Pittsburgh, PA NATTS Network Assessment Review

- Established August 2020: Carbonyls, PAHs, PM_{10} Metals, and VOCs
  - Ethylene oxide added in 2021
- For the NATTS Network Assessment (2020-2022):
  - Due to less than 3 years of operations, 0 of 17 Method Quality Objective (MQO) Core HAPs were included in the national trends
  - 34 of 34 pollutant datasets were suitable for trends analysis
  - Not enough observations for Annual Average and 3-Year Rolling Average Concentration trends.
  - 100% Reporting of Datasets
- Method Quality Objectives (MQO): 2020-2022
  - Completeness: Met 85% completeness in 34 of 34 pollutant datasets
  - Method Detection Limits: Met MDL Target Ratio of 1.00 in 49 of 51 pollutant datasets
  - Bias: Met ±25% for 43 of 43 pollutant datasets
  - Overall Method Precision: Met ≤15% CV for 4 of 4 pollutant datasets
  - Analytical Method Precision: Met ≤15% CV for 18 of 45 pollutant datasets
- Analytical Laboratories for 2022

VOC	Carbonyl	PM_{10} Metals	PAHs
ERG	ERG	WVDEP	ERG

- Equipment Year Deployed

Equipment Type	VOC	Carbonyl	PM_{10} Metals	PAHs
Sampler	2020	2020	2020	2020
Analytical	2019	2018	2011	2021
Preconcentrator	2019	NA	NA	NA
Standards Preparation	1985	NA	NA	NA
Canister Cleaning	2010	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, 10 of those 17 pollutants were decreasing between the 3-year blocks, while four of those pollutants were increasing between the 3-year blocks. Three pollutants did not exhibit a noticeable trend.

Figure 1. NATTS Site and Year Established

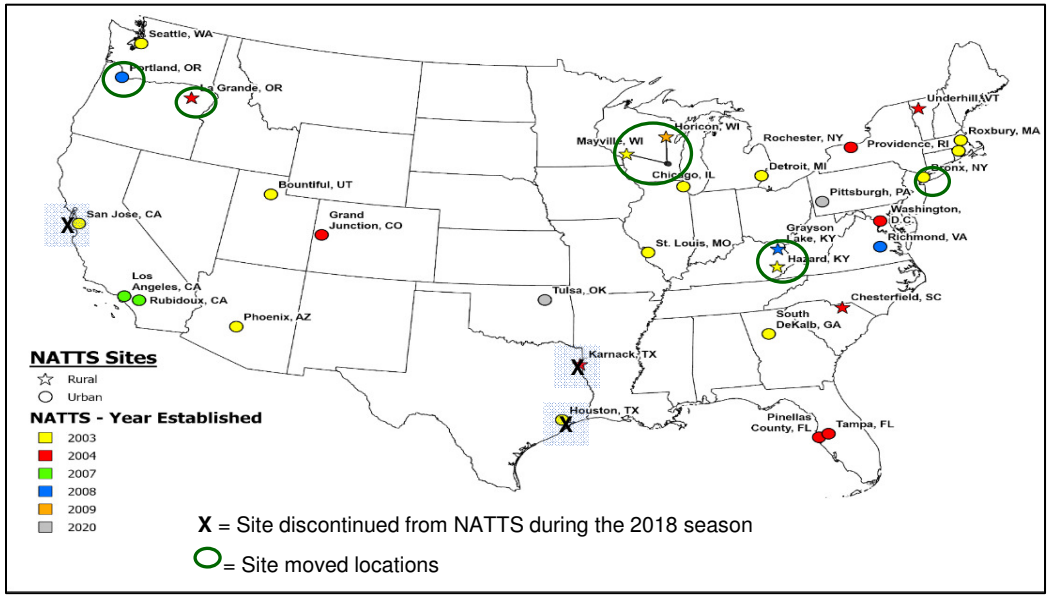


Table 1. NATTS Network Assessment: Count and Percentage of Suitable Datasets by Pollutant Group

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	µg/m^3	16	1.48	1.34	-9.2%
Arsenic (PM_{10})	ng/m^3	18	0.68	0.64	-6.6%
Benzene	µg/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-	µg/m^3	15	0.057	0.054	-5.1%
Cadmium (PM_{10})	ng/m^3	20	0.087	0.090	3.7%
Carbon Tetrachloride	µg/m^3	15	0.53	0.50	-5.3%
Chloroform	µg/m^3	16	0.173	0.165	-4.8%
Formaldehyde	µg/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	µg/m^3	15	0.120	0.122	1.5%
Trichloroethylene	µg/m^3	14	0.019	0.022	16.3%
Vinyl Chloride	µg/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: Pittsburgh, PA

Site Information

Region	3
NATTS Site Type	Urban
County	Allegheny
AQS Site Code	42-003-0008
NATTS Operating Agency	Allegheny County Health Department
Latitude	40.46542
Longitude	-79.96075
AQS Land Use	Suburban
AQS Location Setting	Commercial
County Population (2023)	1,224,825

Figure 2. NATTS Site Location

Pollutant Datasets Evaluation: Suitable for Trends (Y=yes; "--"=not rated)

Final Pollutant Name	2020	2021	2022
Acetaldehyde	--	Y	Y
Arsenic (PM_{10})	--	Y	Y
Benzene	--	Y	Y
Benzo(a)pyrene	--	Y	Y
Beryllium (PM_{10})	--	Y	Y
Butadiene, 1,3-	--	Y	Y
Cadmium (PM_{10})	--	Y	Y
Carbon tetrachloride	--	Y	Y
Chloroform	--	Y	Y
Formaldehyde	--	Y	Y
Lead (PM_{10})	--	Y	Y
Manganese (PM_{10})	--	Y	Y
Naphthalene	--	Y	Y
Nickel (PM_{10})	--	Y	Y
Tetrachloroethylene	--	Y	Y
Trichloroethylene	--	Y	Y
Vinyl chloride	--	Y	Y

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
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

