Rochester, NY NATTS Network Assessment Review

- Established 2004: VOCs and Carbonyls
  - Chromium VI added in 2007; ended in in 2013
  - PM_{10} Metals added in 2007
  - 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_{10}): Completeness less than 75% for 2019 and 2021
    - Manganese (PM_{10}): Completeness less than 75% for 2019
  - 275 of 304 pollutant datasets were suitable for trends analysis.
  - Annual Average and 3-Year Rolling Average Concentrations were generally decreasing over time for benzene, 1,3-butadiene, cadmium (PM_{10}), lead (PM_{10}), naphthalene, tetrachloroethylene, trichloroethylene, and vinyl chloride.
  - ~96% Reporting of Datasets
- Method Quality Objectives (MQO): 2004-2022
  - Completeness: Met 85% completeness in 245 of 304 pollutant datasets
  - Method Detection Limits: Met MDL Target Ratio of 1.00 in 287 of 315 pollutant datasets
  - Bias: Met ±25% for 241 of 275 pollutant datasets
  - Overall Method Precision: Met ≤15% CV for 4 of 5 pollutant datasets
  - Analytical Method Precision: Met ≤15% CV for 100 of 183 pollutant datasets
- Analytical Laboratories for 2022

VOC	Carbonyl	PM_{10} Metals	PAHs
NYSDEC	NYSDEC	RTI	ERG

- Equipment Year Deployed

Equipment Type	VOC	Carbonyl	PM_{10} Metals	PAHs
Sampler	2015	2015	2016	2015
Analytical	2016	2019	2016	2021
Preconcentrator	2016	NA	NA	NA
Standards Preparation	2015	NA	NA	NA
Canister Cleaning	2010	NA	NA	NA
Extraction	NA	NA	2015	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

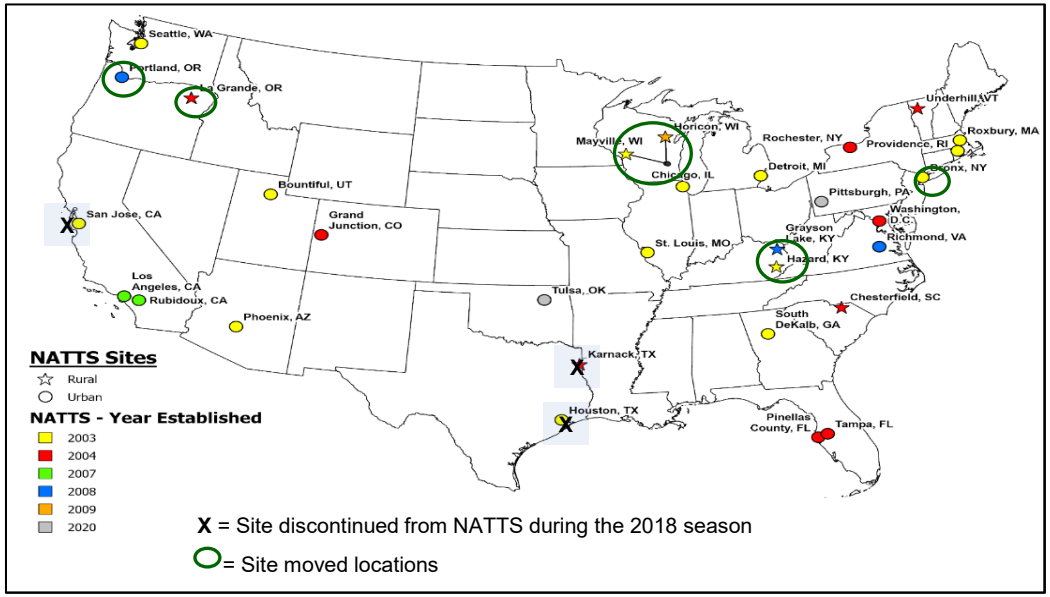


Table 1. NATTS Network Assessment: Count and Percentage of Suitable Datasets by Pollutant Group

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

[a] Acrolein and ethylene oxide were not assessed due to sampling and analytical issues

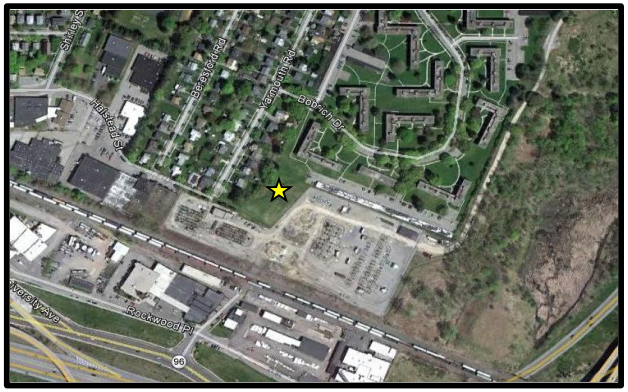
[b] Hexavalent chromium (not assessed) was discontinued in 2013

NATTS Monitoring Site Report: Rochester, NY

Site Information

Region	2
NATTS Site Type	Urban
County	Monroe
AQS Site Code	36-055-1007
NATTS Operating Agency	NY State Dept. Of Env. Conserv.
Latitude	43.146198
Longitude	-77.54813
AQS Land Use	Residential
AQS Location Setting	Urban/City Center
County Population (2023)	748,482

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	Y	N(a)	Y	N(a)	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Arsenic (PM_{10})	N(b)	N(b)	N(b)	Y	Y	Y	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(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Benzo(a)pyrene	--	--	--	--	--	N(a)	N(a)	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Beryllium (PM_{10})	N(b)	N(b)	N(b)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Butadiene, 1,3-	--	Y	N(c)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Cadmium (PM_{10})	N(b)	N(b)	N(b)	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	N(c)	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(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Formaldehyde	--	Y	Y	N(a)	Y	N(a)	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Lead (PM_{10})	N(b)	N(b)	N(b)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Manganese (PM_{10})	N(b)	N(b)	N(b)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Naphthalene	--	--	--	--	--	N(a)	N(a)	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Nickel (PM_{10})	N(b)	N(b)	N(b)	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(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(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Vinyl chloride	--	Y	N(c)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)

[a]: Completeness was less than 75% based on 1-in-6 day sampling.

[b]: Pollutant was expected, but not sampled at this site for this year.

[c]: Reported MDL to NATTS Target Ratio greater than 2.0.

Table 3. NATTS Network Assessment Data (2003-2022) - National Distribution Statistics By Type[a]

Analyte	Units	Site Type	# Data Records	% Detections	Arithmetic Mean[b]	Percentile Value[c]						
						5th	10th	25th	50th	75th	90th	95th
Acetaldehyde	µg/m^3	Urban	22,000	100%	1.73 ± 0.02	0.50	0.65	0.95	1.42	2.15	3.19	3.96
	µg/m^3	Rural	6,392	100%	1.17 ± 0.03	0.36	0.45	0.65	0.92	1.35	1.98	2.67
	µg/m^3	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_{10})	ng/m^3	Urban	21,944	95%	0.87 ± 0.03	0.03	0.16	0.32	0.56	0.96	1.65	2.37
	ng/m^3	Rural	6,385	96%	0.49 ± 0.02	0.03	0.08	0.16	0.35	0.58	0.93	1.30
	ng/m^3	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^3	Urban	22,246	99%	0.85 ± 0.01	0.23	0.29	0.42	0.64	1.02	1.62	2.20
	µg/m^3	Rural	5,932	90%	0.52 ± 0.01	ND	0.06	0.20	0.38	0.67	1.08	1.51
	µg/m^3	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^3	Urban	17,810	73%	0.10 ± 0.01	ND	ND	ND	0.04	0.10	0.23	0.35
	ng/m^3	Rural	4,735	37%	0.07 ± 0.01	ND	ND	ND	ND	0.02	0.19	0.38
	ng/m^3	All Sites	22,545	65%	0.09 ± 0.01	ND	ND	ND	0.03	0.09	0.22	0.35
Beryllium (PM_{10})	ng/m^3	Urban	21,786	77%	0.042 ± 0.004	ND	ND	0.0005	0.005	0.015	0.043	0.098
	ng/m^3	Rural	6,062	49%	0.018 ± 0.002	ND	ND	ND	ND	0.004	0.012	0.041
	ng/m^3	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^3	Urban	22,220	78%	0.092 ± 0.002	ND	ND	0.018	0.051	0.110	0.215	0.317
	µg/m^3	Rural	5,940	29%	0.017 ± 0.001	ND	ND	ND	ND	0.011	0.054	0.104
	µg/m^3	All Sites	28,160	68%	0.076 ± 0.002	ND	ND	ND	0.039	0.092	0.190	0.283
Cadmium (PM_{10})	ng/m^3	Urban	21,954	93%	0.184 ± 0.014	ND	0.019	0.043	0.081	0.160	0.354	0.572
	ng/m^3	Rural	6,067	89%	0.092 ± 0.005	ND	ND	0.026	0.055	0.099	0.179	0.270
	ng/m^3	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^3	Urban	22,202	98%	0.556 ± 0.002	0.336	0.423	0.486	0.550	0.638	0.725	0.784
	µg/m^3	Rural	5,909	84%	0.494 ± 0.010	ND	ND	0.342	0.533	0.629	0.728	0.807
	µg/m^3	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^3	Urban	22,218	88%	0.243 ± 0.016	ND	ND	0.094	0.129	0.205	0.398	0.630
	µg/m^3	Rural	5,942	56%	0.062 ± 0.002	ND	ND	ND	0.049	0.098	0.134	0.228
	µg/m^3	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[a]

Analyte	Units	Site Type	# Data Records	% Detections	Arithmetic Mean[b]	Percentile Value[c]						
						5th	10th	25th	50th	75th	90th	95th
Formaldehyde	µg/m^3	Urban	22,024	100%	3.03 ± 0.04	0.69	1.00	1.57	2.42	3.72	5.47	6.95
	µg/m^3	Rural	6,432	100%	2.16 ± 0.04	0.49	0.64	1.03	1.67	2.69	4.12	5.34
	µg/m^3	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_{10})	ng/m^3	Urban	21,955	100%	3.97 ± 0.10	0.70	0.95	1.46	2.49	4.34	7.87	11.16
	ng/m^3	Rural	6,066	99%	1.93 ± 0.14	0.34	0.45	0.75	1.27	2.14	3.59	4.96
	ng/m^3	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_{10})	ng/m^3	Urban	21,906	100%	9.76 ± 0.25	1.06	1.49	2.53	4.96	10.43	20.40	30.79
	ng/m^3	Rural	6,067	99%	3.79 ± 0.12	0.48	0.74	1.34	2.48	4.49	8.08	11.64
	ng/m^3	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^3	Urban	17,811	100%	67.25 ± 0.97	13.42	18.03	28.73	49.00	84.13	136.42	180.00
	ng/m^3	Rural	4,732	98%	21.76 ± 1.02	2.79	4.04	6.84	12.47	23.51	45.68	69.01
	ng/m^3	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_{10})	ng/m^3	Urban	21,958	98%	1.76 ± 0.05	0.29	0.40	0.62	1.02	1.86	3.32	5.05
	ng/m^3	Rural	5,989	85%	0.56 ± 0.07	ND	ND	0.10	0.26	0.53	0.96	1.63
	ng/m^3	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^3	Urban	22,209	84%	0.24 ± 0.05	ND	ND	0.05	0.12	0.22	0.43	0.68
	µg/m^3	Rural	5,936	38%	0.07 ± 0.02	ND	ND	ND	ND	0.04	0.12	0.31
	µg/m^3	All Sites	28,145	75%	0.21 ± 0.04	ND	ND	ND	0.08	0.20	0.38	0.61
Trichloroethylene	µg/m^3	Urban	22,204	43%	0.040 ± 0.008	ND	ND	ND	ND	0.043	0.096	0.152
	µg/m^3	Rural	5,922	19%	0.019 ± 0.003	ND	ND	ND	ND	ND	0.029	0.124
	µg/m^3	All Sites	28,126	38%	0.036 ± 0.006	ND	ND	ND	ND	0.033	0.085	0.148
Vinyl Chloride	µg/m^3	Urban	22,021	18%	0.0046 ± 0.0003	ND	ND	ND	ND	ND	0.0126	0.0251
	µg/m^3	Rural	5,940	13%	0.0070 ± 0.0008	ND	ND	ND	ND	ND	0.0125	0.0304
	µg/m^3	All Sites	27,961	17%	0.0051 ± 0.0003	ND	ND	ND	ND	ND	0.0126	0.0253

[a] Statistics presented are from pollutant datasets which were suitable for trends.

[b] 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.

[c] ND: No results of this chemical were registered by the laboratory analytical equipment.

Table 4. Summary Statistics for Rochester, NY

Analyte	Units	# Data Records	% Detection	Arithmetic Mean[a]	Percentile Value[b]						
					5th	10th	25th	50th	75th	90th	95th
Acetaldehyde	µg/m^3	1,008	100%	0.95 ± 0.03	0.39	0.48	0.64	0.87	1.15	1.47	1.74
Arsenic (PM_{10})	ng/m^3	880	99%	0.63 ± 0.03	0.14	0.17	0.30	0.53	0.83	1.16	1.47
Benzene	µg/m^3	1,049	100%	0.54 ± 0.02	0.21	0.25	0.33	0.47	0.66	0.92	1.13
Benzo(a)pyrene	ng/m^3	751	93%	0.11 ± 0.02	ND	0.03	0.05	0.08	0.13	0.22	0.29
Beryllium (PM_{10})	ng/m^3	879	79%	0.0049 ± 0.0004	ND	ND	0.001	0.003	0.01	0.012	0.015
Butadiene, 1,3-	µg/m^3	1,049	75%	0.036 ± 0.002	ND	ND	0.01	0.03	0.05	0.08	0.11
Cadmium (PM_{10})	ng/m^3	880	100%	0.074 ± 0.004	0.02	0.03	0.04	0.06	0.09	0.13	0.16
Carbon Tetrachloride	µg/m^3	1,049	100%	0.58 ± 0.01	0.47	0.48	0.51	0.55	0.63	0.72	0.77
Chloroform	µg/m^3	1,049	100%	0.12 ± 0.00	0.07	0.08	0.09	0.11	0.13	0.17	0.20
Formaldehyde	µg/m^3	1,007	100%	1.75 ± 0.09	0.56	0.71	1.04	1.46	2.11	2.91	3.60
Lead (PM_{10})	ng/m^3	879	100%	2.08 ± 0.11	0.56	0.72	1.11	1.71	2.59	3.65	4.75
Manganese (PM_{10})	ng/m^3	880	100%	3.54 ± 0.15	0.89	1.24	1.98	3.03	4.55	6.26	7.64
Naphthalene	ng/m^3	751	100%	48.25 ± 2.51	13.70	17.05	24.46	37.40	61.00	94.02	118.19
Nickel (PM_{10})	ng/m^3	880	100%	0.87 ± 0.07	0.29	0.35	0.47	0.64	0.97	1.49	1.91
Tetrachloroethylene	µg/m^3	1,049	98%	0.11 ± 0.01	0.03	0.04	0.05	0.08	0.14	0.21	0.28
Trichloroethylene	µg/m^3	1,049	74%	0.05 ± 0.01	ND	ND	ND	0.02	0.06	0.10	0.13
Vinyl Chloride	µg/m^3	1,049	38%	0.0085 ± 0.0010	ND	ND	ND	ND	0.01	0.03	0.04

[a] :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.

[b] 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
VOCs	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC
Carbonyls	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC	NYSDEC
PM_{10} Metals	--	--	--	RTI	RTI	RTI	RTI	RTI	RTI	RTI	RTI	RTI	RTI	RTI	RTI
PAHs	--	--	--	--	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG	ERG

Pollutant Group	2019	2020	2021	2022
VOCs	NYSDEC	NYSDEC	NYSDEC	NYSDEC
Carbonyls	NYSDEC	NYSDEC	NYSDEC	NYSDEC
PM_{10} Metals	RTI	RTI	RTI	RTI
PAHs	ERG	ERG	ERG	ERG

