nullified by EPA due to QA issues.

**Table 9. NATTS Network Assessment: MQO#4 - Overall Method Precision %CV at Washington, D.C.**

Year	Benzene	Butadiene, 1,3-	Carbon tetrachlorid	Chloroform	Tetrachloroethylene	Trichloroethylene	Vinyl chloride	Acetaldehyde	Formaldehyde	Arsenic (PM10)	Beryllium (PM10)	Cadmium (PM10)	Lead (PM10)	Manganese (PM10)	Nickel (PM10)	Benzo(a)pyrene	Naphthalene
	VOCs							Carbonyls		PM10 Metals						PAHs	
<i>Washington, D.C. (AQS Site Code: 11-001-0043)</i>																	
2004	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	0.0	0.0	0.0	0.0	0.0	--a	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	9.2	4.6	2.0	0.0	14.7	0.0	--a	--	--	--	--	--	--	--	--	--	--
2008	2.8	15.1	4.7	6.6	6.8	9.4	--a	--	--	--	--	--	--	--	--	--	--
2009	7.4	16.9	6.9	6.0	5.1	0.0	--a	--	--	--	--	--	--	--	--	--	--
2010	10.6	32.0	7.7	13.4	19.4	24.8	24.6	--	--	--	--	--	--	--	--	--	--
2011	15.2	55.1	15.8	12.3	35.8	47.1	--a	--	--	--	--	--	--	--	--	--	--
2012	24.8	33.5	3.8	12.6	25.0	--a	--a	--	--	--	--	--	--	--	--	--	--
2013	25.1	40.3	12.7	15.2	44.2	--a	59.6	--	--	--	--	--	--	--	--	--	--
2014	16.6	24.6	9.2	7.3	21.2	--a	--a	--	--	--	--	--	--	--	--	--	--
2015	17.4	56.8	8.9	19.2	35.6	--a	--a	--	--	--	--	--	--	--	--	--	--
2016	12.5	29.0	9.4	16.1	25.0	--a	61.2	--	--	--	--	--	--	--	--	--	--
2017	10.2	17.7	5.6	16.8	22.8	--a	47.6	--	--	--	--	--	--	--	--	--	--
2018	8.5	--a	6.8	12.2	14.5	--a	--a	--	--	--	--	--	--	--	--	--	--
2019	7.9	--a	9.0	18.0	18.8	--a	--a	2.7	1.7	--	--	--	--	--	--	--	--
2020	11.7	--a	7.1	14.4	0.0	20.0	--a	7.0	3.1	--	--	--	--	--	--	--	--
2021	10.8	--a	11.1	23.3	0.0	--a	--a	1.1	1.6	--	--	--	--	--	--	--	--
2022	6.8	--a	5.4	9.2	--a	--a	--a	4.8	4.3	--	--	--	--	--	--	--	--

- Green = precision ≤ 15%
- Yellow = precision > 15% to ≤ 25%
- Red = precision > 25%
- Gray = dataset was not rated

<sup>a</sup>: The primary and/or replicate value were less than the MDL, so no calculation could be made.

Table 10. NATTS Network Assessment: MQO#4 - Analytical Method Precision %CV at Washington, D.C.

Year	Benzene	Butadiene, 1,3-	Carbon tetrachloride	Chloroform	Tetrachloroethylene	Trichloroethylene	Vinyl chloride	Acetaldehyde	Formaldehyde	Arsenic (PM10)	Beryllium (PM10)	Cadmium (PM10)	Lead (PM10)	Manganese (PM10)	Nickel (PM10)	Benzo(a)pyrene	Naphthalene
	VOCs							Carbonyls		PM10 Metals						PAHs	
<i>Washington, D.C. (AQS Site Code: 11-001-0043)</i>																	
2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2012	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--b	0.6
2013	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	2.7	3.1
2014	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	5.8	1.3
2015	--a	--a	--a	--a	--a	--a	--a	--a	--a	0.6	--b	1.7	0.7	1.0	0.2	0.5	1.2
2016	--a	--a	--a	--a	--a	--a	--a	--a	--a	0.9	46.7	5.9	36.5	4.5	1.8	0.3	1.0
2017	--a	--a	--a	--a	--a	--a	--a	--a	--a	3.7	59.5	1.3	1.7	1.3	6.6	1.2	1.2
2018	9.5	16.7	16.1	15.2	16.3	--b	--b	0.2	0.6	0.8	--b	8.3	0.8	1.3	0.9	3.1	1.6
2019	26.4	--b	8.4	31.2	43.0	0.0	20.2	2.5	0.8	83.7	--b	16.6	122.4	75.5	20.9	1.6	1.1
2020	3.8	--b	8.1	16.9	23.6	20.2	--b	1.4	0.9	0.9	--b	2.8	1.0	1.0	2.0	1.2	0.8
2021	5.9	--b	11.1	19.4	0.0	--b	--b	0.6	1.3	1.0	5.2	1.2	0.8	1.2	1.4	0.6	1.9
2022	5.2	--b	15.5	17.6	28.3	--b	--b	0.8	0.4	0.8	5.4	1.4	0.8	2.0	2.6	3.8	0.3

	A-rated: ≤ 15% CV
	B-rated: Between 15% CV to 25% CV
	Does Not Meet: >25% CV or did not report Precision (required in the NATTS Workplan Template since 2012)
	-- No data available

<sup>a</sup>: Per the NATTS Workplan template, analytical replicates were required to be reported to AQS for this sampling year.