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
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	$\mu g/m^3$	Urban	22,209	84%	0.24 ± 0.05	ND	ND	0.05	0.12	0.22	0.43	0.68
	$\mu g/m^3$	Rural	5,936	38%	0.07 ± 0.02	ND	ND	ND	ND	0.04	0.12	0.31
	$\mu g/m^3$	All Sites	28,145	75%	0.21 ± 0.04	ND	ND	ND	0.08	0.20	0.38	0.61
Trichloroethylene	$\mu g/m^3$	Urban	22,204	43%	0.040 ± 0.008	ND	ND	ND	ND	0.043	0.096	0.152
	$\mu g/m^3$	Rural	5,922	19%	0.019 ± 0.003	ND	ND	ND	ND	ND	0.029	0.124
	$\mu g/m^3$	All Sites	28,126	38%	0.036 ± 0.006	ND	ND	ND	ND	0.033	0.085	0.148
Vinyl Chloride	$\mu g/m^3$	Urban	22,021	18%	0.0046 ± 0.0003	ND	ND	ND	ND	ND	0.0126	0.0251
	$\mu g/m^3$	Rural	5,940	13%	0.0070 ± 0.0008	ND	ND	ND	ND	ND	0.0125	0.0304
	$\mu g/m^3$	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 Pittsburgh, PA

Analyte	Units	# Data Records	% Detection	Arithmetic Mean[a]	Percentile Value[b]						
					5th	10th	25th	50th	75th	90th	95th
Acetaldehyde	µg/m^3	141	100%	1.88 ± 0.27	0.70	0.81	1.03	1.39	2.00	3.25	5.23
Arsenic (PM_{10})	ng/m^3	140	100%	1.16 ± 0.16	0.25	0.32	0.54	0.86	1.54	2.20	2.82
Benzene	µg/m^3	127	100%	0.87 ± 0.12	0.28	0.34	0.46	0.64	1.02	1.54	2.26
Benzo(a)pyrene	ng/m^3	136	92%	0.13 ± 0.03	ND	0.02	0.04	0.07	0.14	0.30	0.48
Beryllium (PM_{10})	ng/m^3	140	99%	0.005 ± 0.001	0.00	0.001	0.002	0.004	0.005	0.009	0.010
Butadiene, 1,3-	µg/m^3	127	87%	0.04 ± 0.01	ND	ND	0.01	0.03	0.05	0.07	0.13
Cadmium (PM_{10})	ng/m^3	140	100%	0.17 ± 0.02	0.05	0.06	0.08	0.13	0.21	0.31	0.46
Carbon Tetrachloride	µg/m^3	127	100%	0.52 ± 0.02	0.38	0.45	0.47	0.52	0.56	0.61	0.67
Chloroform	µg/m^3	127	98%	0.14 ± 0.01	0.09	0.09	0.10	0.13	0.16	0.20	0.22
Formaldehyde	µg/m^3	141	100%	3.03 ± 0.46	1.09	1.25	1.67	2.40	3.51	5.09	6.00
Lead (PM_{10})	ng/m^3	140	100%	4.34 ± 0.72	1.27	1.49	1.98	3.05	4.82	8.25	11.54
Manganese (PM_{10})	ng/m^3	140	100%	7.70 ± 0.95	2.26	2.69	3.97	6.23	9.55	14.49	18.44
Naphthalene	ng/m^3	136	100%	61.42 ± 8.64	14.71	17.67	25.03	44.65	76.55	142.85	186.18
Nickel (PM_{10})	ng/m^3	140	100%	0.66 ± 0.06	0.32	0.35	0.44	0.54	0.79	1.20	1.43
Tetrachloroethylene	µg/m^3	127	98%	0.17 ± 0.02	0.04	0.05	0.09	0.14	0.22	0.31	0.42
Trichloroethylene	µg/m^3	127	87%	0.05 ± 0.01	ND	ND	0.03	0.04	0.06	0.09	0.15
Vinyl Chloride	µg/m^3	127	19%	0.0014 ± 0.0010	ND	ND	ND	ND	ND	0.00	0.0053

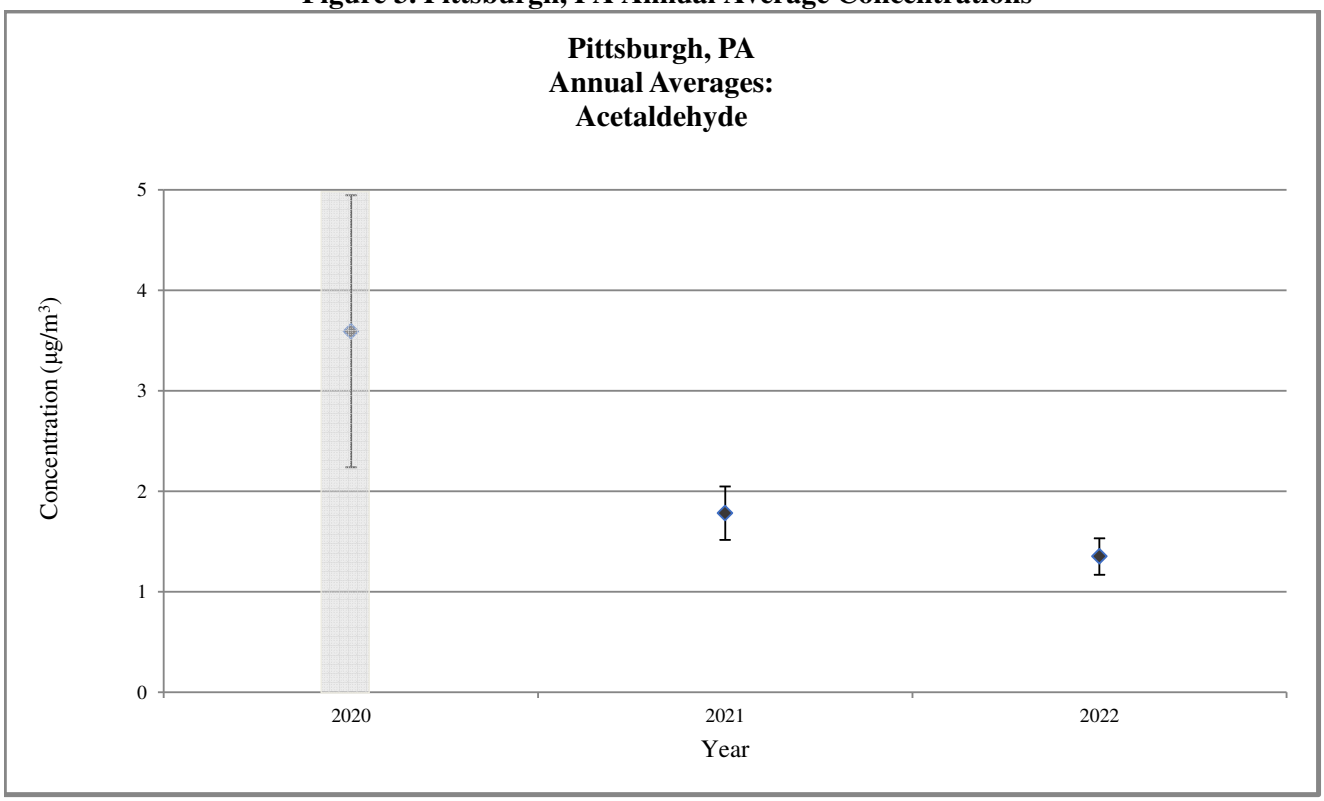
[a] :The arithmetic mean is the average of all samples results which included actual measured values. If no chemical was registered, then a value of zero is used.