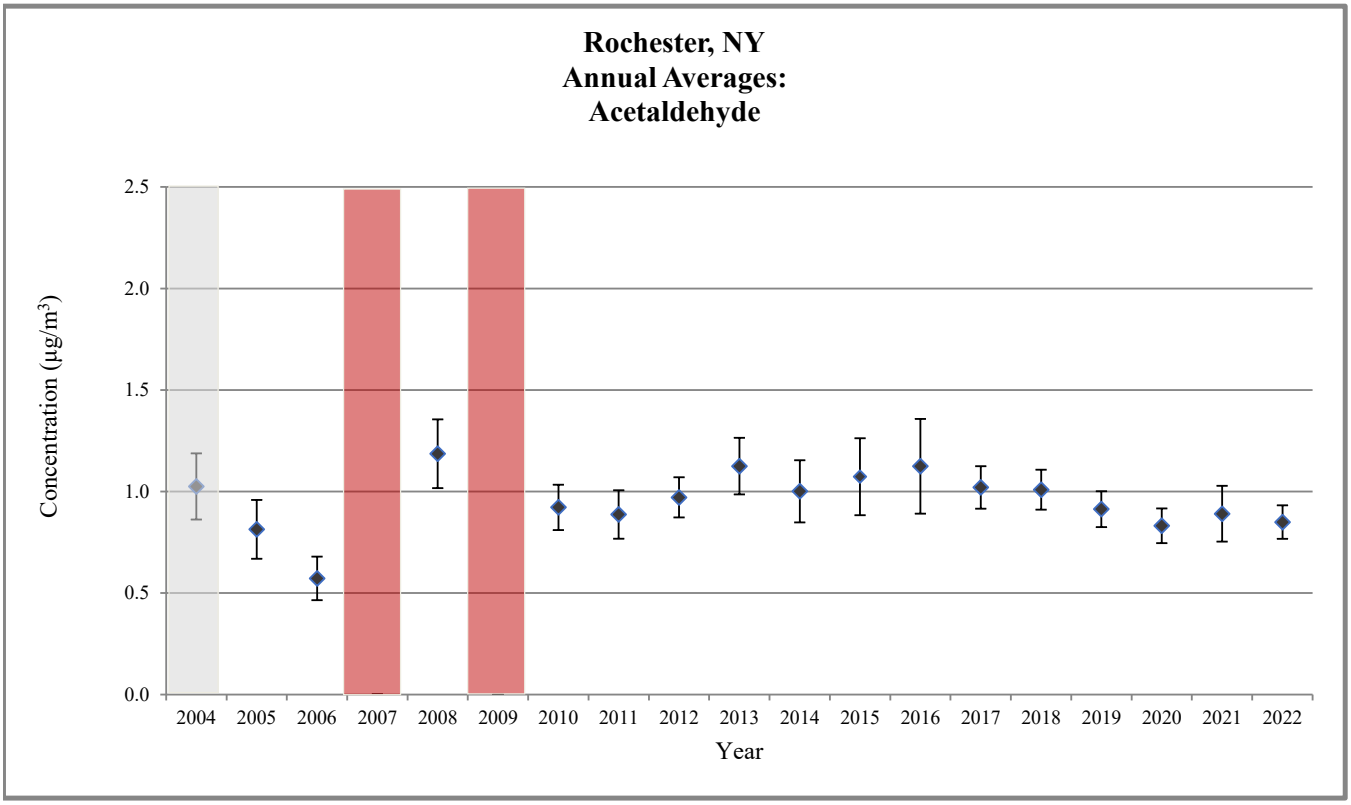
--: Not Applicable

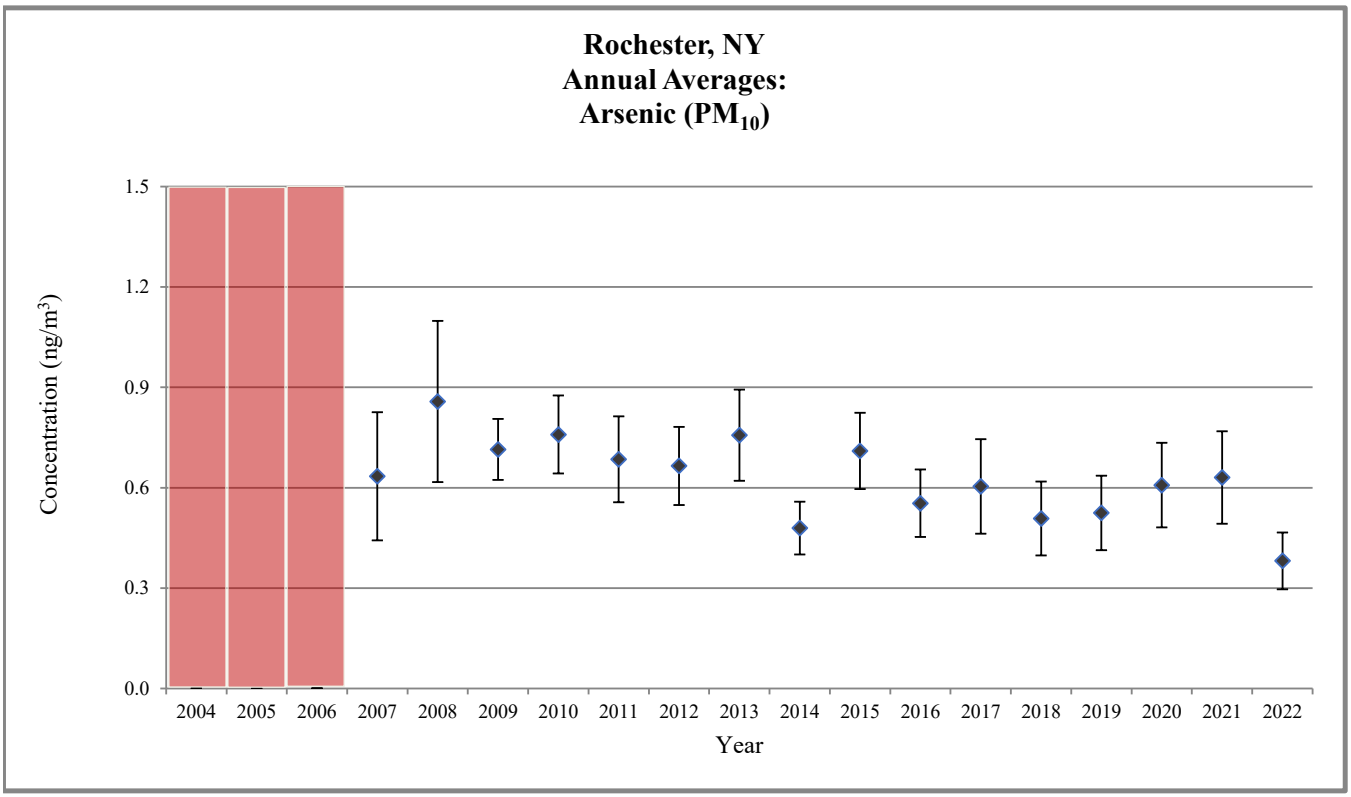
NYSDEC: New York State Department of Environmen

RTI: RTI International

ERG: Eastern Research Group, Inc.

Figure 3. Rochester, NY Annual Average Concentrations

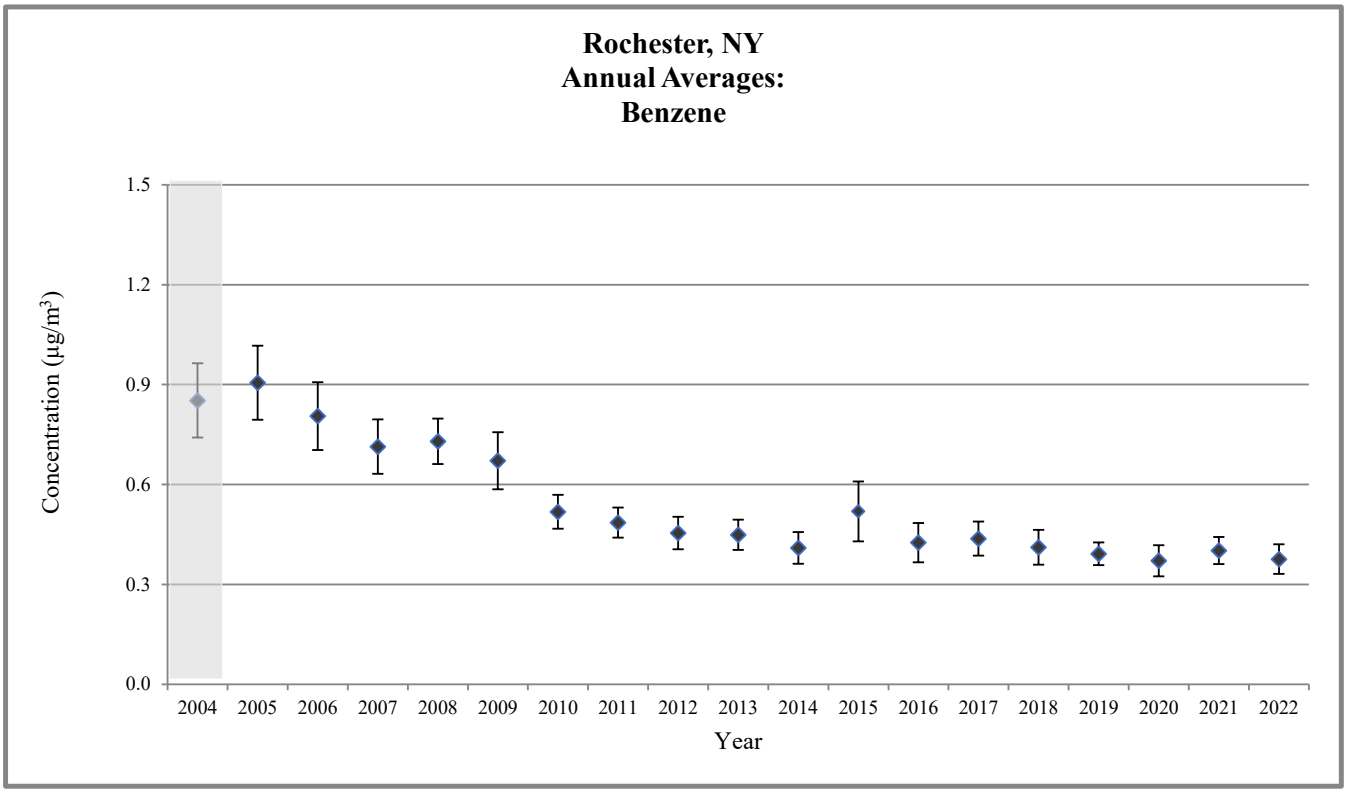


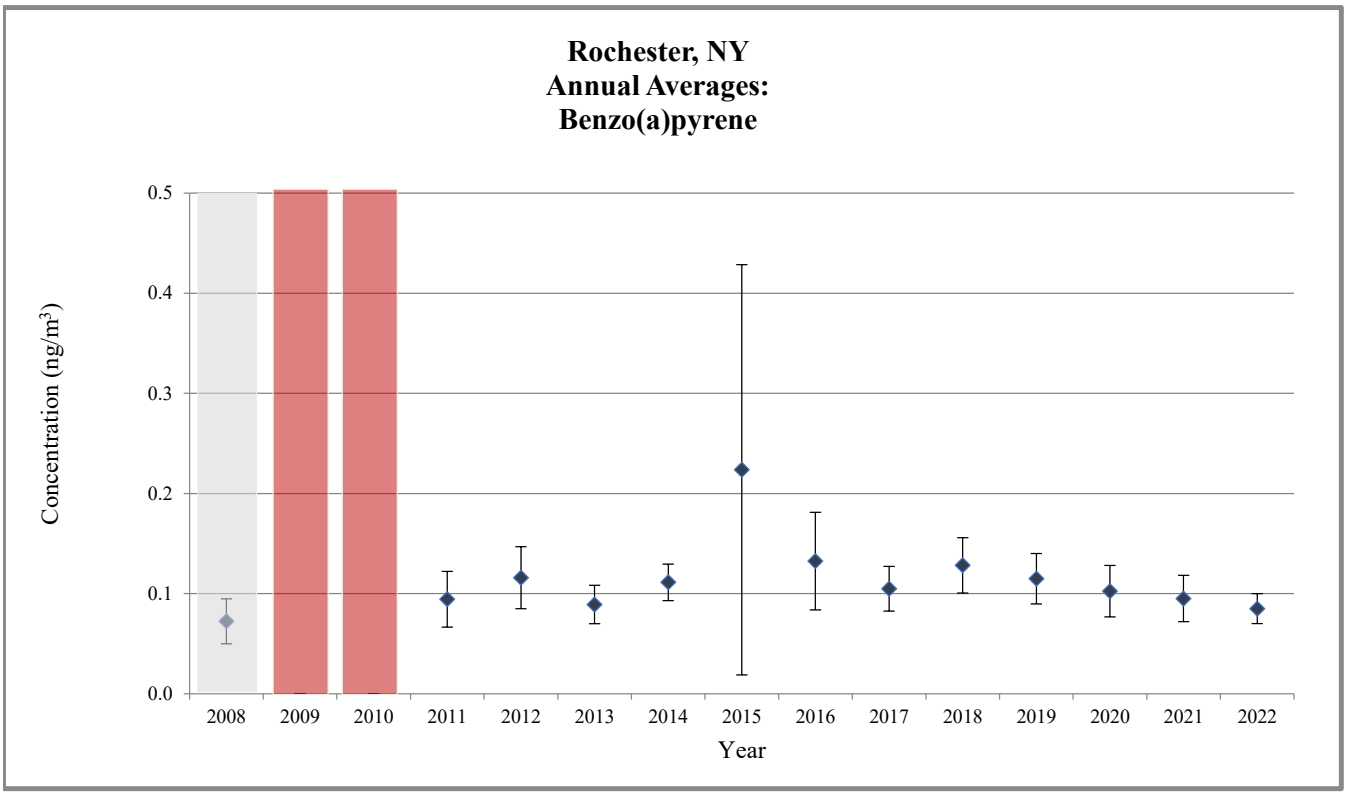


Does not meet MQO

Sampling began midway through the year.

Figure 3. Rochester, NY Annual Average Concentrations

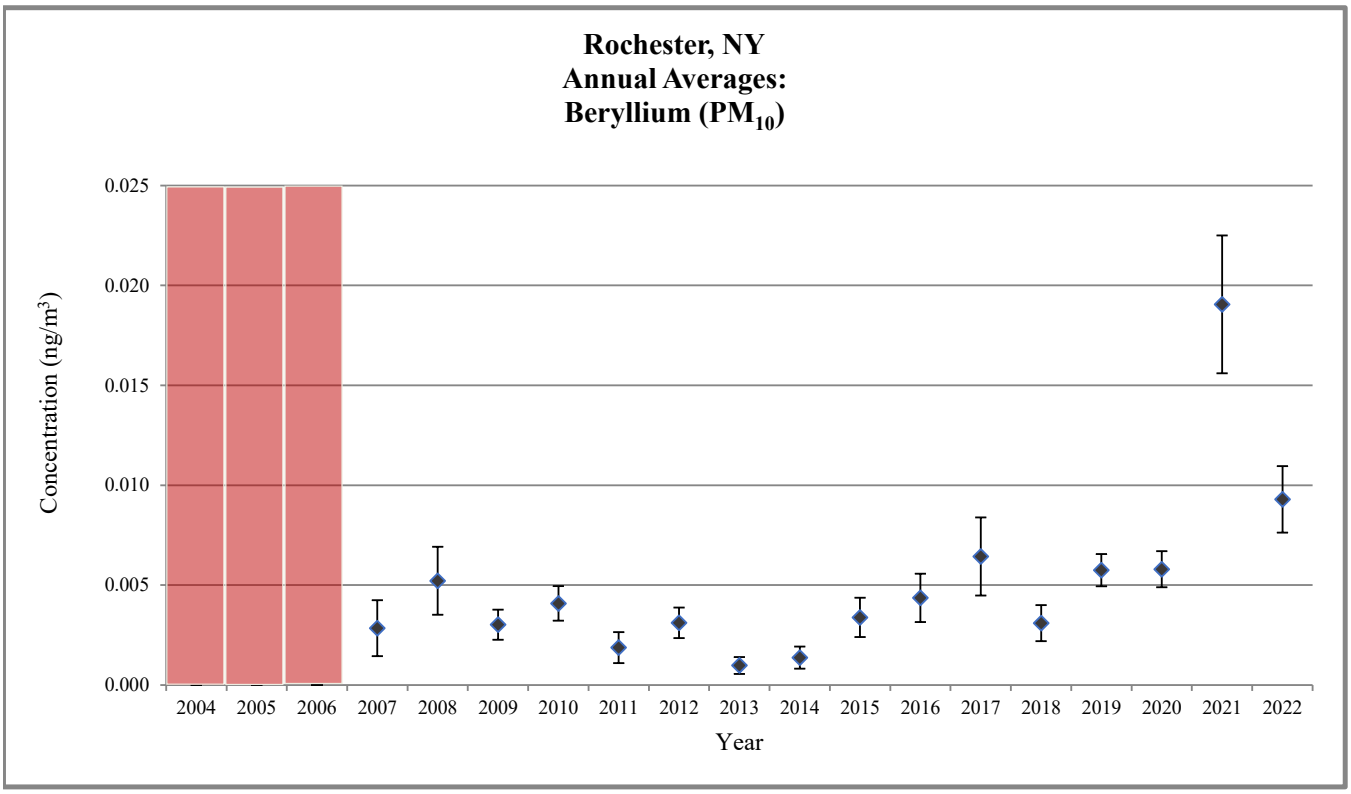


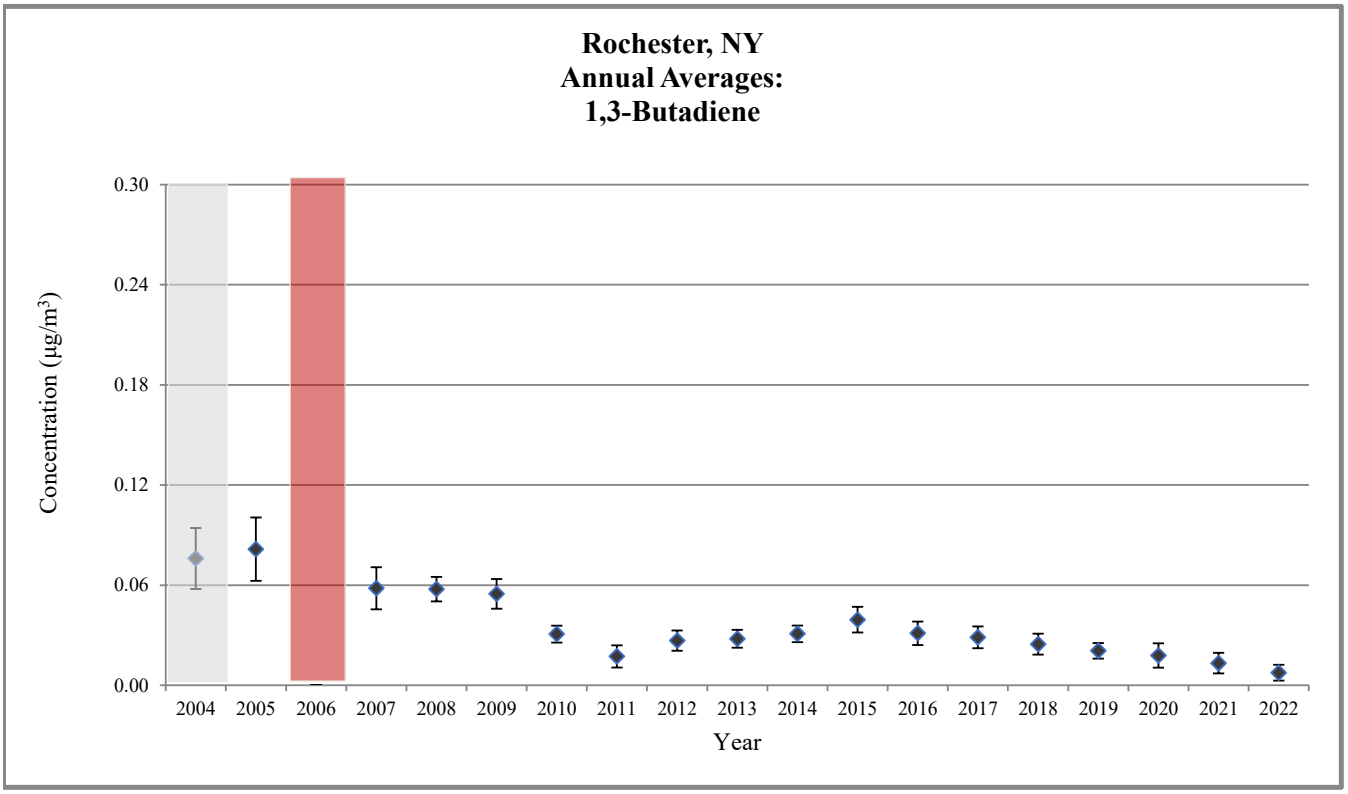


Does not meet MQO

Sampling began midway through the year.