<sup>b</sup>: The primary and/or replicate value were less than the MDL, so no calculation could be made.

**Appendix A. Equipment Inventory**

<b>Pollutant Type</b>	<b>Year(s)</b>	<b>Manufacturer/Model, Extraction Type, and Year</b>
<b><i>Sampling Equipment</i></b>		
Carbonyls	2004-2010	ATEC 8000 Cartridge Sampler (Year Deployed: 2003)
	2011-2018	ATEC 8000 Cartridge Sampler (Year Deployed: 2011)
	2019-2022	ATEC 8000 Cartridge Sampler (Year Deployed: 2018)
PAHs	2008-2014	General Metal Works Hi-Volume Sampler (Year Deployed: unknown)
	2015-2022	Tisch Environmental PUF+ (Year Deployed: 2015)
PM <sub>10</sub> Metals	2004-2014	General Metal Works Hi-Volume Sampler (Year Deployed: unknown)
	2015-2022	Ecotech HiVol 3000 (Year Deployed: 2015)
VOCs	2004-2010	RM Environmental Systems 910A Canister Sampler (Year Deployed: unknown)
	2011-2015	ATEC 200; RM ESI 910A Sampler (Year Deployed: unknown)
	2016-2017	ATEC 2200 (Year Deployed: 2012)
	2018-2022	ATEC 2200 (Year Deployed: 2018)
<b><i>Analytical Equipment</i></b>		
Carbonyls	2004-2021	Waters Alliance 2695 HPLC with UV/Vis detection (Year Deployed: 2003)
	2022	Waters Alliance 2695 HPLC with UV/Vis detection (Year Deployed: 2003); Agilent Infinity II 1290 UHPLC with variable wavelength detector, and quaternary pump (Year Deployed 2022)
PAHs	2008-2014	HP/Agilent 5890/5971 GC/MS (Year Deployed: 2008)
	2015-2020	HO/Agilent 7890B/5975C GC/MS (Year Deployed: 2015)
	2021-2022	HP/Agilent 7890B/5975C GC/MS (Year Deployed: 2015); HP/Agilent 6890/5973 GC/MS (Year Deployed: 2021)
PM <sub>10</sub> Metals	2004-2010	Varian Ultra Mass ICP/MS (Year Deployed: 2001)
	2011-2022	Agilent 7700x ICP-MS (Year Deployed: 2011)
VOCs	2004-2007	HP/Agilent GC/5973 MS (Year Deployed: unknown)
	2008-2014	Agilent 7890/5975 GC/MS (Year Deployed: 2008)
	2015-2019	Agilent 7890A/5975C GC/MS (Year Deployed: 2008)
	2020-2022	Agilent 7890B/5977B (Year Deployed: 2020)
<b><i>Preconcentrator Equipment</i></b>		
VOCs	2004-2004	Entech 7100, Entech 7100 (Year Deployed: unknown)
	2005-2014	Entech 7100A (Year Deployed: 2003)
	2015-2018	Entech 7150 (Year Deployed: 2012)
	2019-2022	Nutech 8900DS (Year Deployed: 2013)
<b><i>Standards Preparation Equipment</i></b>		
VOCs	2004-2012	Entech 4600A (dynamic dilution) (Year Deployed: 2003)
	2013-2014	Entech 4600A (dynamic dilution) (Year Deployed: unknown)
	2015-2018	Entech 4600D (dynamic dilution) (Year Deployed: 2015)
	2019-2022	Entech 4700D (dynamic dilution) (Year Deployed: 2019)
<b><i>Canister Cleaning Equipment</i></b>		
VOCs	2004-2004	Entech (hot) (Year Deployed: unknown)
	2005-2010	unknown (Year Deployed: unknown)
	2011-2014	Entech 3100A (hot) (Year Deployed: unknown)
	2015-2021	Entech 3100A (hot) (Year Deployed: 2015)
	2022	Entech 3100D (hot) (Year Deployed: 2022)
<b><i>PM<sub>10</sub> Extraction Equipment</i></b>		
PM <sub>10</sub> Metals	2004-2009	Varian (Hotblock) (Year Deployed: 2002)
	2010-2016	Environmental Express (Hotblock) (Year Deployed: 2010)
	2017-2022	SCP Science Digi Prep MS (Year Deployed: 2017)
<b><i>PAHs Extraction Equipment</i></b>		
PAHs	2008-2018	Dionex -300 (ASE) (Year Deployed: 2004)
	2019-2022	Dionex -350 (ASE) (Year Deployed: 2019)