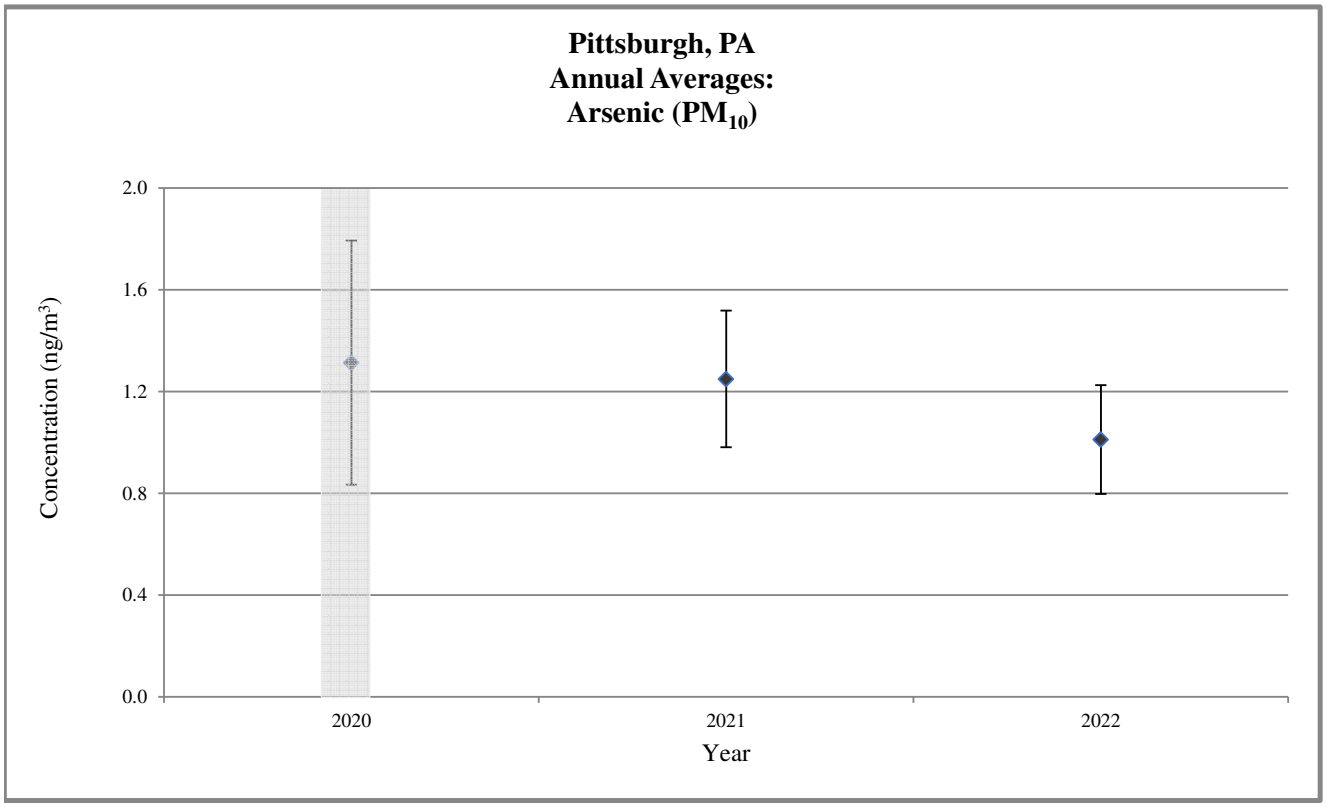
[b] ND: No results of this chemical were registered by the laboratory analytical equipment.

Table 5. Analytical Labs Supporting this Site

Pollutant Group	2020	2021	2022
VOCs	MDE	ERG	ERG
Carbonyls	PAMSL	ERG	ERG
PM_{10} Metals	WVDEP	WVDEP	WVDEP
PAHs	ERG	ERG	ERG

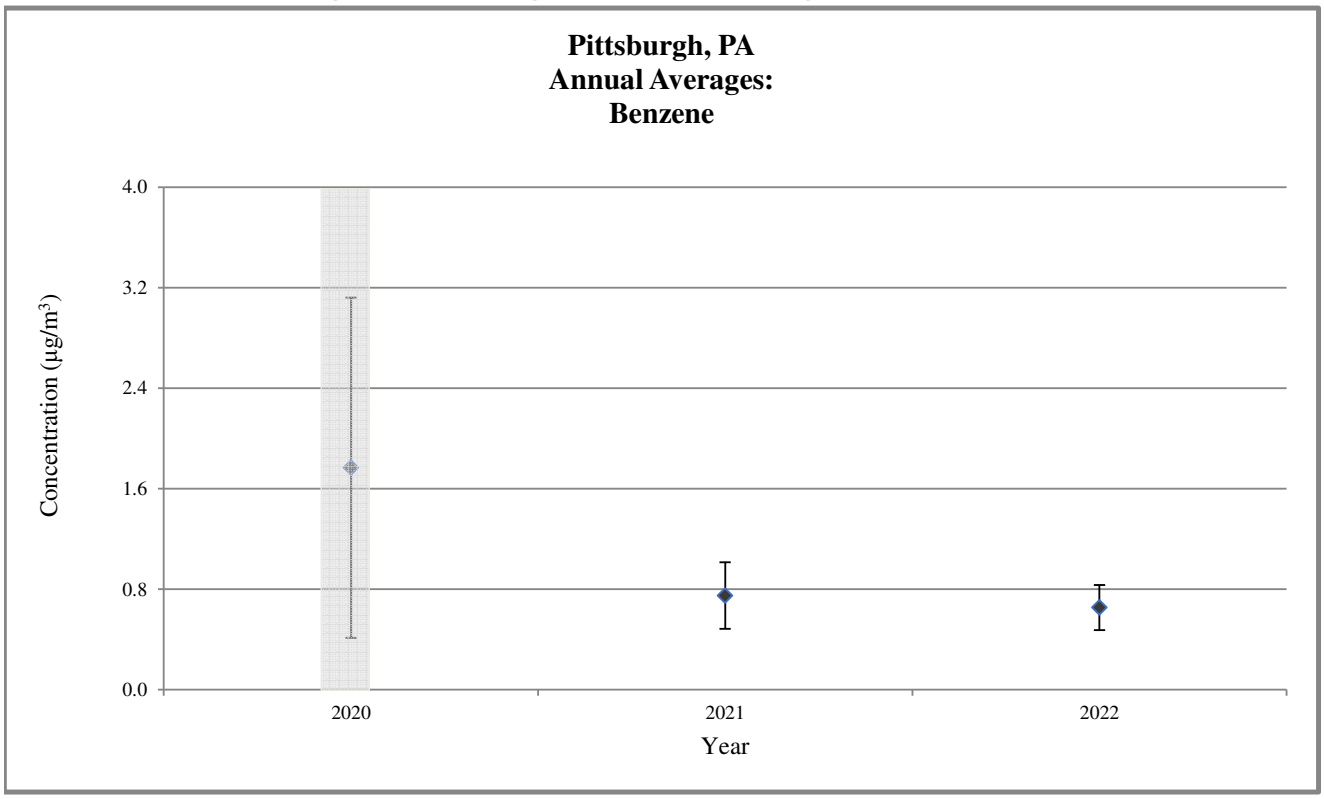
Figure 3. Pittsburgh, PA Annual Average Concentrations