Figure 3. Rochester, NY Annual Average Concentrations

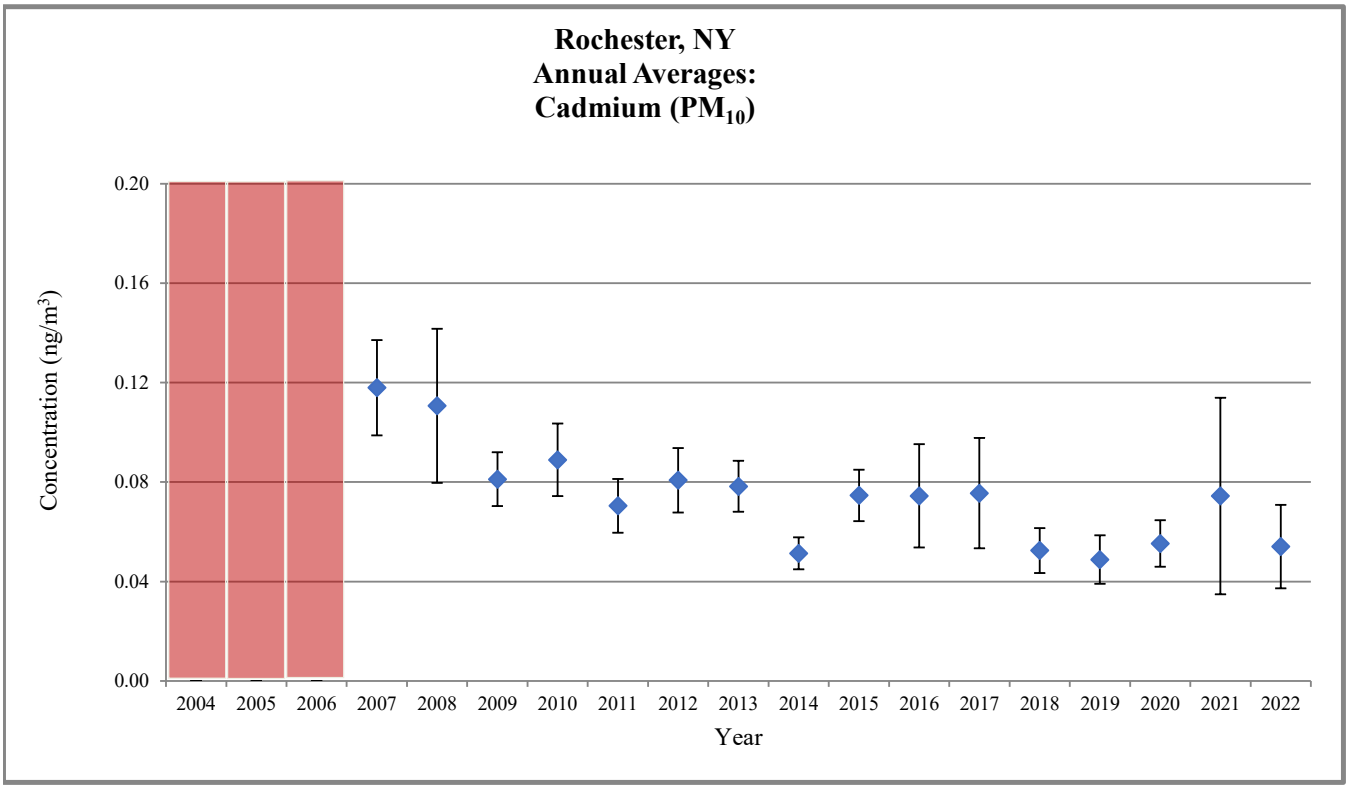


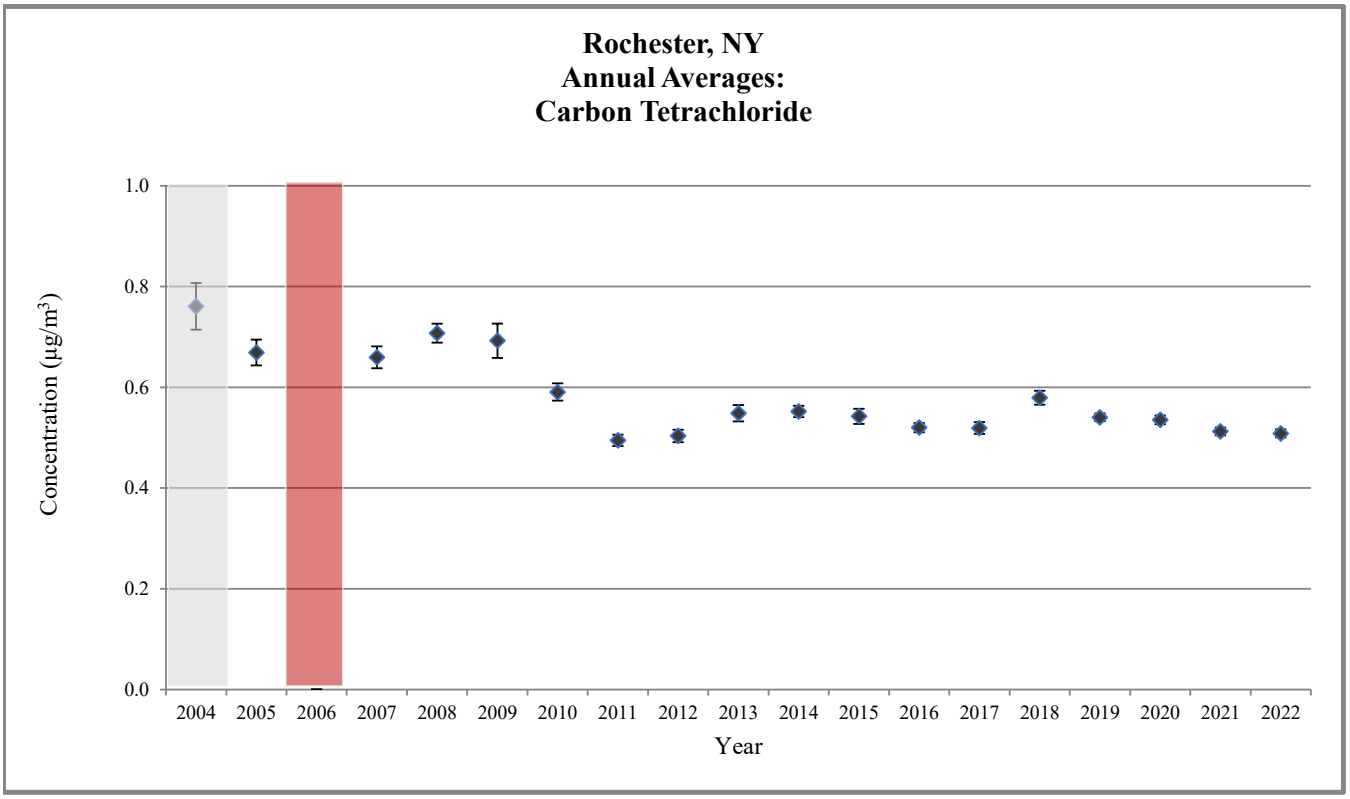


Does not meet MQO

Sampling began midway through the year.

Figure 3. Rochester, NY Annual Average Concentrations

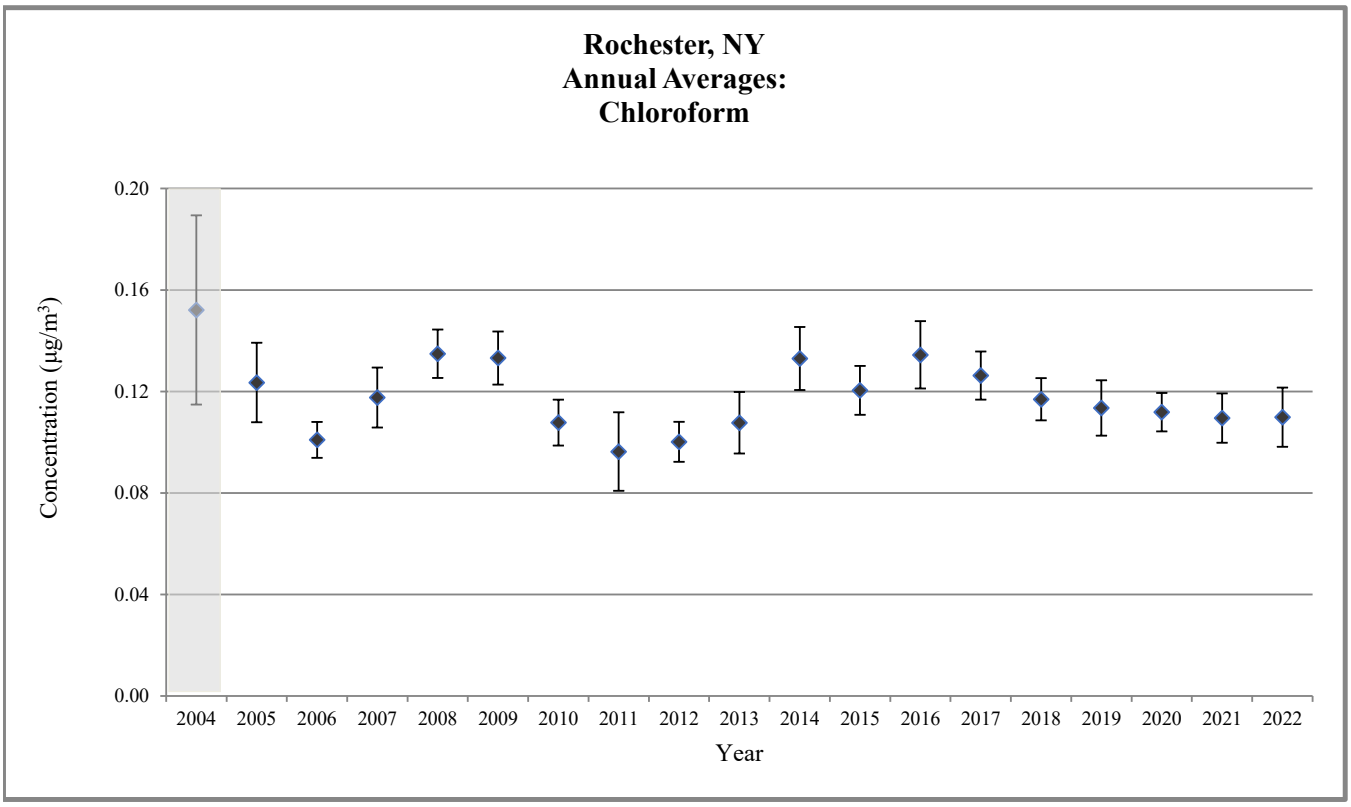


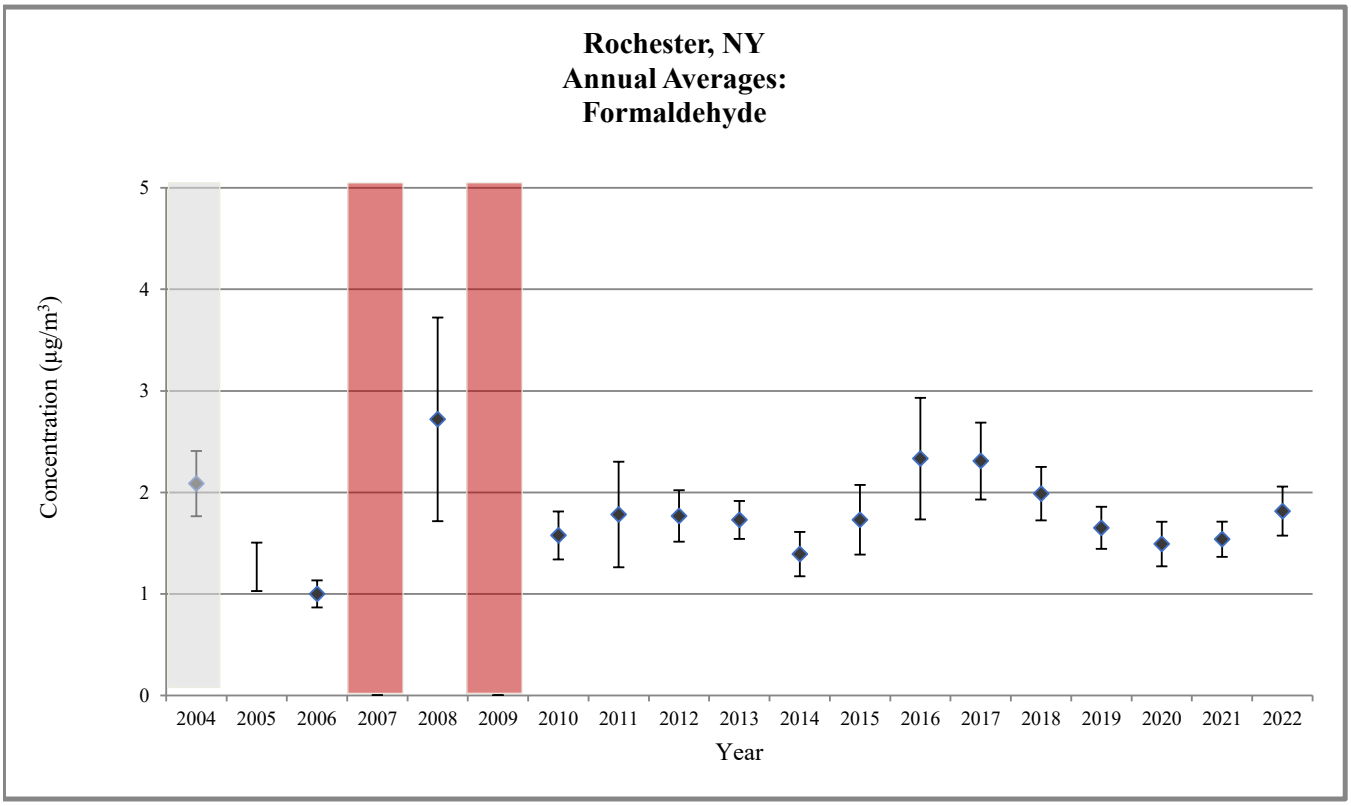


Does not meet MQO

Sampling began midway through the year.

Figure 3. Rochester, NY Annual Average Concentrations

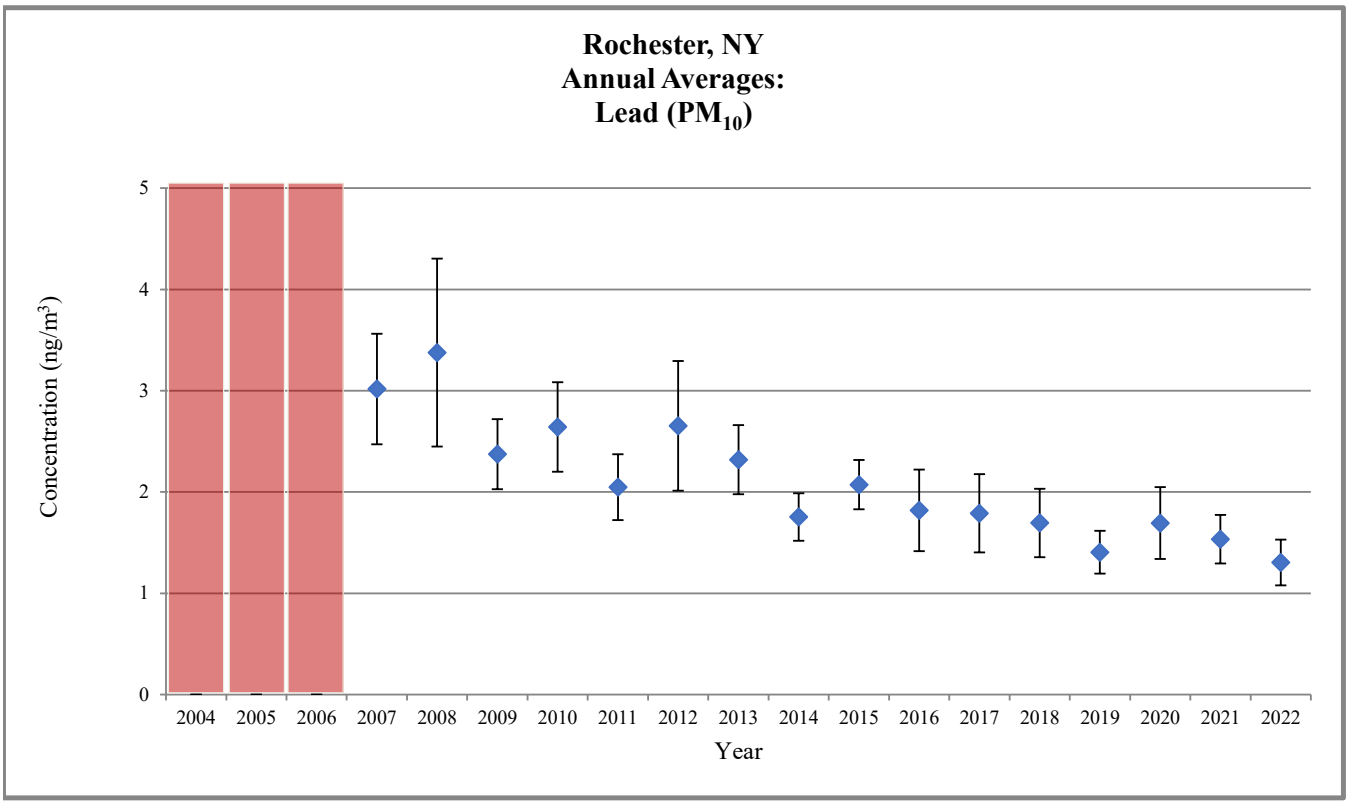


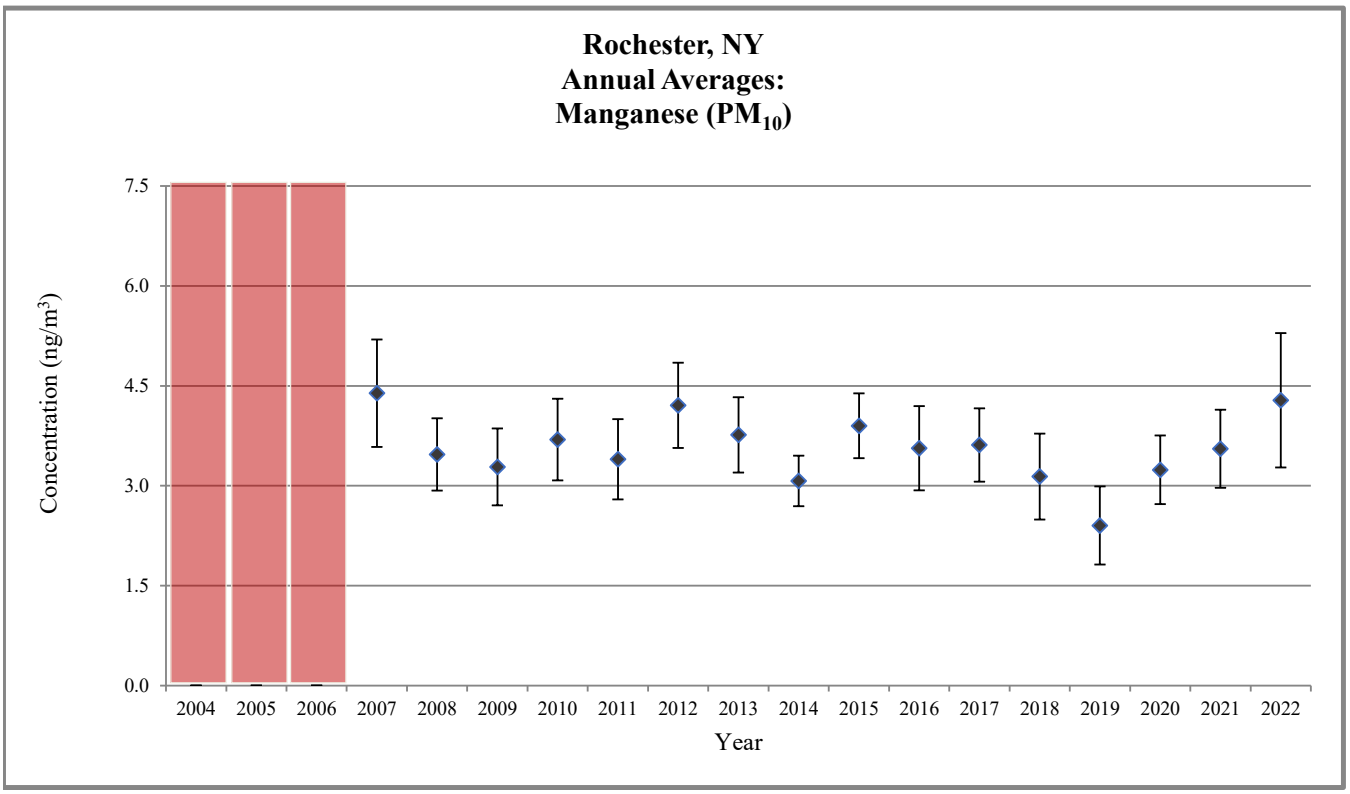


Does not meet MQO

Sampling began midway through the year.