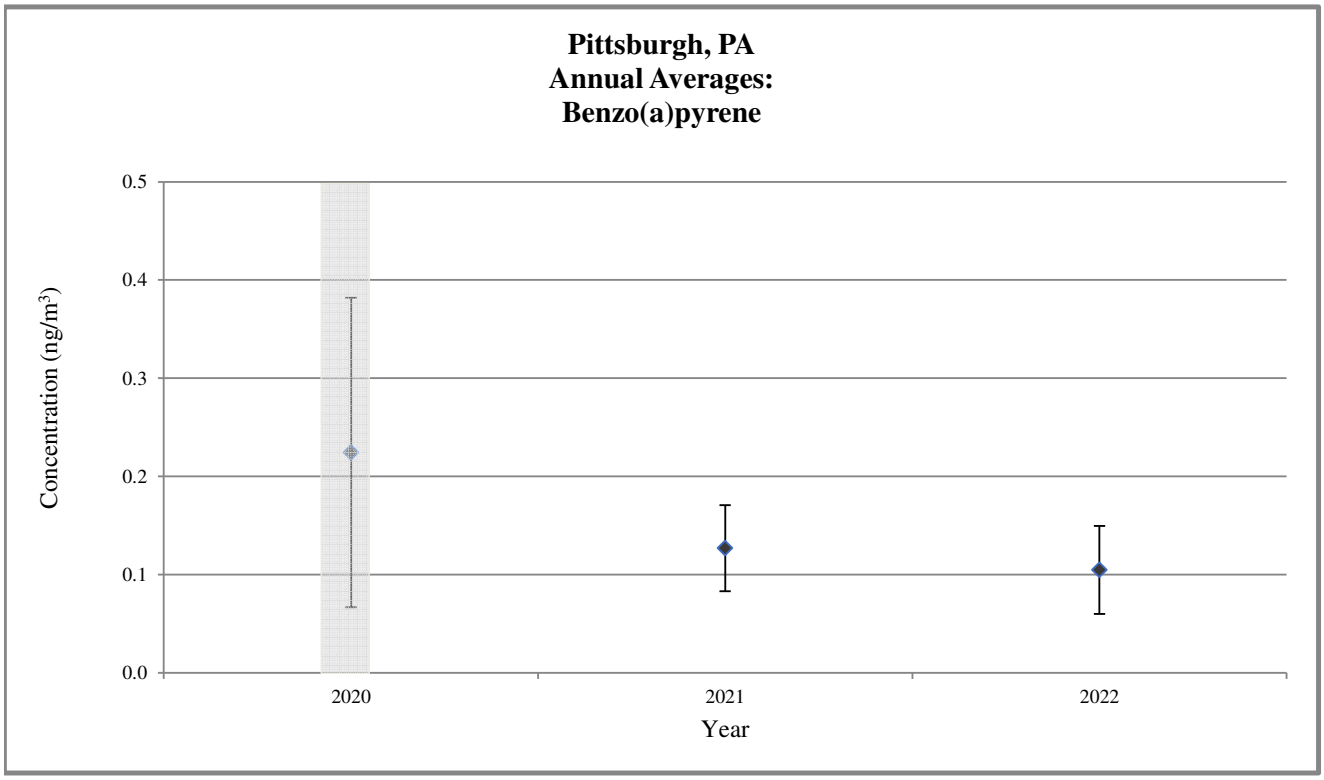




Sampling began midway through the year.

Figure 3. Pittsburgh, PA Annual Average Concentrations





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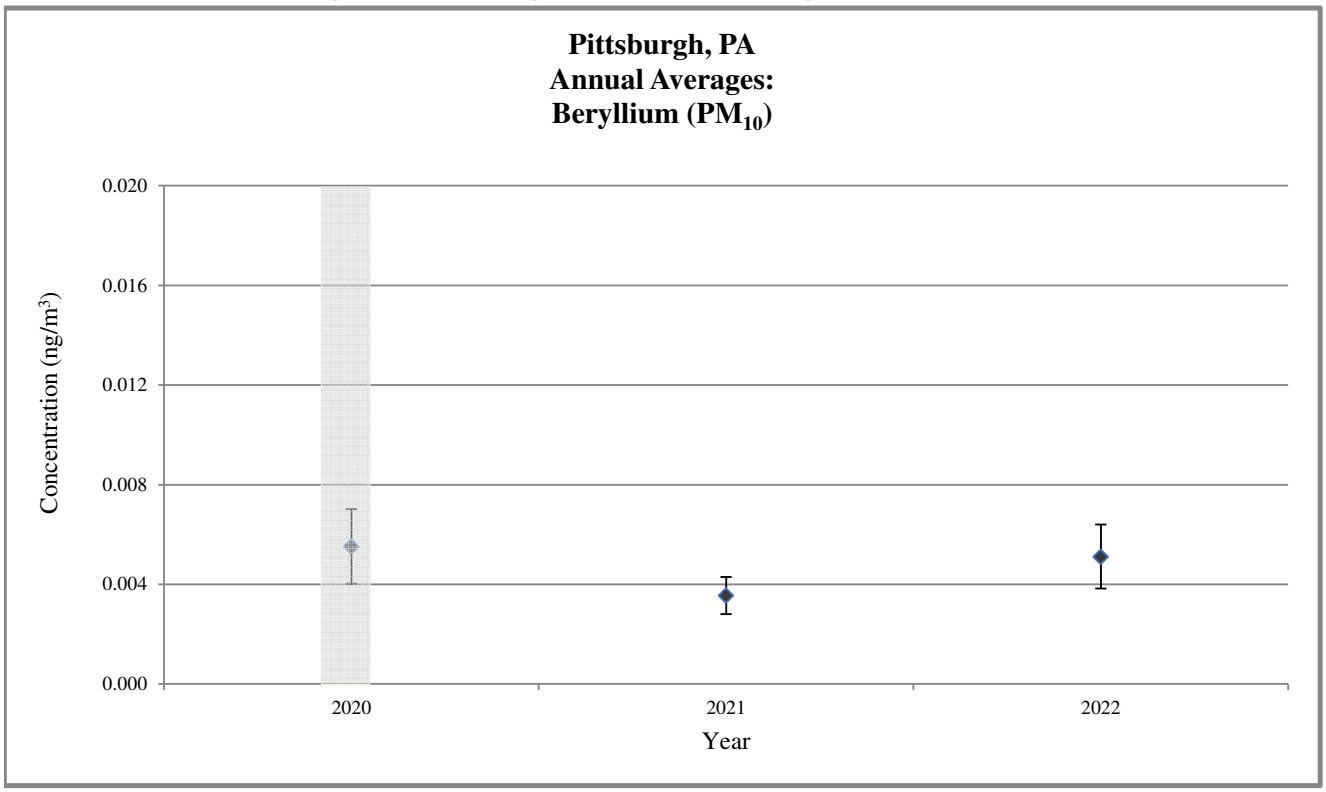