Figure 3. Rochester, NY Annual Average Concentrations

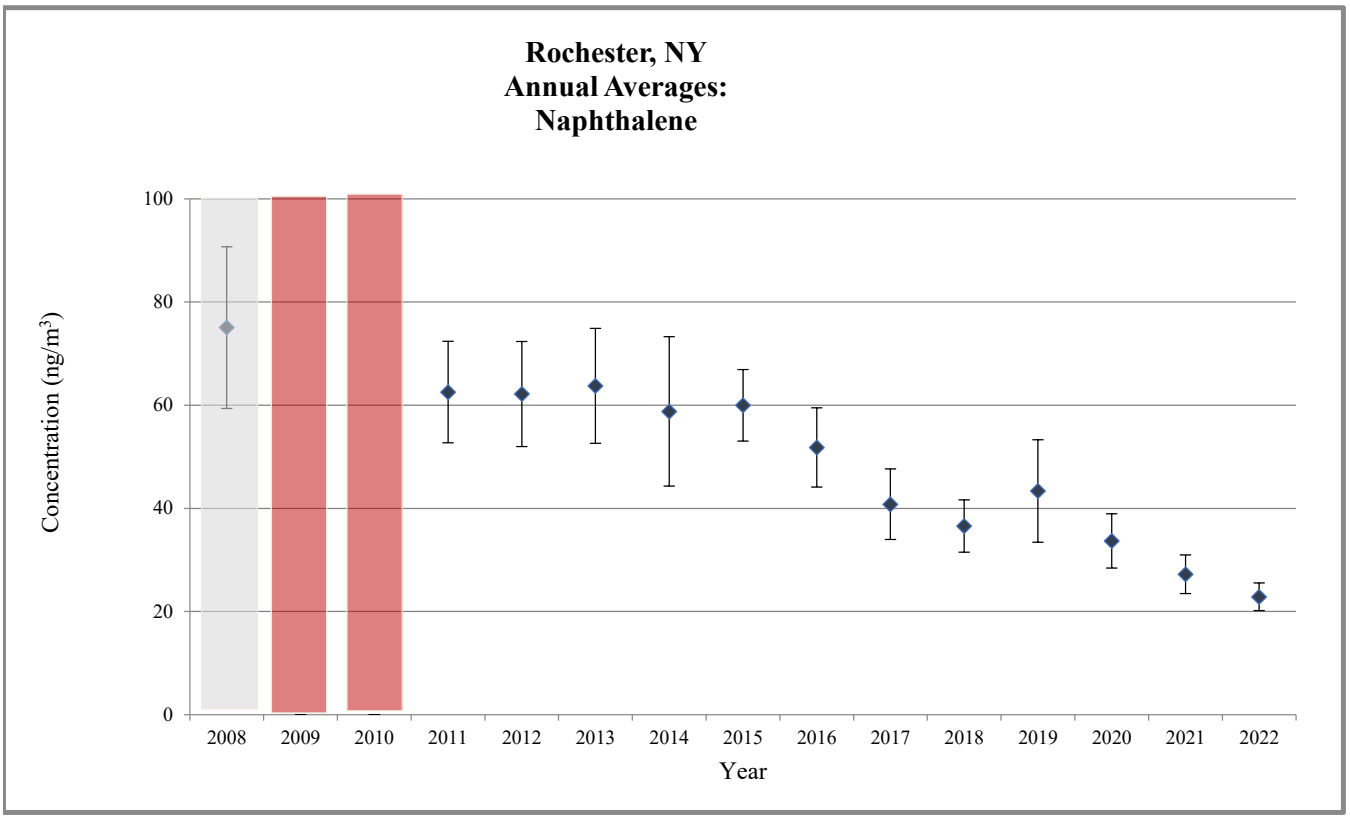




Does not meet MQO

Sampling began midway through the year.

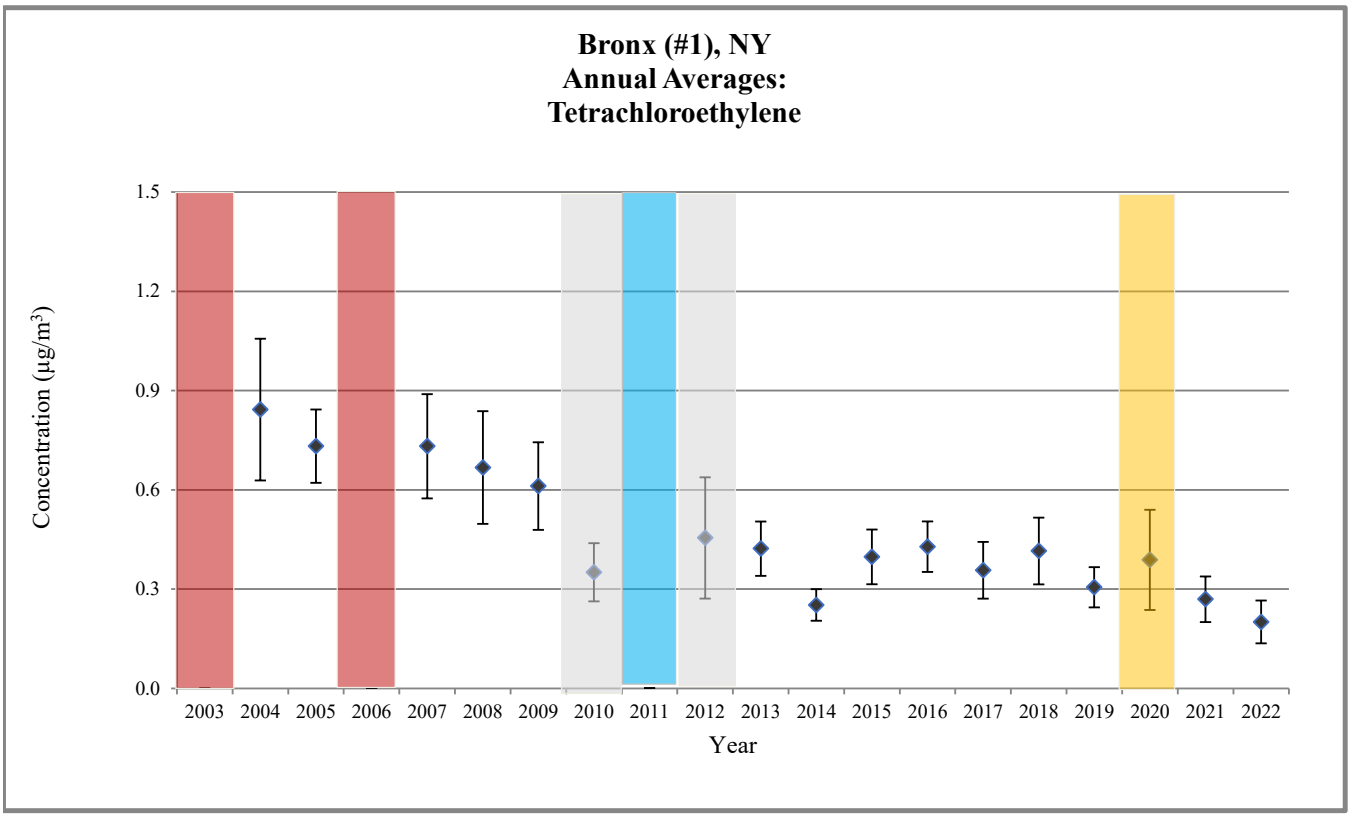
Figure 3. Rochester, NY Annual Average Concentrations

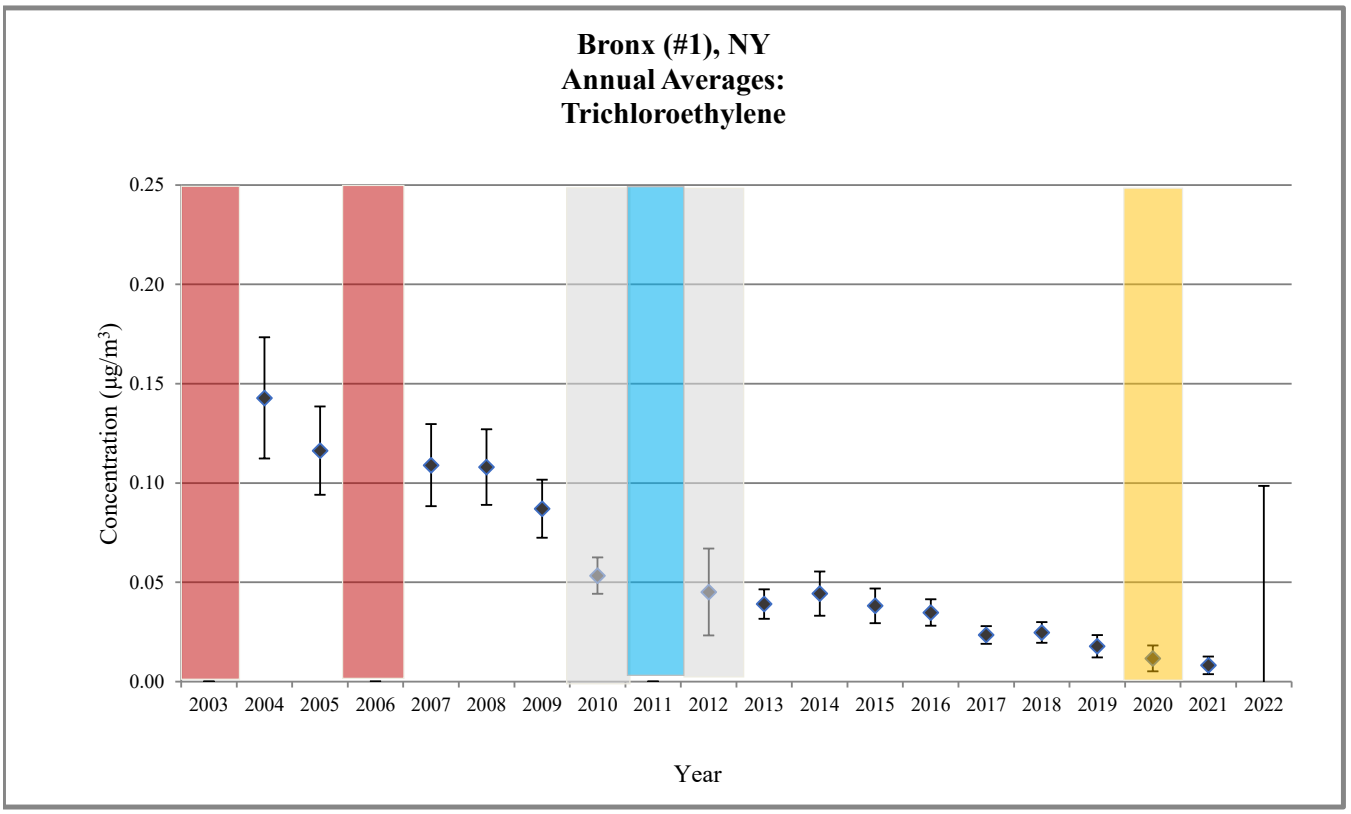


Does not meet MQO

Sampling began midway through the year.

Figure 3. Rochester, NY Annual Average Concentrations

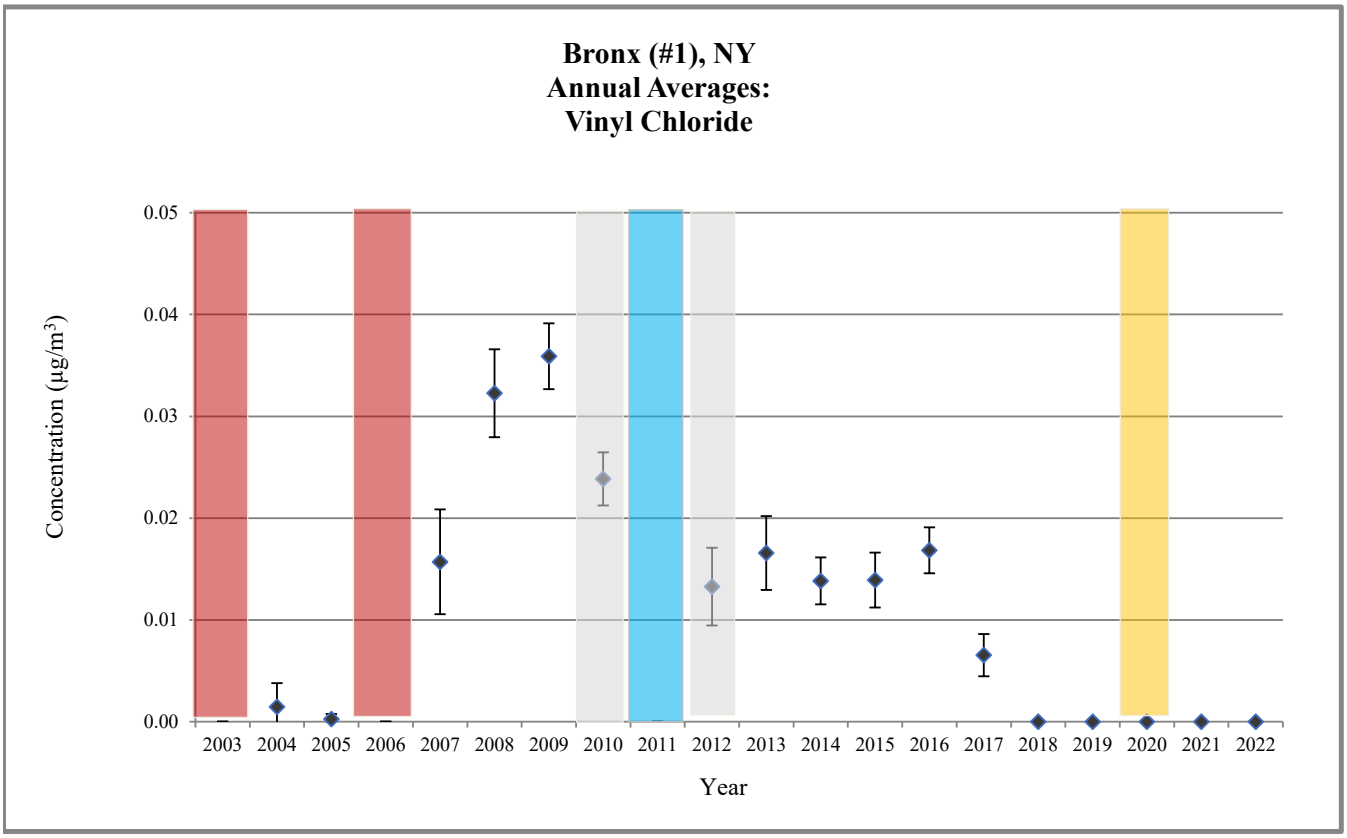




Does not meet MQO

Sampling began midway through the year.