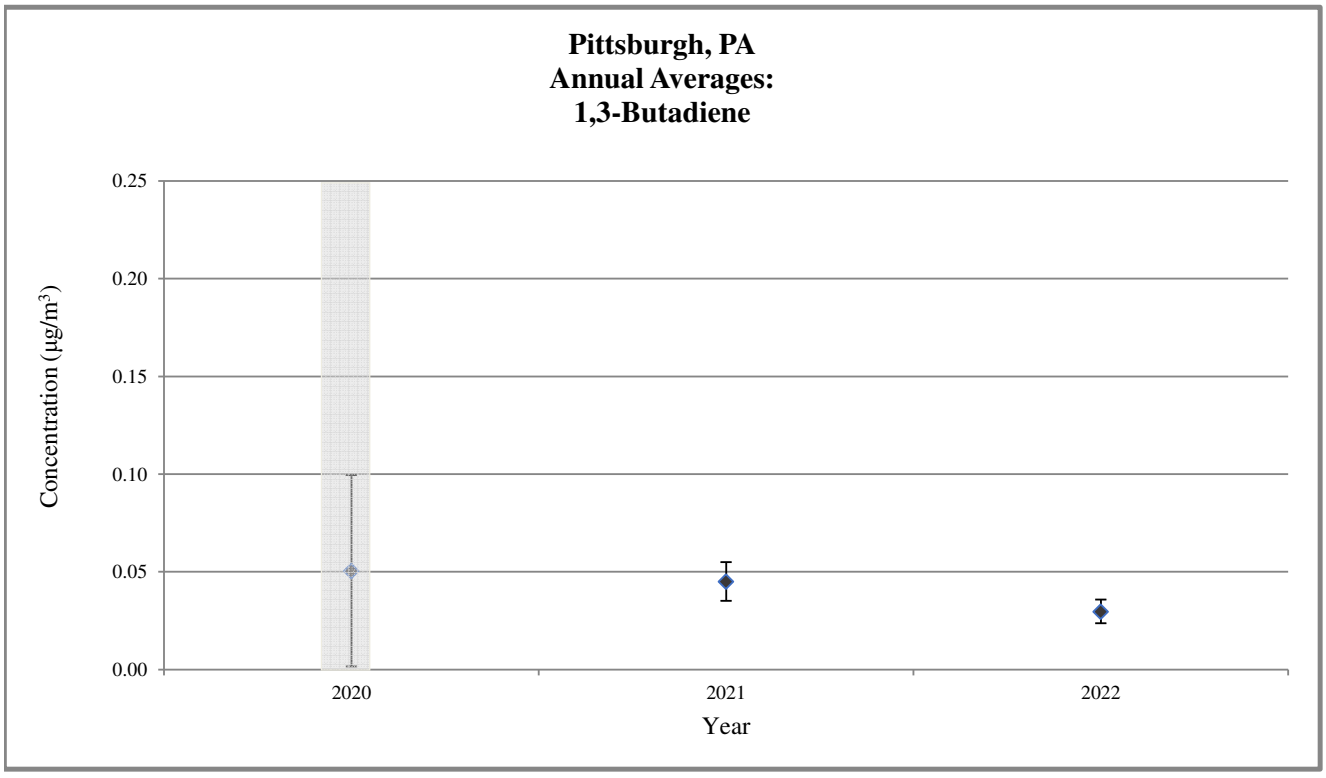
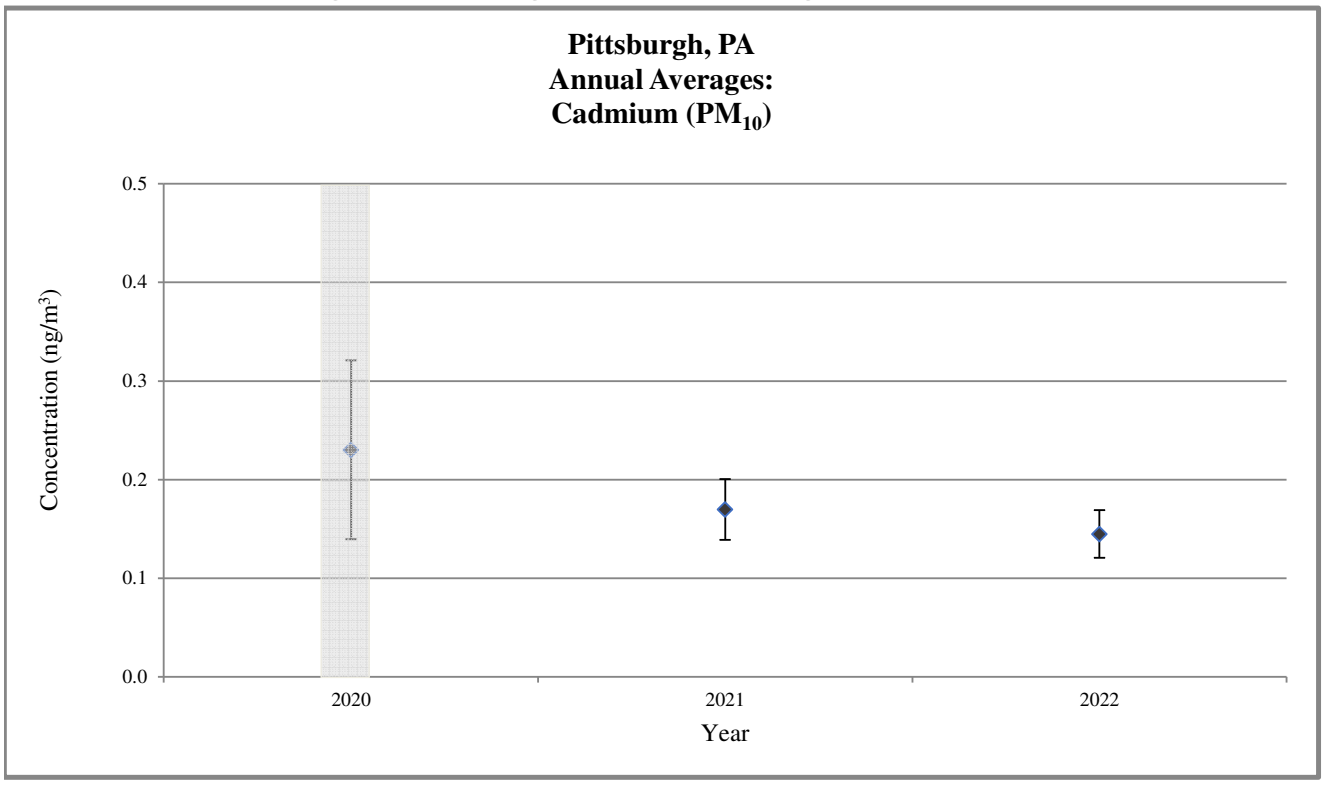
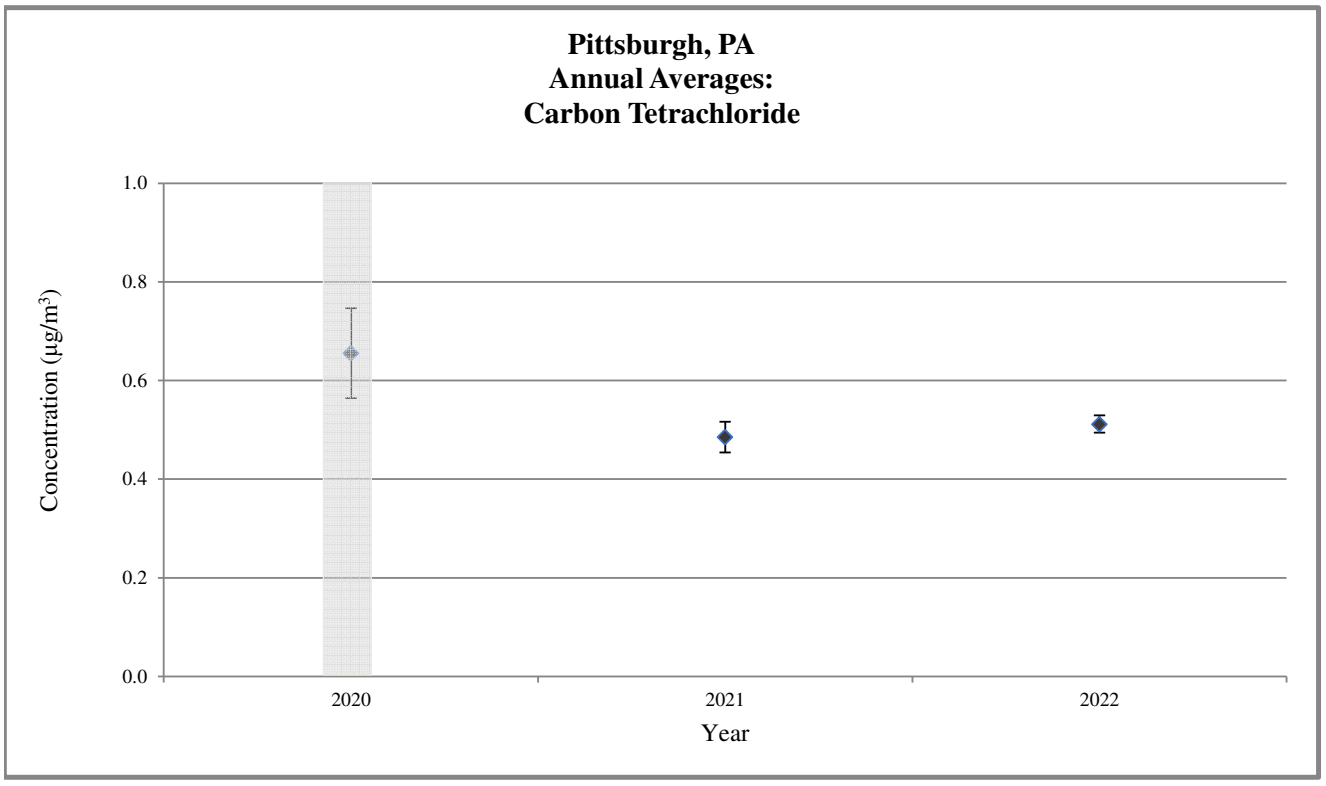