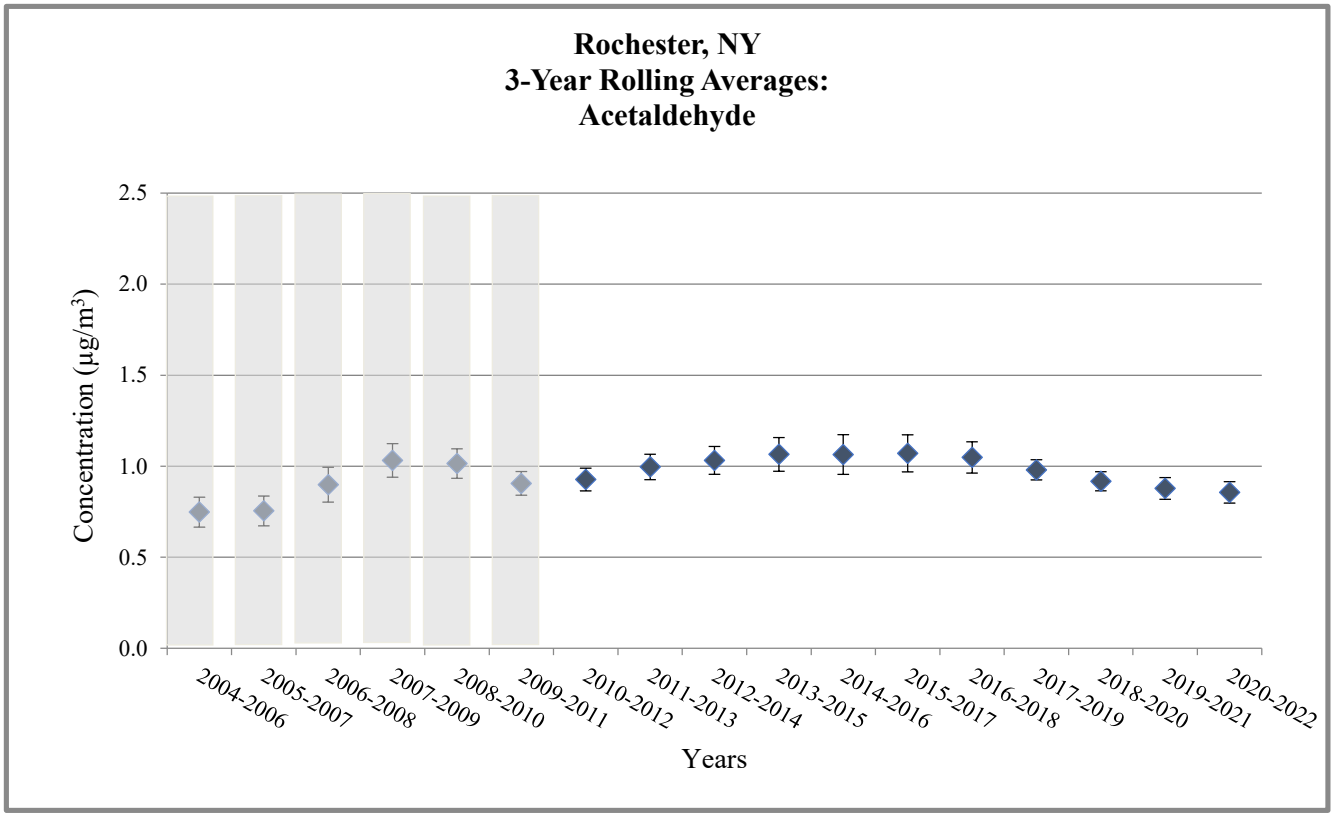
Figure 3. Rochester, NY Annual Average Concentrations

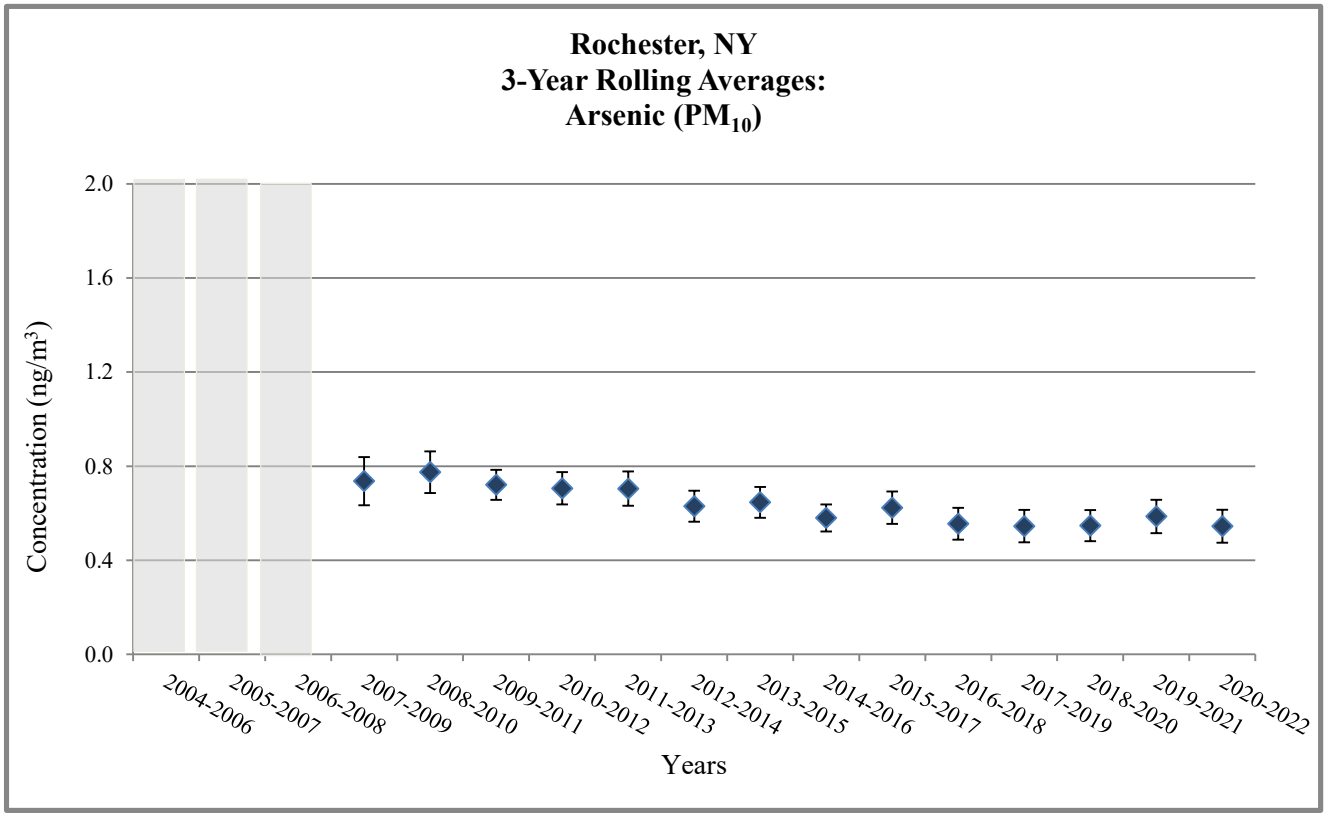


Does not meet MQO

Sampling began midway through the year.

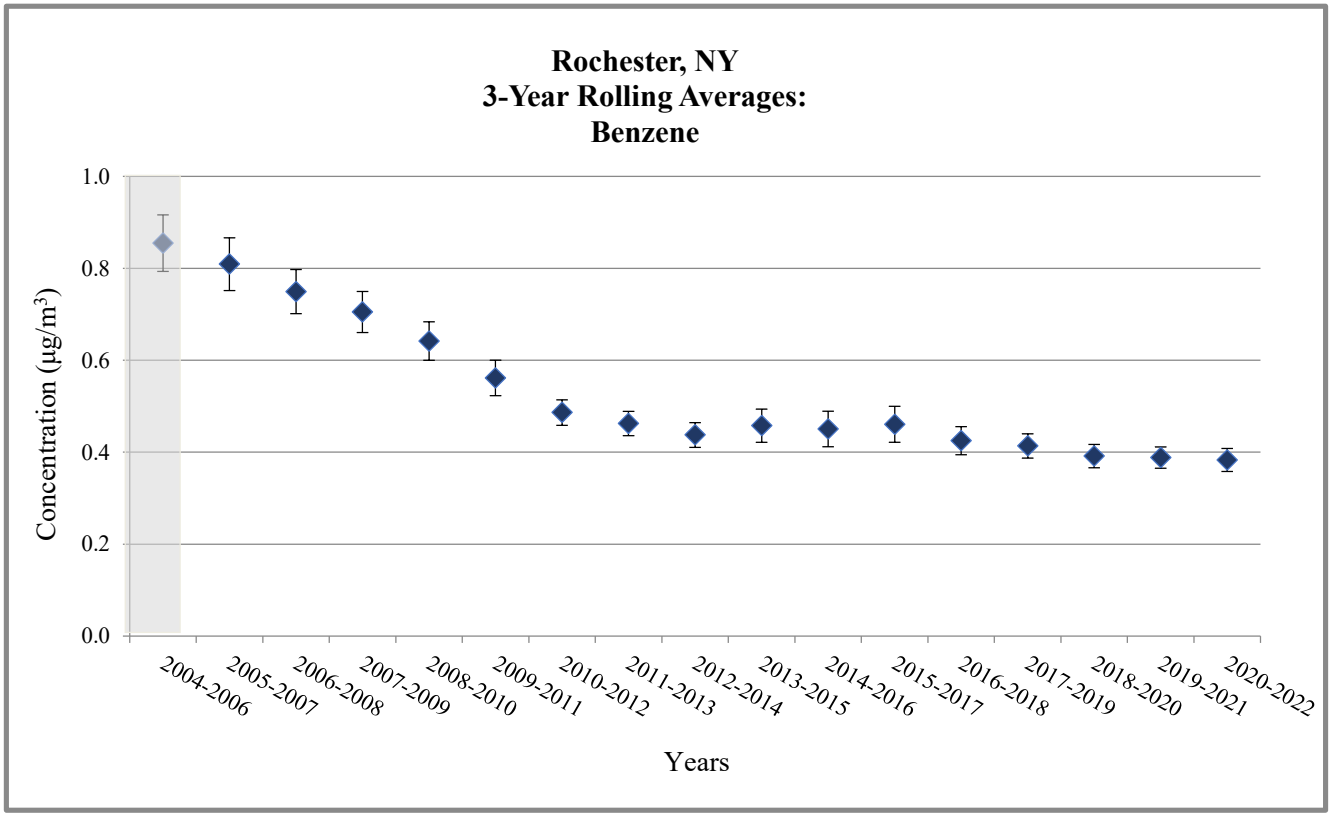
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

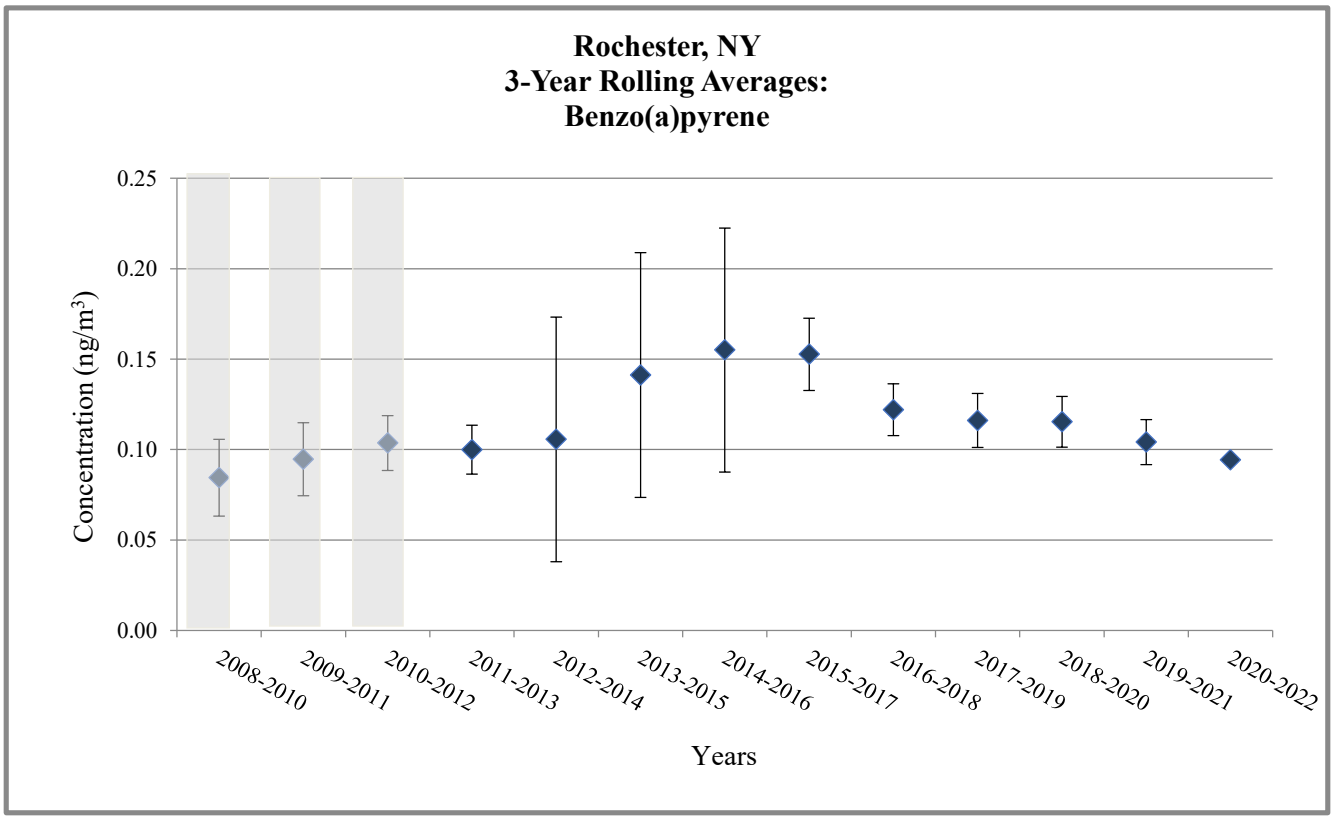




Does not meet MQO or wasn't able to collect enough samples

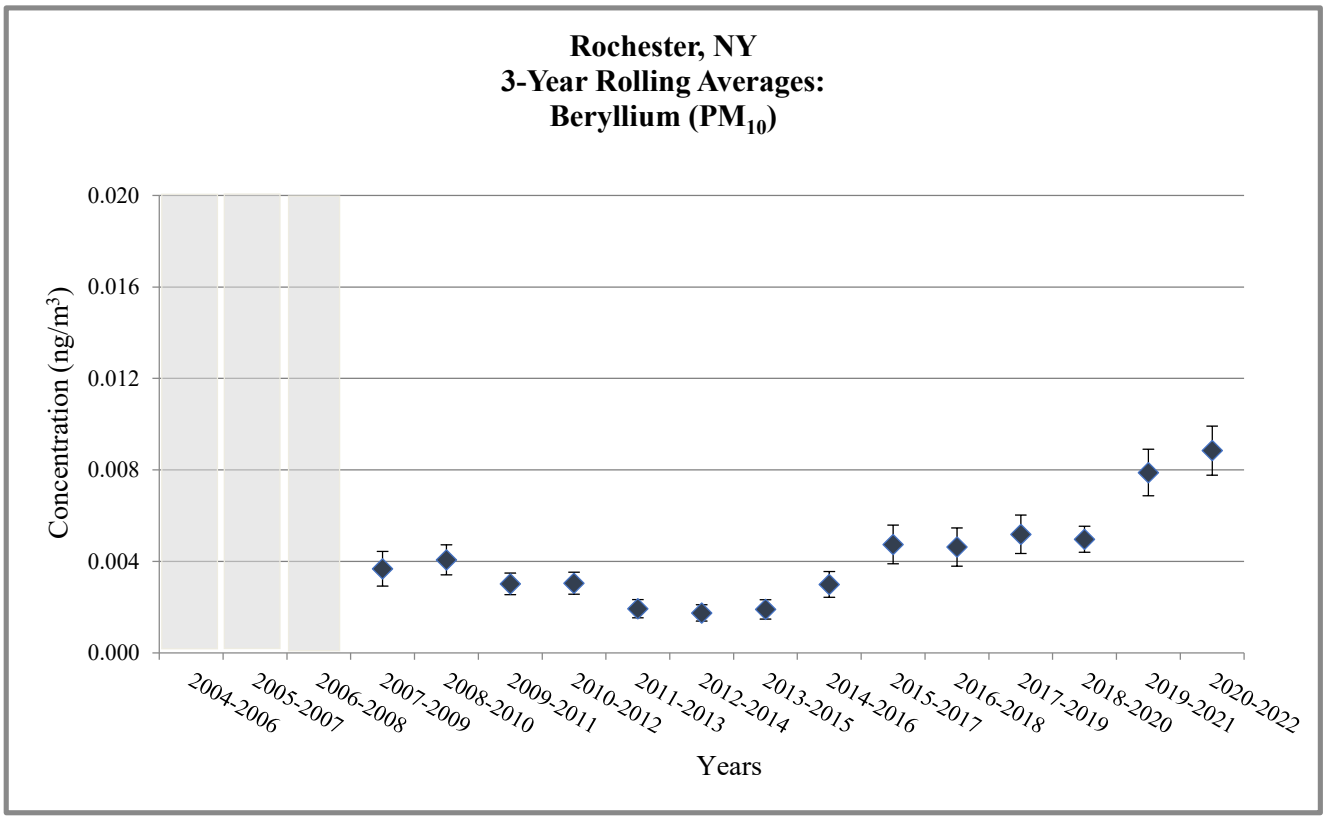
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

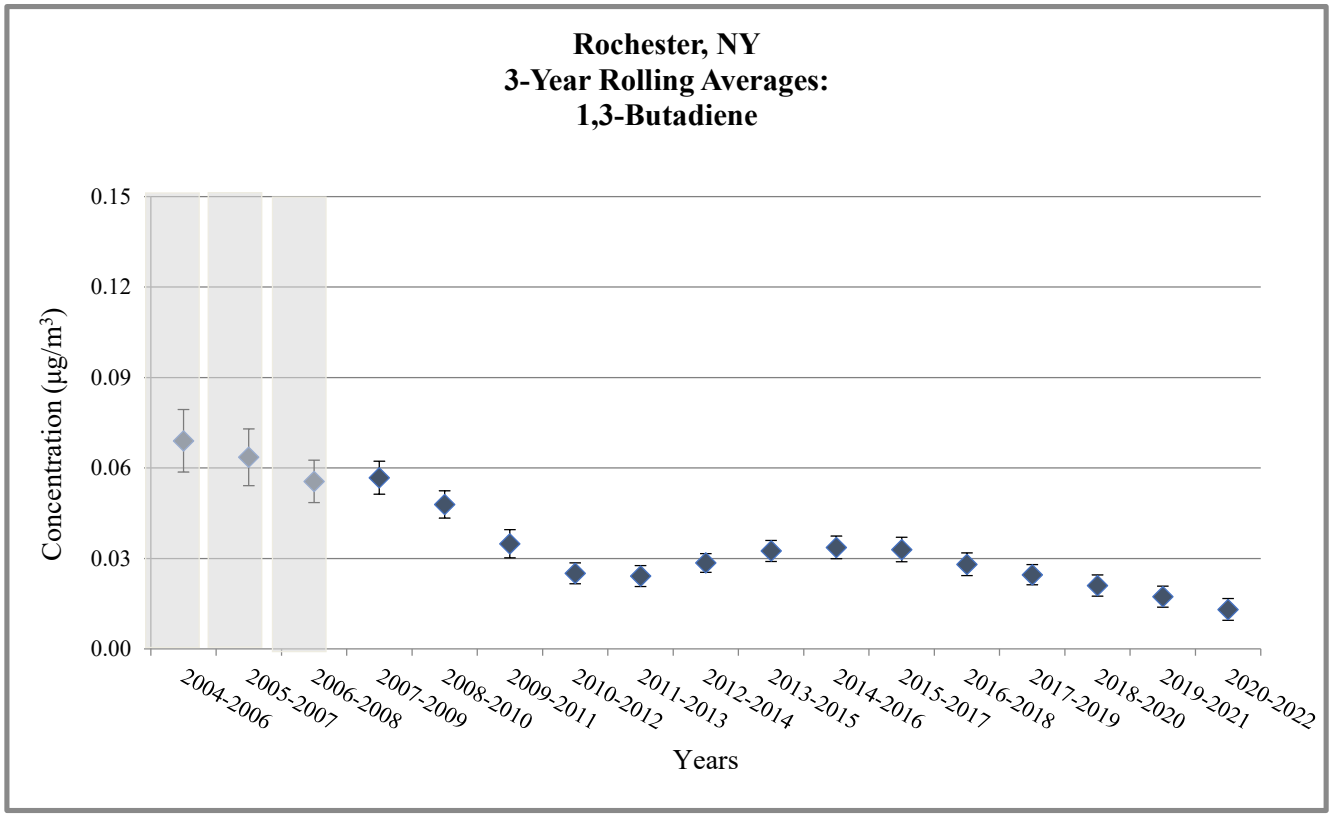




Does not meet MQO or wasn't able to collect enough samples

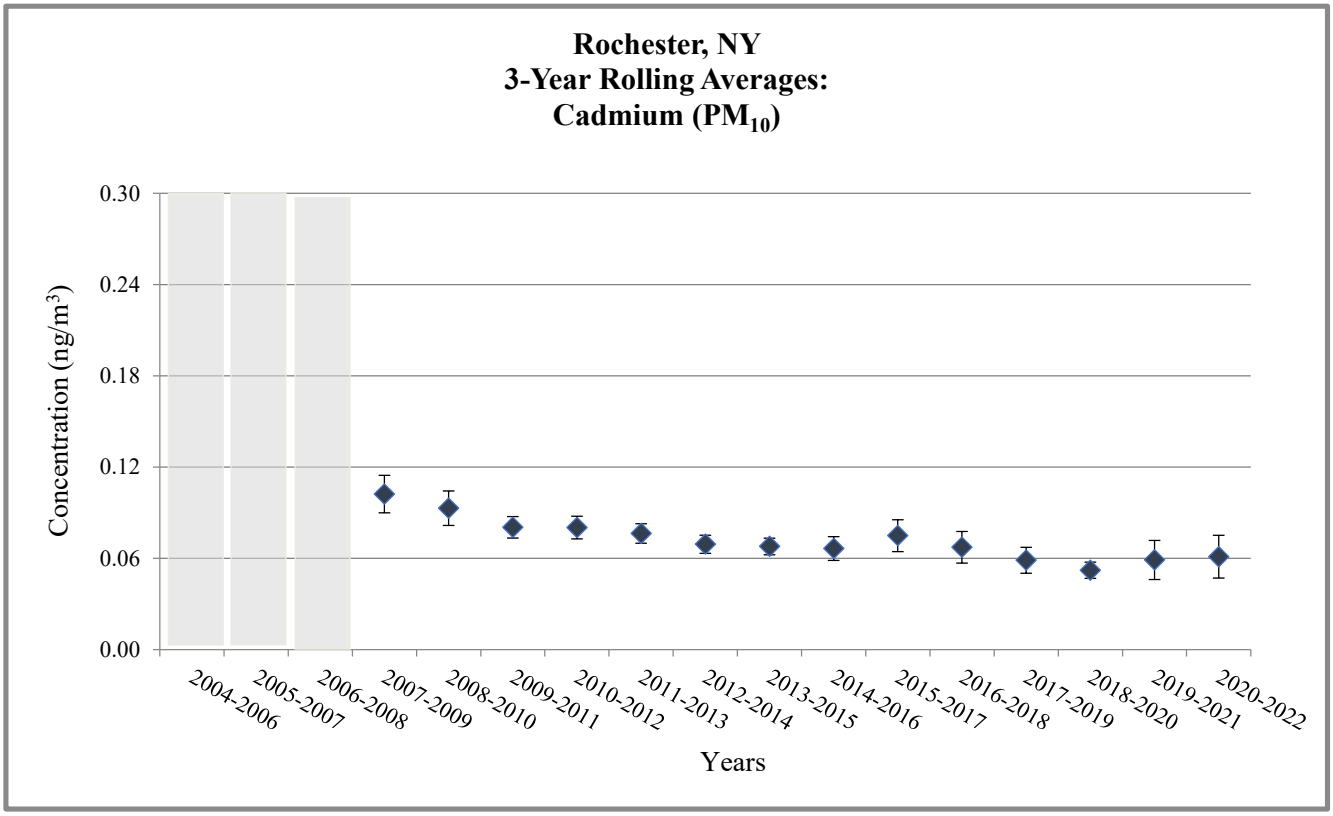
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

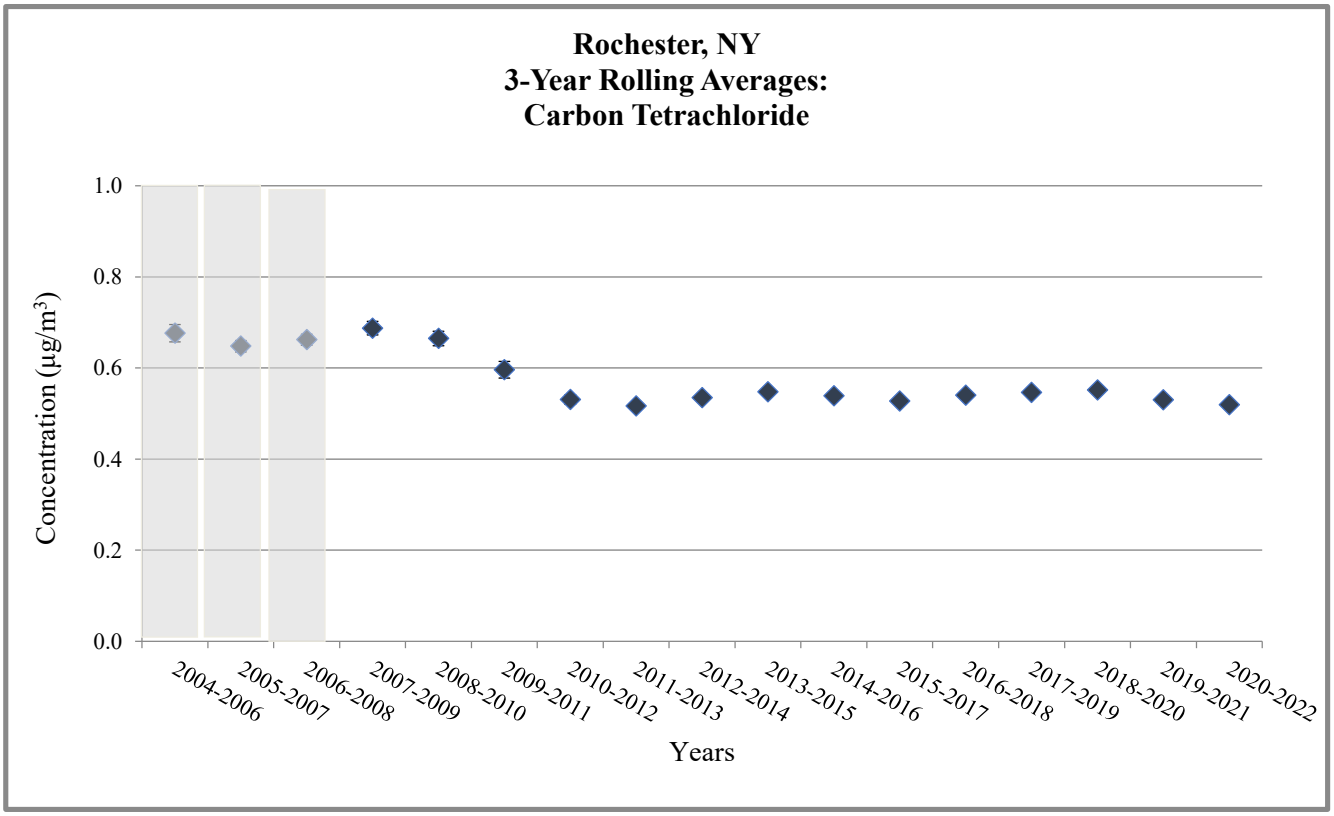




Does not meet MQO or wasn't able to collect enough samples

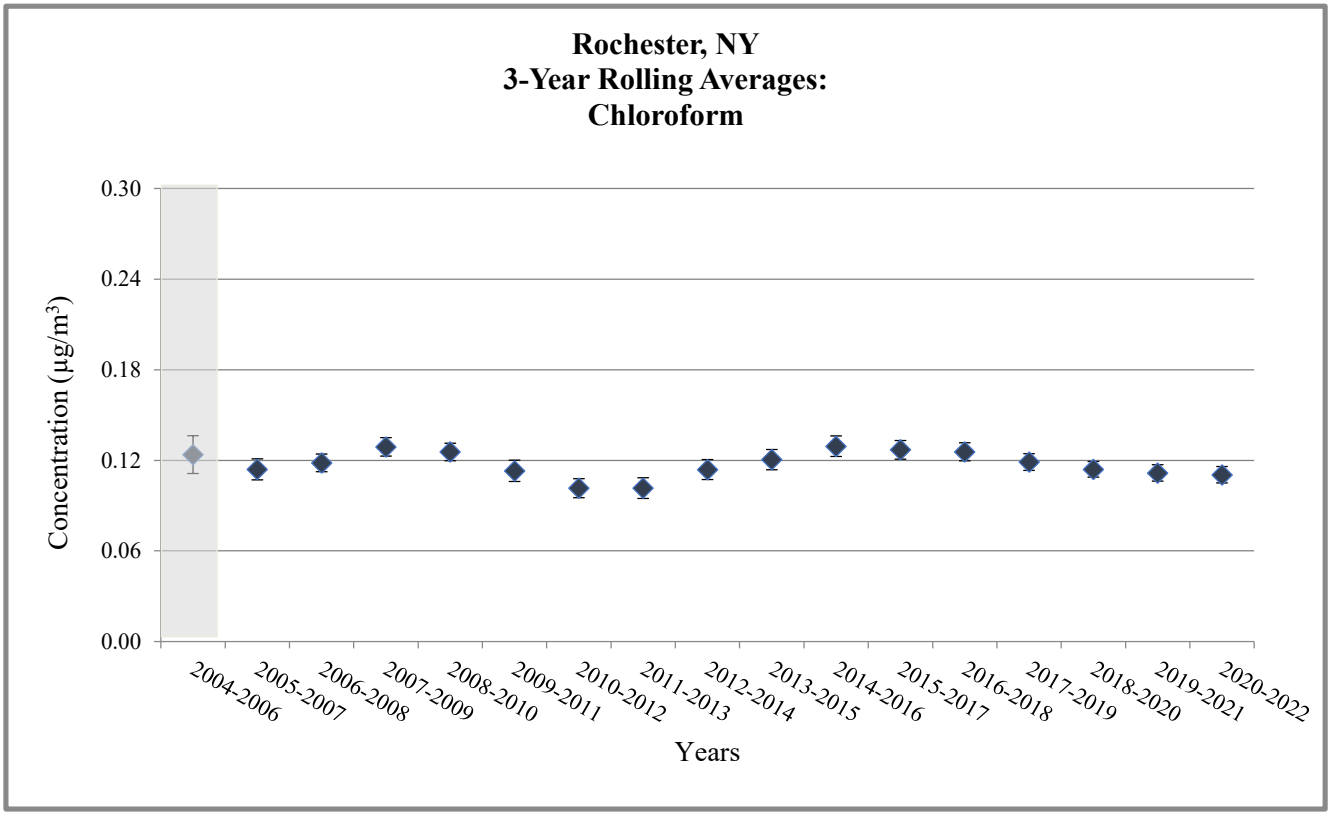
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

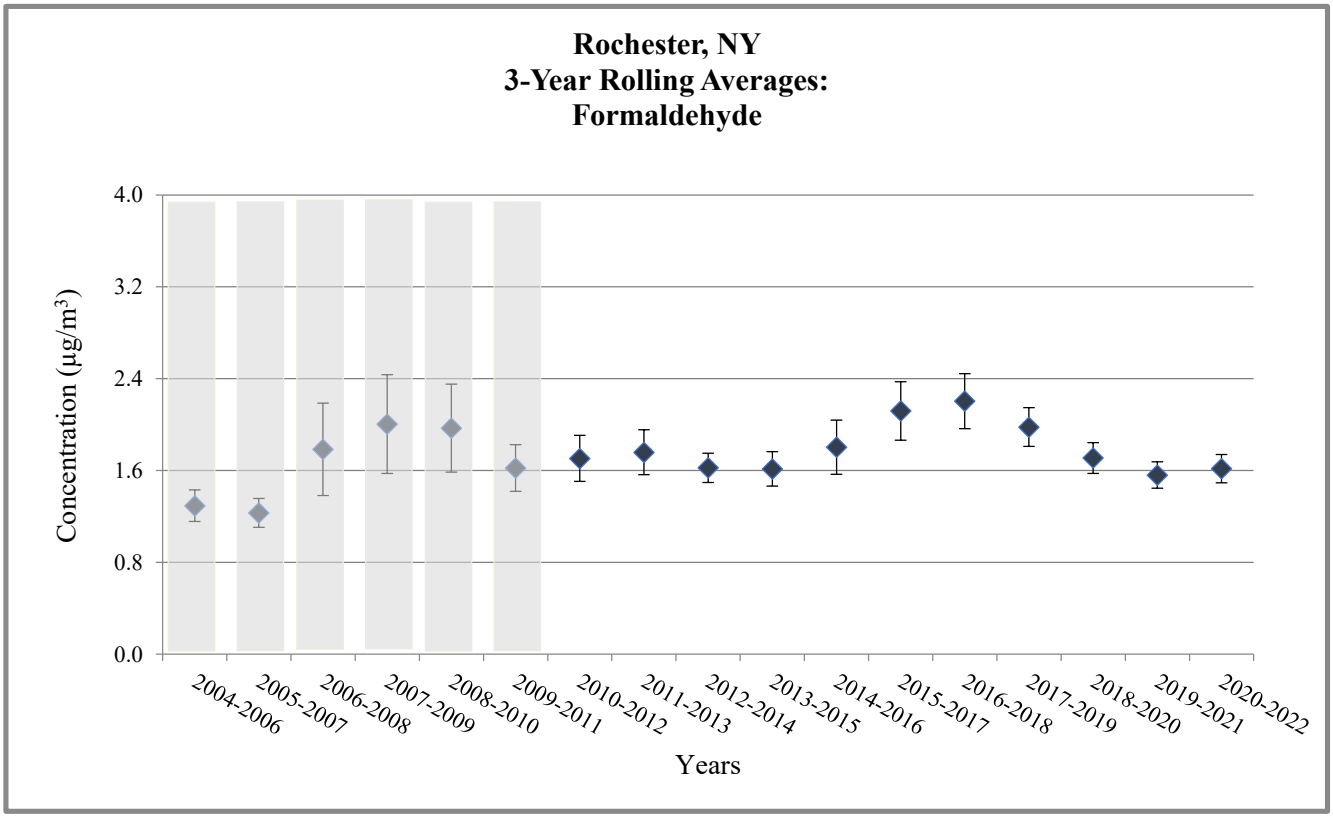




Does not meet MQO or wasn't able to collect enough samples

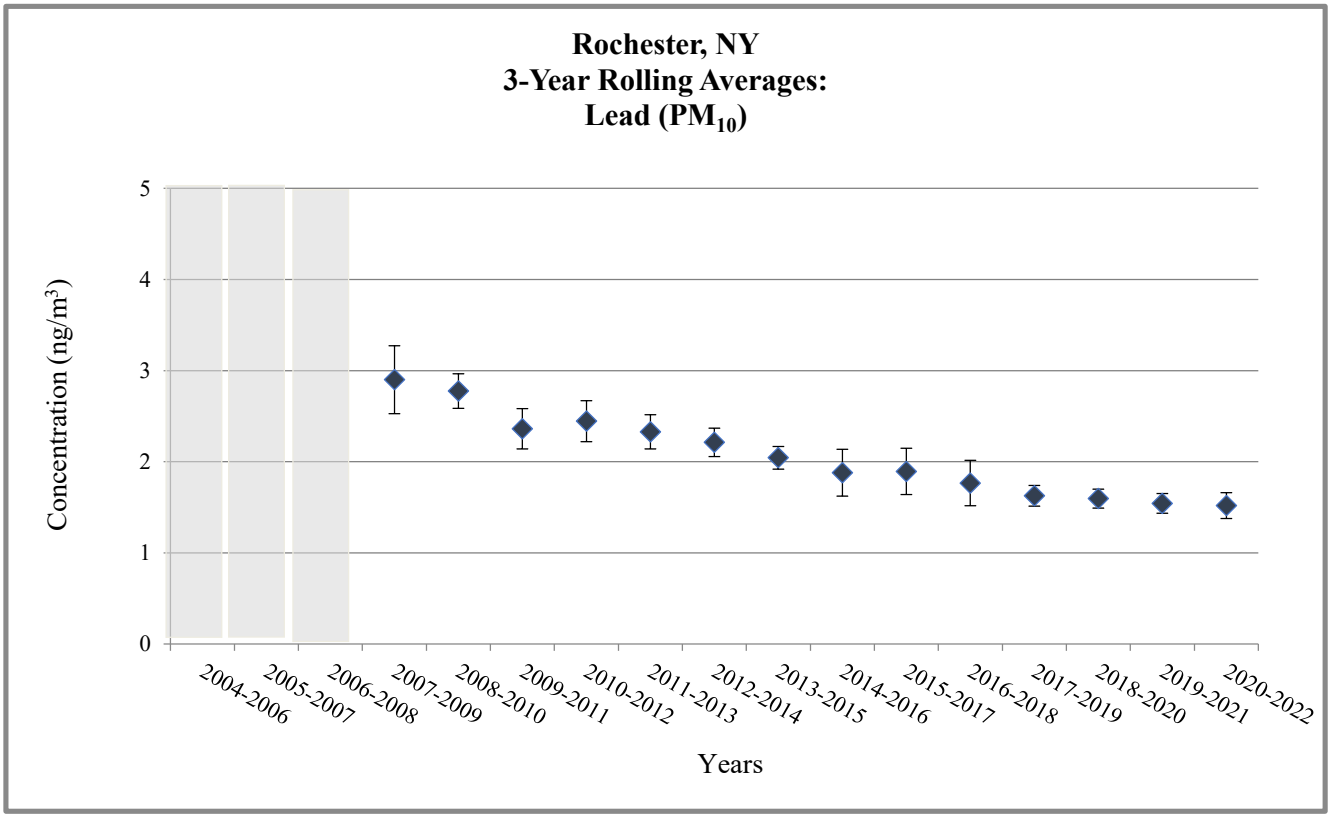
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