Sampling began midway through the year.

Figure 3. Pittsburgh, PA Annual Average Concentrations





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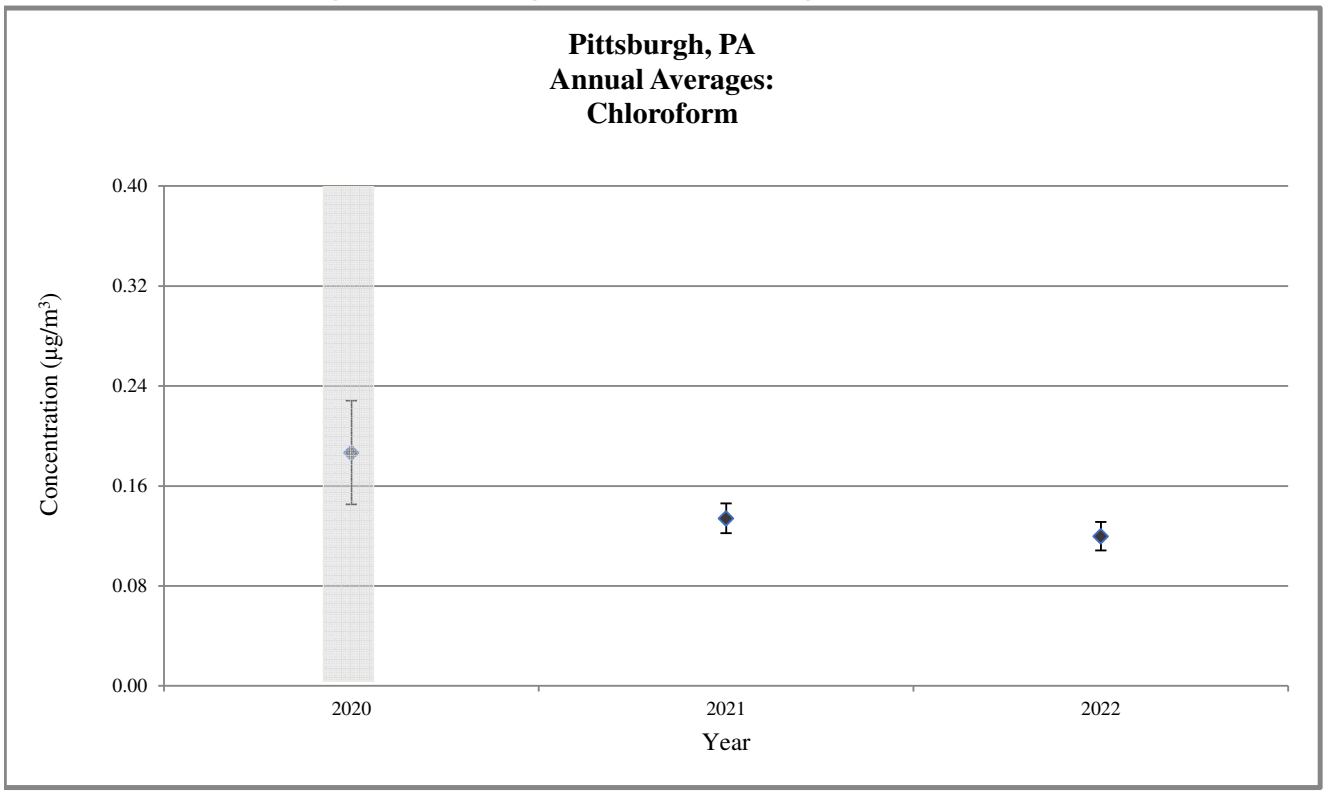
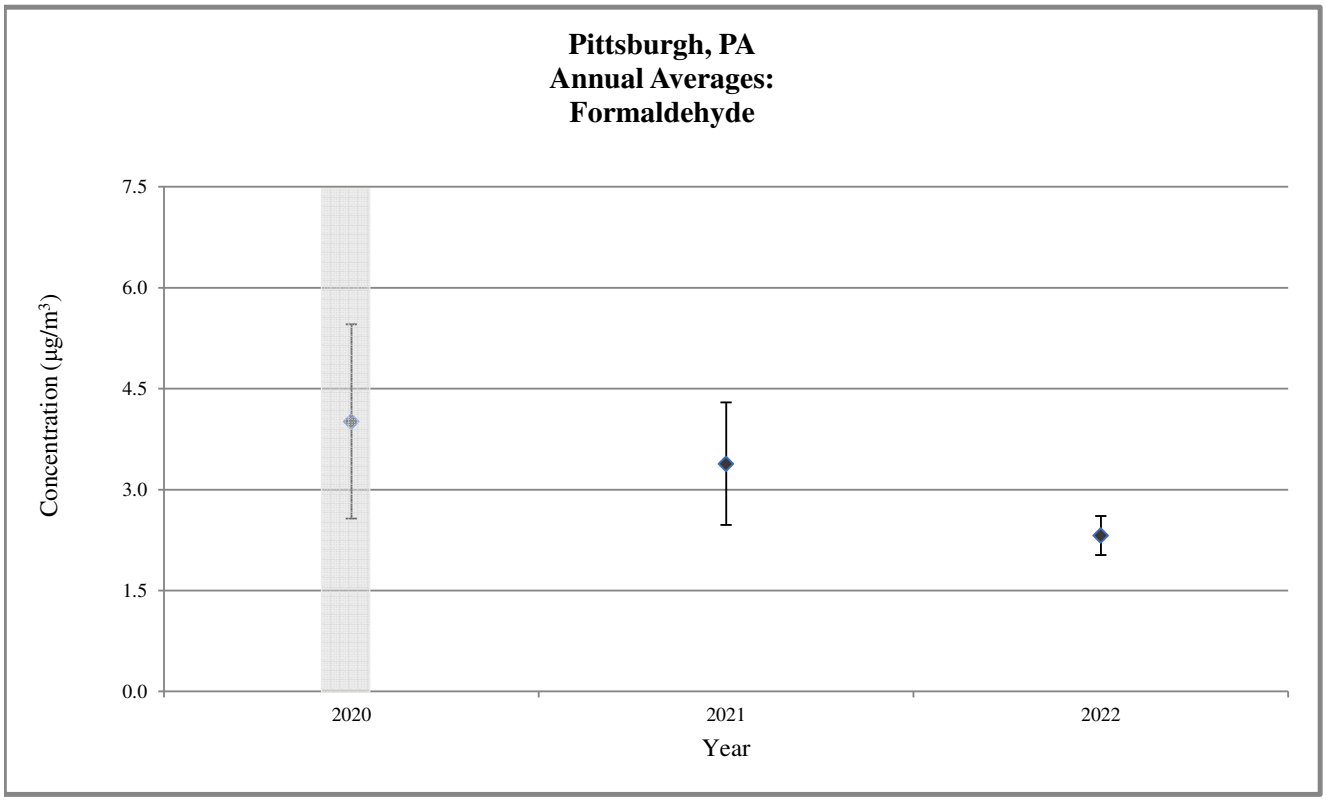