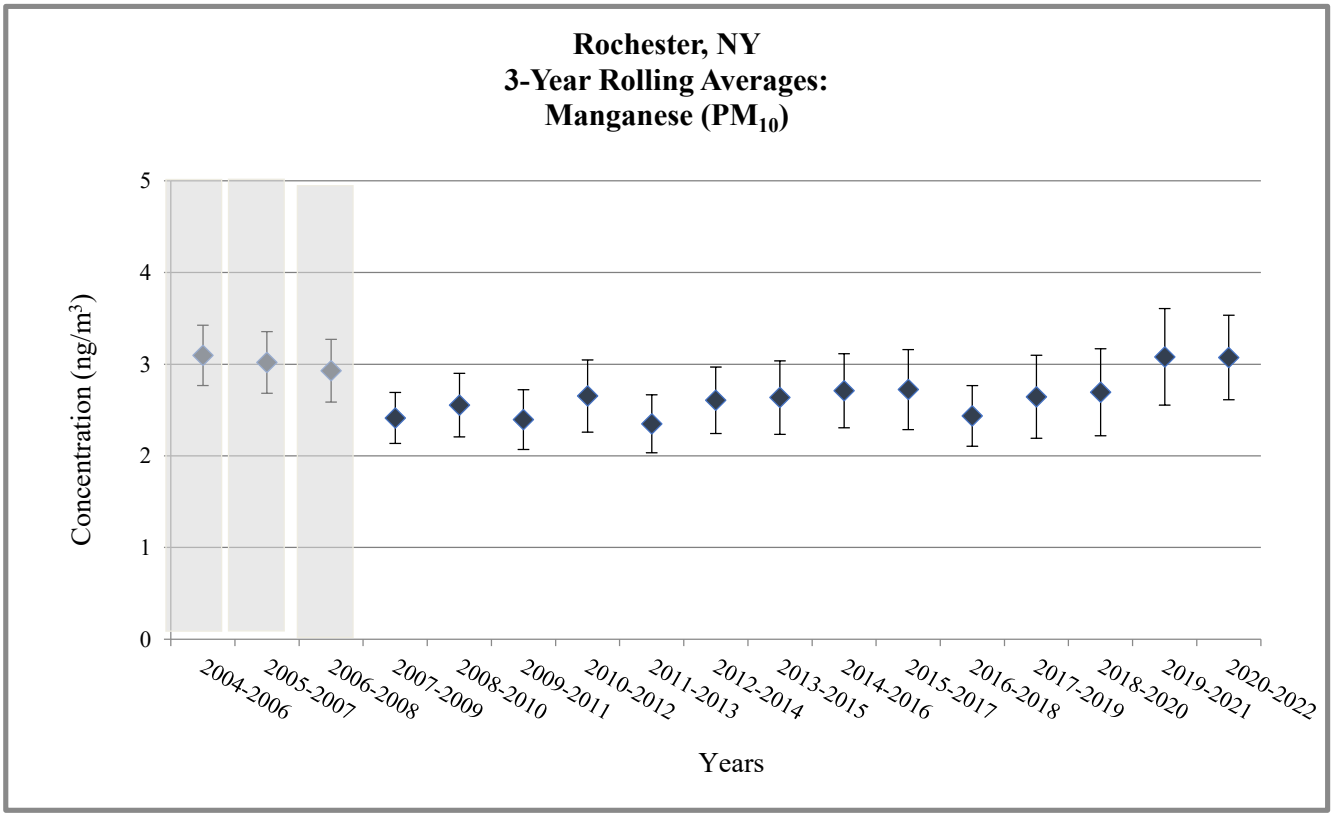




Does not meet MQO or wasn't able to collect enough samples

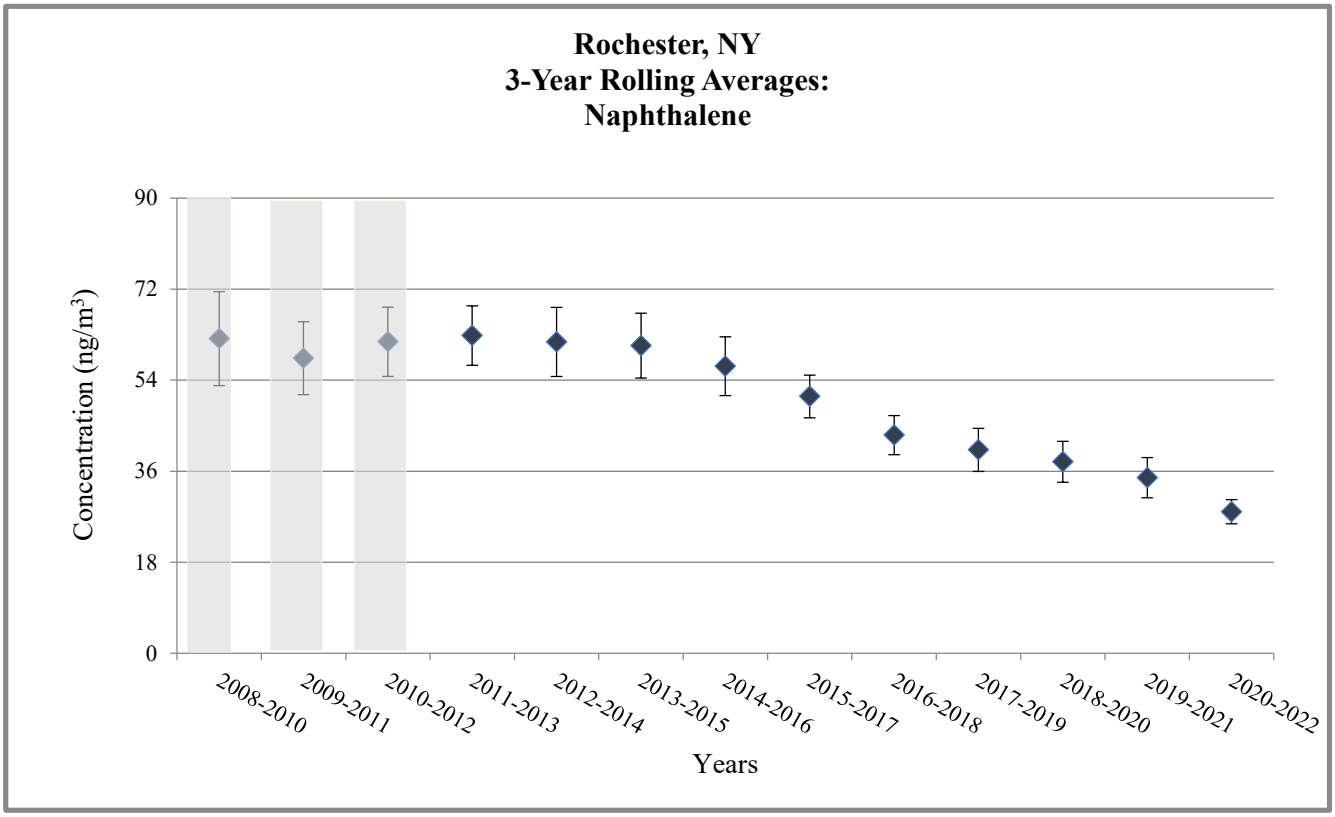
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

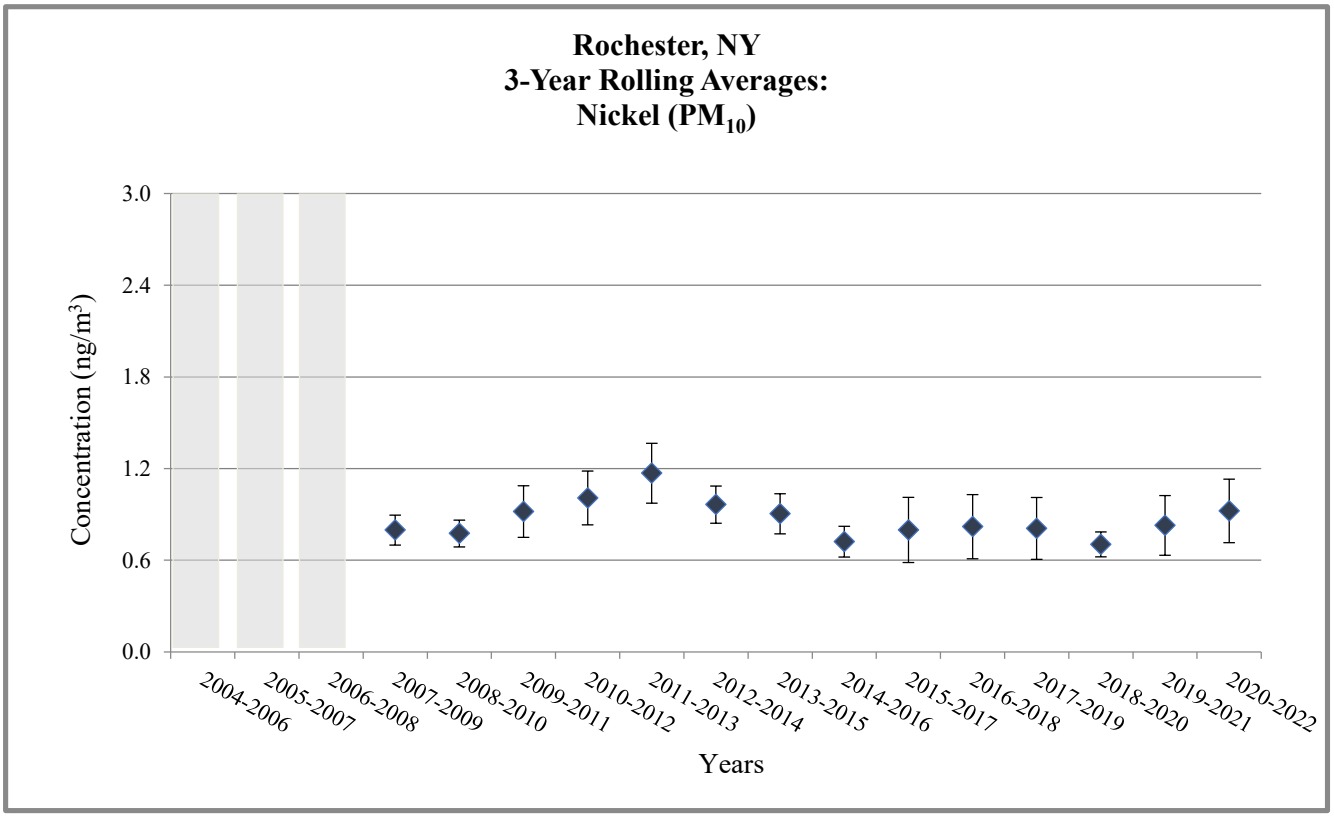




Does not meet MQO or wasn't able to collect enough samples

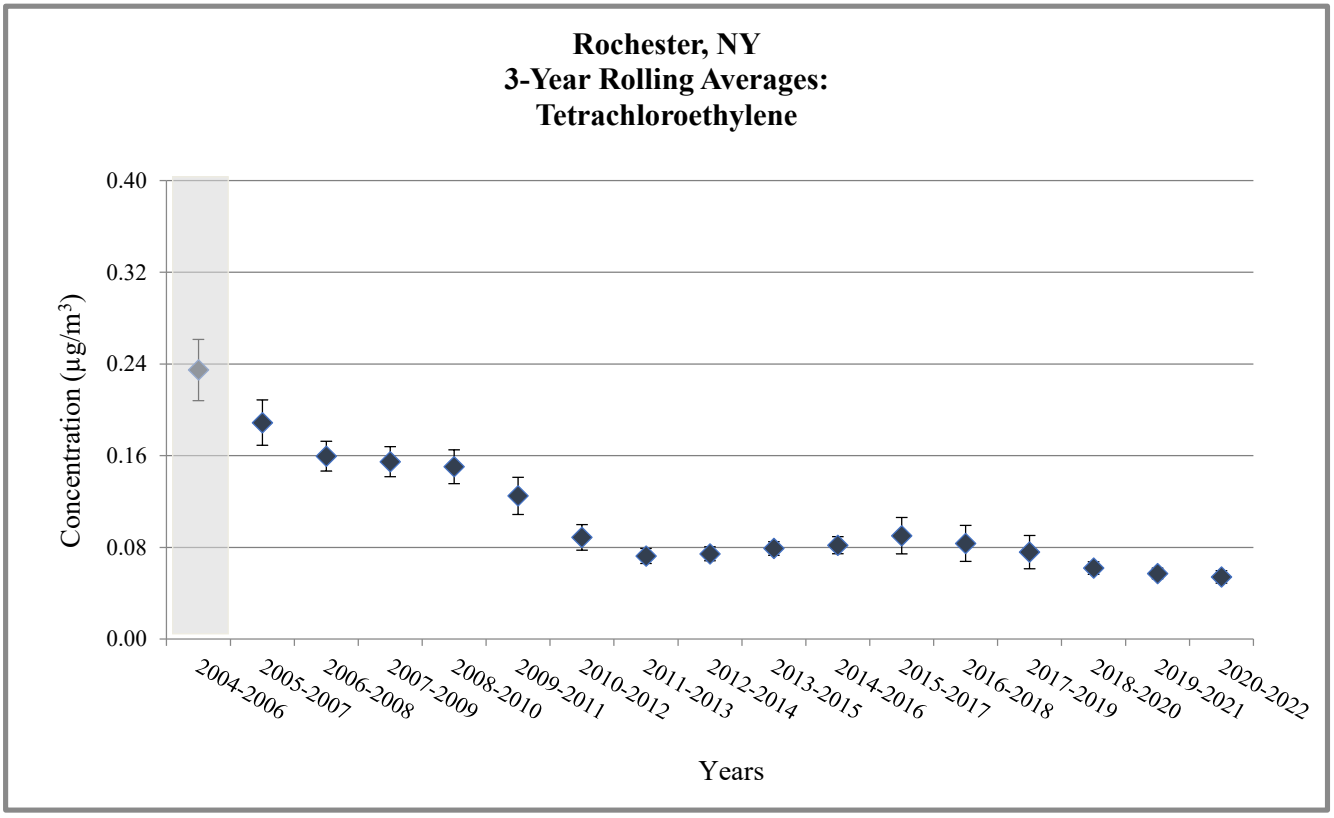
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations

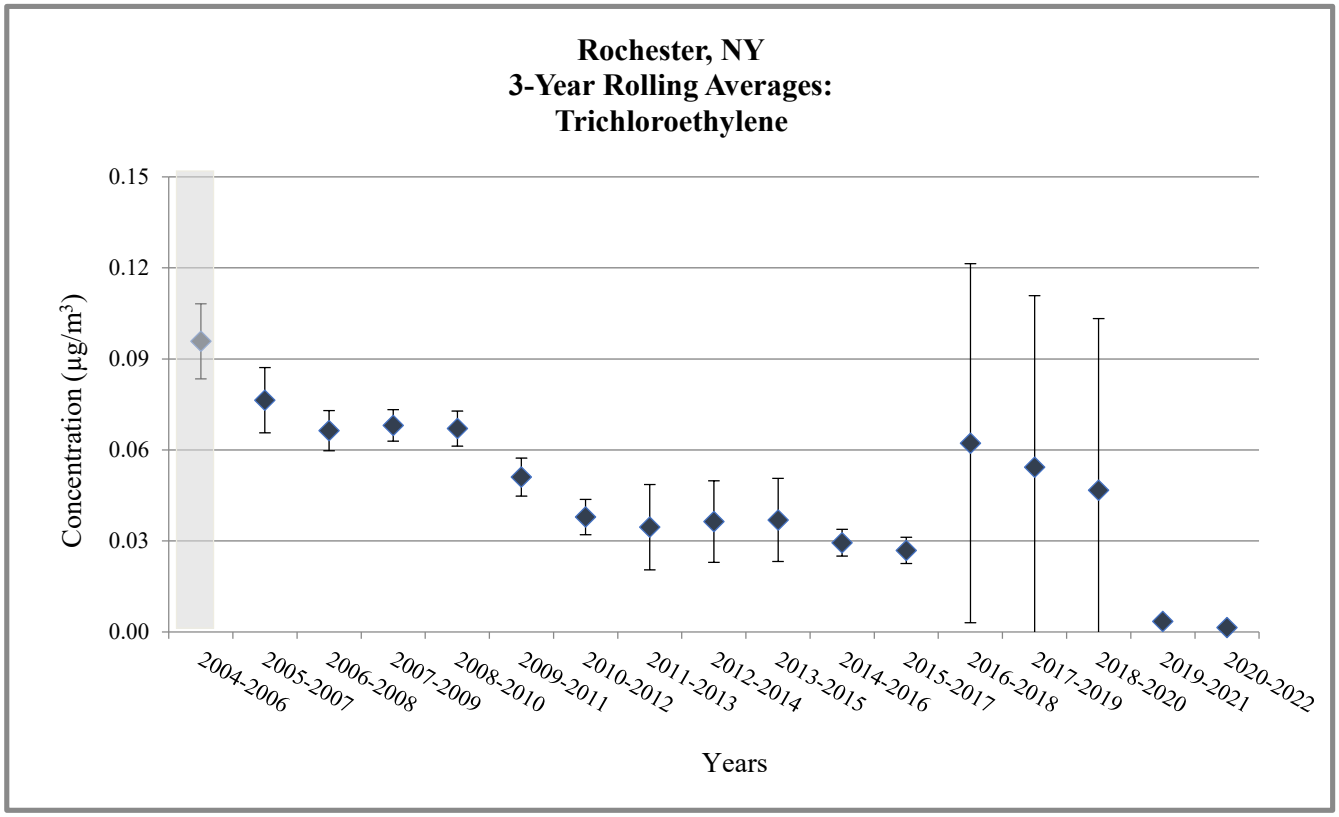




Does not meet MQO or wasn't able to collect enough samples

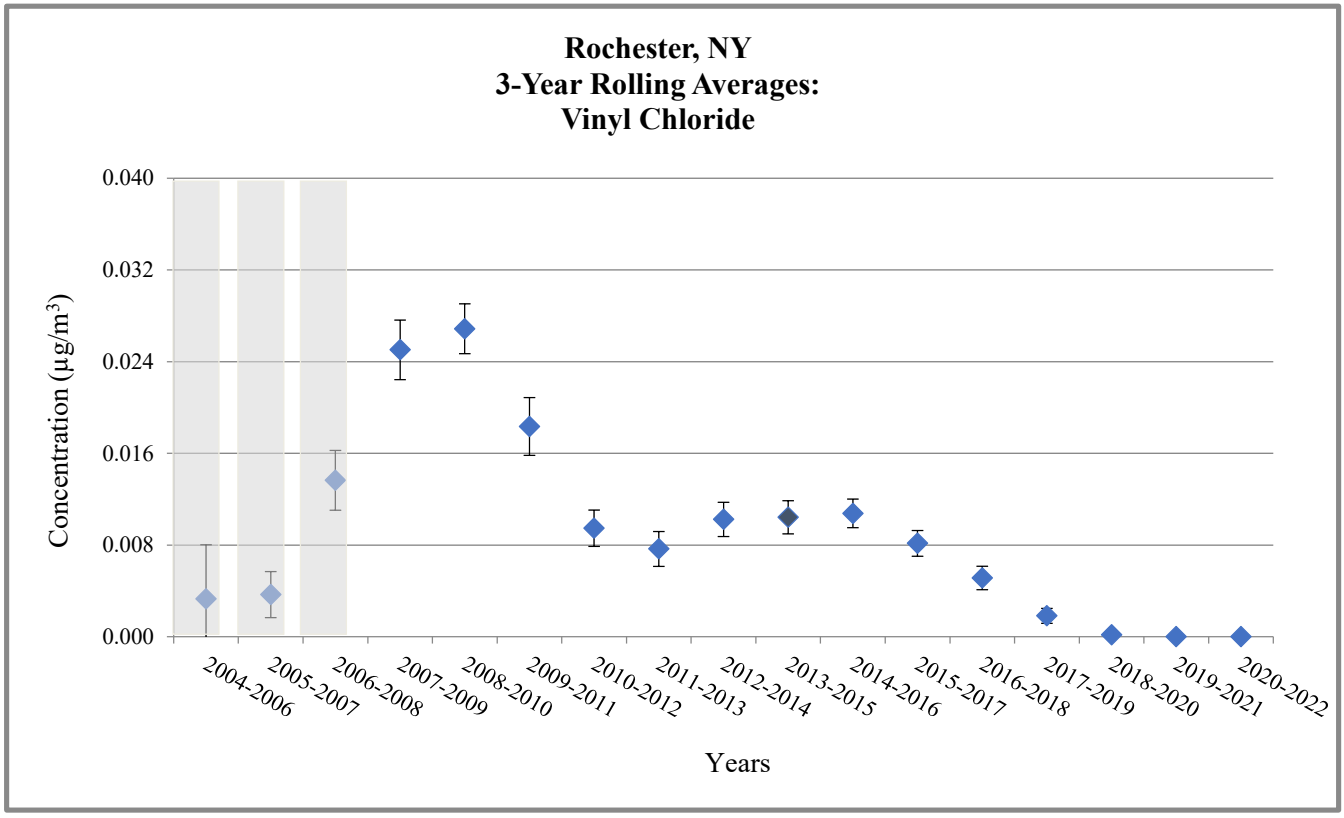
Figure 4. Rochester, NY - 3-Year Rolling Average Concentrations





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

Figure 4. Rochester, NY - 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 Rochester, NY

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	
Rochester, NY (AQS Site Code: 36-055-1007)																	
2004	--b	--b	--b	--b	--b	--b	--b	--b	--b	--a	--a	--a	--a	--a	--a	--	--
2005	89	89	89	89	89	89	89	82	82	--a	--a	--a	--a	--a	--a	--	--
2006	89	89	89	89	89	89	89	90	90	--a	--a	--a	--a	--a	--a	--	--
2007	88	88	88	88	88	88	88	63	63	82	82	82	82	82	82	--	--
2008	97	97	97	97	97	97	97	93	93	84	84	84	84	84	84	--b	--b
2009	95	95	95	95	95	95	95	70	70	93	93	93	93	93	93	49	49
2010	92	92	92	92	92	92	92	92	92	95	95	95	95	95	95	5	5
2011	85	85	85	85	85	85	85	85	85	89	89	89	89	89	89	95	95
2012	92	92	92	92	92	92	92	87	87	79	79	79	79	79	79	95	95
2013	95	95	95	95	95	95	95	89	89	92	92	92	92	92	92	92	92
2014	97	97	97	97	97	97	97	95	95	97	97	97	97	97	97	93	93
2015	90	90	90	90	90	90	90	97	97	93	93	93	93	93	93	93	93
2016	85	85	85	85	85	85	85	87	87	89	89	89	89	89	89	98	98
2017	95	95	95	95	95	95	95	97	97	93	93	93	93	93	93	95	95
2018	93	93	93	93	93	93	93	98	98	95	95	95	95	95	95	97	97
2019	98	98	98	98	98	98	98	100	100	98	97	98	98	98	98	93	93
2020	95	95	95	95	95	95	95	100	100	97	97	97	95	97	97	93	93
2021	92	92	92	92	92	92	92	93	93	87	87	87	87	87	87	95	95
2022	84	84	84	84	84	84	84	98	98	84	84	84	84	84	84	90	90

A-rated: ≥85%

B-rated: Between 75% to 85%

Does not meet: ≤75%

-- No data available

[a]: Scheduled sampling began midway through the year, thus, the site did not have the opportunity to collect enough samples to meet the 85% MQO.

[b]: Pollutant was expected, but not sampled at this site for this year.

Table 7. NATTS Network Assessment: MQO#2 - Reported Method Detection Limits (MDLs) at Rochester, NY

	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
Year	**VOCs**							**Carbonyls**		**PM10 Metals**						**PAHs**	
Rochester, NY (AQS Site Code: 36-055-1007)																	
2004	0.74	0.88	1.12	0.30	1.18	0.32	1.18	0.07	0.02	--a	--a	--a	--a	--a	--a	--	--
2005	0.74	0.88	1.12	0.30	1.18	0.32	1.18	0.02	0.01	--a	--a	--a	--a	--a	--a	--	--
2006	0.74	1.10	1.12	0.30	1.18	0.42	2.82	0.02	0.01	--a	--a	--a	--a	--a	--a	--	--
2007	0.41	0.37	0.37	0.09	0.37	0.12	0.24	0.03	0.02	0.23	0.06	0.05	0.002	0.01	0.01	--	--
2008	0.06	0.19	0.05	0.01	0.05	0.01	0.14	0.02	0.01	0.10	0.06	0.56	0.017	0.10	0.25	0.07	0.01
2009	0.25	0.44	0.37	0.10	0.40	0.11	0.24	0.04	0.01	0.10	0.06	0.46	0.017	0.10	0.25	0.05	0.01
2010	0.25	0.44	0.37	0.10	0.40	0.11	0.23	0.04	0.019	0.21	0.11	0.42	0.016	0.09	0.22	0.04	0.03
2011	0.25	0.44	0.37	0.10	0.40	0.11	0.23	0.04	0.02	0.63	0.11	0.05	0.001	0.01	0.03	0.03	0.002
2012	0.12	0.13	0.26	0.06	0.16	0.05	0.12	0.04	0.02	0.49	0.12	0.05	0.001	0.00	0.02	0.05	0.004
2013	0.12	0.13	0.26	0.05	0.16	0.13	0.12	0.04	0.23	0.60	0.11	0.07	0.002	0.01	0.02	0.05	0.01
2014	0.10	0.24	0.22	0.07	0.16	0.13	0.07	0.04	0.23	0.34	0.11	0.03	0.001	0.01	0.02	0.02	0.01
2015	0.09	0.11	0.20	0.05	0.15	0.13	0.08	0.04	0.23	0.05	0.01	0.01	0.0004	0.004	0.003	0.12	0.00
2016	0.44	0.12	0.23	0.05	0.33	0.20	0.20	0.04	0.23	0.02	0.01	0.01	0.0003	0.004	0.003	0.06	0.02
2017	0.21	0.11	0.22	0.05	0.32	0.21	0.19	0.04	0.23	0.02	0.01	0.004	0.0003	0.002	0.001	0.02	0.06
2018	0.16	0.15	0.32	0.05	0.22	0.14	0.12	0.04	0.23	0.25	0.06	0.004	0.003	0.01	0.06	0.01	0.05
2019	0.10	0.20	0.19	0.03	0.20	0.08	0.12	0.04	0.23	0.05	0.02	0.007	0.002	0.01	0.03	0.01	0.03
2020	0.16	0.18	0.16	0.03	0.20	0.13	0.14	0.04	0.15	0.05	0.02	0.049	0.001	0.01	0.04	0.01	0.03
2021	0.14	0.22	0.15	0.04	0.20	0.17	0.15	0.04	0.23	0.05	0.02	0.006	0.001	0.005	0.04	0.01	0.03
2022	0.12	0.19	0.17	0.05	0.14	0.13	0.12	0.04	0.23	0.36	0.01	0.005	0.003	0.02	0.04	0.01	0.02

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

[a]: Pollutant was expected, but not sampled at this site for this year.

Table 8. NATTS Network Assessment: MQO#3 - Bias Percent Difference at Rochester, NY

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	
Rochester, NY (AQS Site Code: 36-055-1007)																	
2004	2.7	--a	--a	4.3	0.1	--a	-16.7	-22.5	-24.2	--b	--b	--b	--b	--b	--b	--	--
2005	4.2	-1.5	8.7	2.5	-5.4	-4.1	-9.9	25.3	10.2	19.6	-21.7	-15.0	-1.1	-6.1	-7.3	--	--
2006	32.2	42.6	37.1	29.0	18.8	49.4	26.4	4.8	-16.1	--b	--b	--b	--b	--b	--b	--	--
2007	0.6	4.8	11.8	4.2	-2.8	0.3	3.7	-17.6	-23.1	19.8	21.4	9.1	-2.5	-14.0	-6.2	--	--
2008	9.2	-29.3	28.6	2.9	3.0	10.5	0.0	7.4	10.4	9.1	6.7	7.3	1.5	-27.0	-2.5	--c	--c
2009	-0.8	-12.2	0.3	-15.4	-9.6	-15.9	-9.8	-15.4	-13.4	-1.4	3.5	-4.7	-24.5	-34.8	-29.3	-1.7	-7.7
2010	-8.8	15.9	-11.2	-22.7	-11.8	-15.6	-12.9	-2.4	-3.1	23.1	18.6	9.8	4.0	1.6	10.4	-2.3	-17.1
2011	12.4	6.4	2.6	-11.8	6.0	-3.6	-4.1	-22.8	-25.5	--a	--a	--a	--a	--a	--a	-2.1	-13.9
2012	--c	--c	--c	--c	--c	--c	--c	--c	--c	6.2	14.5	7.1	7.9	5.1	-7.4	25.2	21.4
2013	3.7	4.8	-0.8	-5.6	5.1	5.7	3.4	5.7	13.7	1.9	5.8	-1.3	-5.4	-12.3	3.3	-5.7	25.5
2014	-0.7	-23.2	7.9	10.2	0.0	12.6	3.4	9.5	2.7	0.6	--d	--d	-1.8	5.8	--e	-16.3	0.7
2015	-10.4	-22.2	5.1	-12.7	-11.6	-15.8	-10.6	--c	--c	--c	--c	--c	--c	--c	--c	-14.2	-11.4
2016	-2.6	-10.6	30.2	-3.8	-6.8	-5.8	-7.1	-13.9	-14.8	7.7	8.7	7.4	-0.5	5.8	11.4	-10.5	-9.5
2017	-9.9	-5.9	4.1	-4.5	-12.7	-9.8	-4.2	14.6	14.6	3.8	1.8	5.4	1.2	2.6	16.7	-22.4	-11.6
2018	0.8	-5.6	24.1	-0.7	2.3	-1.3	-6.1	2.6	6.9	3.7	4.3	-1.5	-6.6	-0.8	5.5	-14.8	-20.7
2019	-2.0	-4.5	13.2	-6.1	-4.8	1.4	0.5	6.8	3.8	3.7	9.9	7.0	7.2	2.3	3.3	29.3	18.5
2020	-7.8	11.9	-2.3	0.2	0.0	3.5	6.5	-3.6	-2.0	-3.8	7.8	0.1	-5.5	-8.2	-9.8	13.1	15.8
2021	-6.9	-7.2	-0.5	-5.8	-4.3	-2.5	-2.8	0.1	5.3	1.1	7.5	1.2	-3.3	-4.0	-2.9	0.1	-2.0
2022	-0.6	-3.7	0.0	1.6	-0.6	1.9	3.6	-2.1	-0.5	--c	--c	--c	--c	--c	--c	--c	--c

A-rated:±25%

B-rated: Between 25% to 35% or between -25% to -35%

Does not meet:>35% or <35%

-- No data available

[a]: Pollutant not included in the PT sample sent to the lab supporting this site.

[b]: Pollutant was expected, but not sampled at this site for this year.

[c]: Although this pollutant was sampled for at this site and year, the laboratory equipment was not operating at the time the Proficiency Test sample was sent.

[d]: The Proficiency Test sample for this pollutant was 0; the site reported a concentration as "< MDL", rather than 0. EPA accepted this result.

[e]: 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 Rochester, NY

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	
Rochester, NY (AQS Site Code: 36-055-1007)																	
2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2020	2.6	8.9	4.0	8.3	19.6	--a	--	--	--	--	--	--	--	--	--	--	--
2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Green = precision ≤ 15%

Yellow = precision > 15% to ≤ 25%

Red = precision > 25%

-- Gray = dataset was not rated

[a]: 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 Rochester, NY

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	
Rochester, NY (AQS Site Code: 36-055-1007)																	
2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--	--	2.7	--a	--a	0.2	1.3	1.5	--	--
2009	--	--	--	--	--	--	--	--	--	4.6	--a	--a	0.5	0.4	1.8	--	--
2010	--	--	--	--	--	--	--	--	--	2.8	--a	--a	0.2	0.4	2.0	--	--
2011	--	--	--	--	--	--	--	--	--	5.3	--a	2.3	2.4	2.3	3.6	--	--
2012	--b	--b	--b	--b	--b	--b	--b	--b	--b	7.7	--a	2.1	1.0	1.3	2.2	2.0	1.9
2013	--b	--b	--b	--b	--b	--b	--b	--b	--b	2.3	--a	2.1	0.5	1.0	1.9	0.6	1.9
2014	--b	--b	--b	--b	--b	--b	--b	--b	--b	9.0	--a	4.4	0.5	0.6	2.8	3.5	4.9
2015	--b	--b	--b	--b	--b	--b	--b	--b	--b	3.0	--a	4.9	0.5	4.1	18.1	1.6	1.8
2016	--b	--b	--b	--b	--b	--b	--b	--b	--b	2.7	28.8	28.3	3.4	1.9	3.9	1.3	1.2
2017	--b	--b	--b	--b	--b	--b	--b	--b	--b	14.4	--a	2.2	2.4	0.8	0.8	1.1	2.2
2018	--b	--b	--b	--b	--b	--b	--b	--b	--b	1.4	--a	2.7	0.7	1.0	1.6	1.6	1.3
2019	--b	--b	--b	--b	--b	--b	--b	--b	--b	2.8	--a	4.2	0.1	0.1	0.4	1.5	1.0
2020	2.6	7.9	2.9	4.0	3.9	--a	--b	--b	--b	1.9	14.0	1.5	0.7	0.7	2.3	1.7	0.7
2021	--b	--b	--b	--b	--b	--b	--b	--b	--b	2.1	10.9	2.0	1.1	0.8	3.9	2.5	0.3
2022	--b	--b	--b	--b	--b	--b	--b	--b	--b	1.7	13.9	4.4	0.3	2.5	1.1	2.5	0.4

A-rated:≤ 15% CV

B-rated: Between 15%CV to25% CV

Does Not Meet: >25% CV or did not report Precision (required in the NATTS Workplan Template since 2012)

-- No data available

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

[b]: Per the NATTS Workplan template, analytical replicates were required to be reported to AQS for this sampling year

Appendix A. Equipment Inventory

Pollutant Type	Year(s)	Manufacturer/Model, Extraction Type, and Year
Sampling Equipment		
Carbonyls	2004-2014	ATEC 800 Sequential Sampler (Year Deployed: unknown)
	2015-2022	ATEC 2200 (Year Deployed: 2015)
PAHs	2008-2014	General Metal Works Hi-Volume Sampler (Year Deployed: 1998)
	2015-2022	Tisch Environmental TE-1000 PUF Sampler (Year Deployed: 2015)
PM_{10} Metals	2004-2006	NONE
	2007-2012	Thermo R&P Parisol-Plus 2025 Sequential Air Sampler (Year Deployed: <1997)
	2013-2015	Thermo R&P Parisol-Plus 2025 Sequential Air Sampler (Year Deployed: 2013)
	2016-2022	Thermo Patrisol-Plus 2025i Sequential Air Sampler (2) (Year Deployed: 2016)
VOCs	2004-2010	Xontech 910A Canister Sampler (Year Deployed: Unknown)
	2011	Xontech 910A Canister Sampler (Year Deployed: 2002)
	2012-2014	Xontech 910PC Canister Sampler (Year Deployed: 2002)
	2015-2022	Xontech 910PC Canister Sampler (Year Deployed: 2015)
Analytical Equipment		
Carbonyls	2004-2007	Waters 717 HPLC/model 996 PDA (Year Deployed: unknown)
	2008-2018	Waters Alliance 2695 HPLC /model 2487 Dual Absorbance (Year Deployed: 2008)
	2019-2022	Waters Alliance e2695 HPLC /model 2998 PDA Detector (Year Deployed: 2019)
PAHs	2008-2014	HP/Agilent 5890/5971 GC/MS (Year Deployed: 2008)
	2014-2020	HP/Agilent 7890B/5975C GC/MS (Year Deployed: 2014)
	2021-2022	HP/Agilent 7890B/5975C GC/MS (Year Deployed: 2015); HP/Agilent 6890/5973 GC/MS (Year Deployed: 2021)
PM_{10} Metals	2004-2006	NONE
	2007-2015	Thermo/VG Elemental X Series II ICP-MS (Year Deployed: 2006)
	2016-2022	Thermo Q Series ICP-MS (Year Deployed: 2016)
VOCs	2004	Varian 3800 GC/Varian Saturn 2000 MS Ion Trap (Year Deployed: unknown)
	2005-2014	Varian 3800 GC/Varian Saturn 2000 MS Ion Trap (Year Deployed: 2005)
	2015	Varian CP-3800 and Saturn 2000 Ion Trap MS Year Deployed: 2005)
	2016-2022	Agilent 7895GC/5977B MSD (Year Deployed: 2016)
Preconcentrator Equipment		
VOCs	2004	Entech 7000 (Year Deployed: <2000)
	2005	Entech 7100 (1), Entech 7016A (2) (Year Deployed: 2005)
	2006-2015	Entech 7100A (Year Deployed: 2005)
	2016-2022	Entech 7200 (Year Deployed: 2016)
Standards Preparation Equipment		
VOCs	2004-2012	Custom built (dynamic dilution) (Year Deployed: unknown)
	2013-2014	Entech 4600 (dynamic dilution) (Year Deployed: 2013)
	2015-2022	Entech 4700 (dynamic dilution) (Year Deployed: 2015)
Canister Cleaning Equipment		
VOCs	2004-2008	Entech 1000 (Hot) (Year Deployed: <1999)
	2009-2009	Entech 3100A (Hot) (Year Deployed: 2009)
	2010-2015	Entech 3100A (Hot) (Year Deployed: 2010)
	2016-2022	Entech 3100A/3112D (Hot) (Year Deployed: 2010)
PM_{10} Extraction Equipment		
PM_{10} Metals	2004-2006	NONE
	2007-2014	VWR Scientific (Sonicator) (Year Deployed: 2004)
	2015-2022	Crest Genesis (Sonicator) (Year Deployed: 2015)
PAHs Extraction Equipment		
PAHs	2008-2018	Dionex -300 (ASE) (Year Deployed: 2004)
	2019-2022	Dionex -350 (ASE) (Year Deployed: 2019)