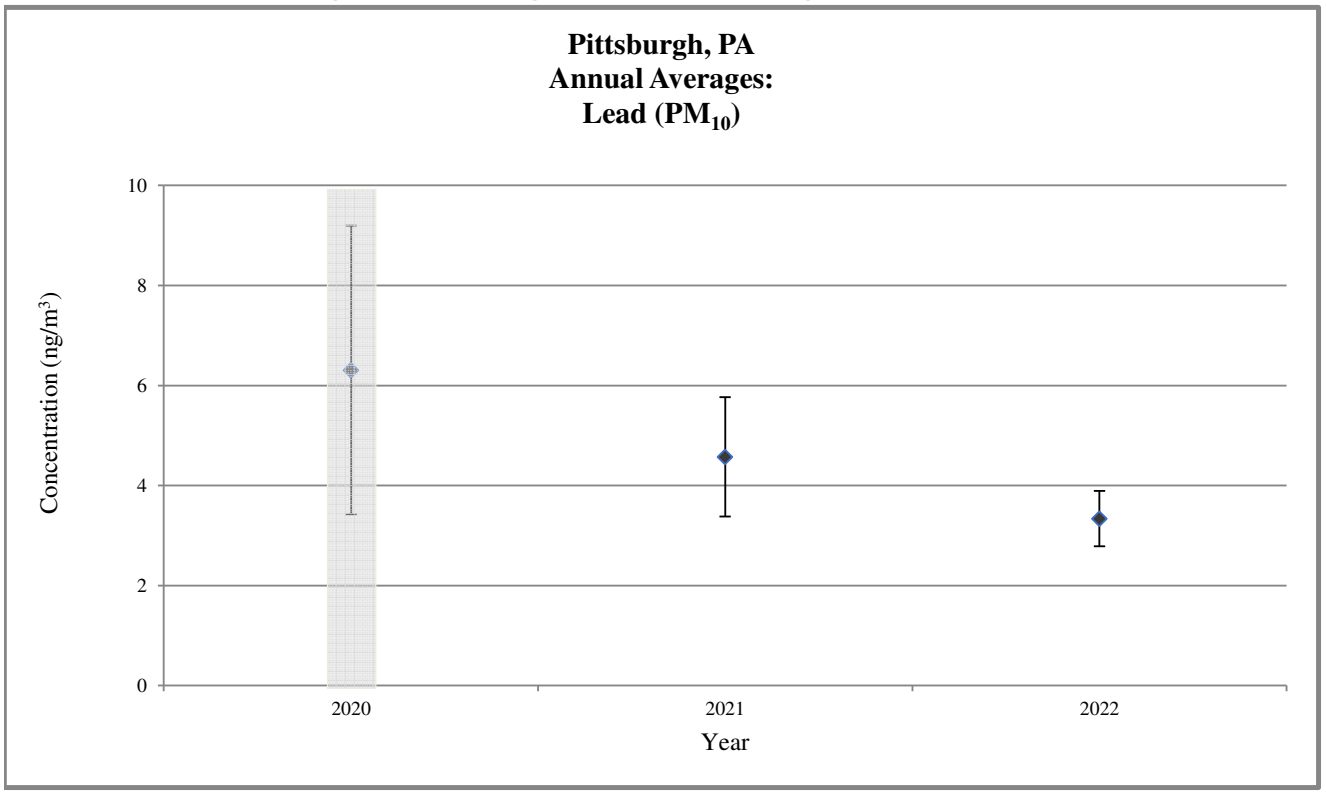
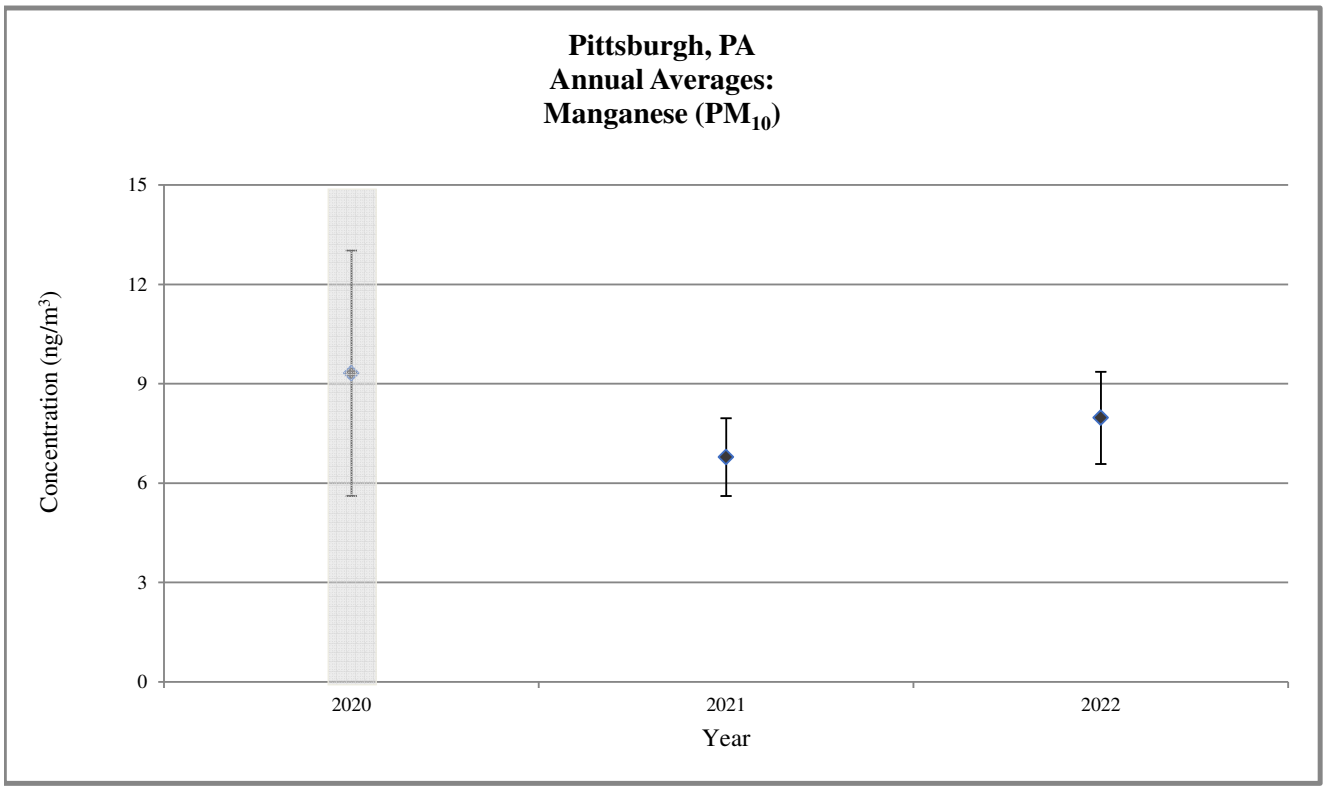




Sampling began midway through the year.

Figure 3. Pittsburgh, PA Annual Average Concentrations





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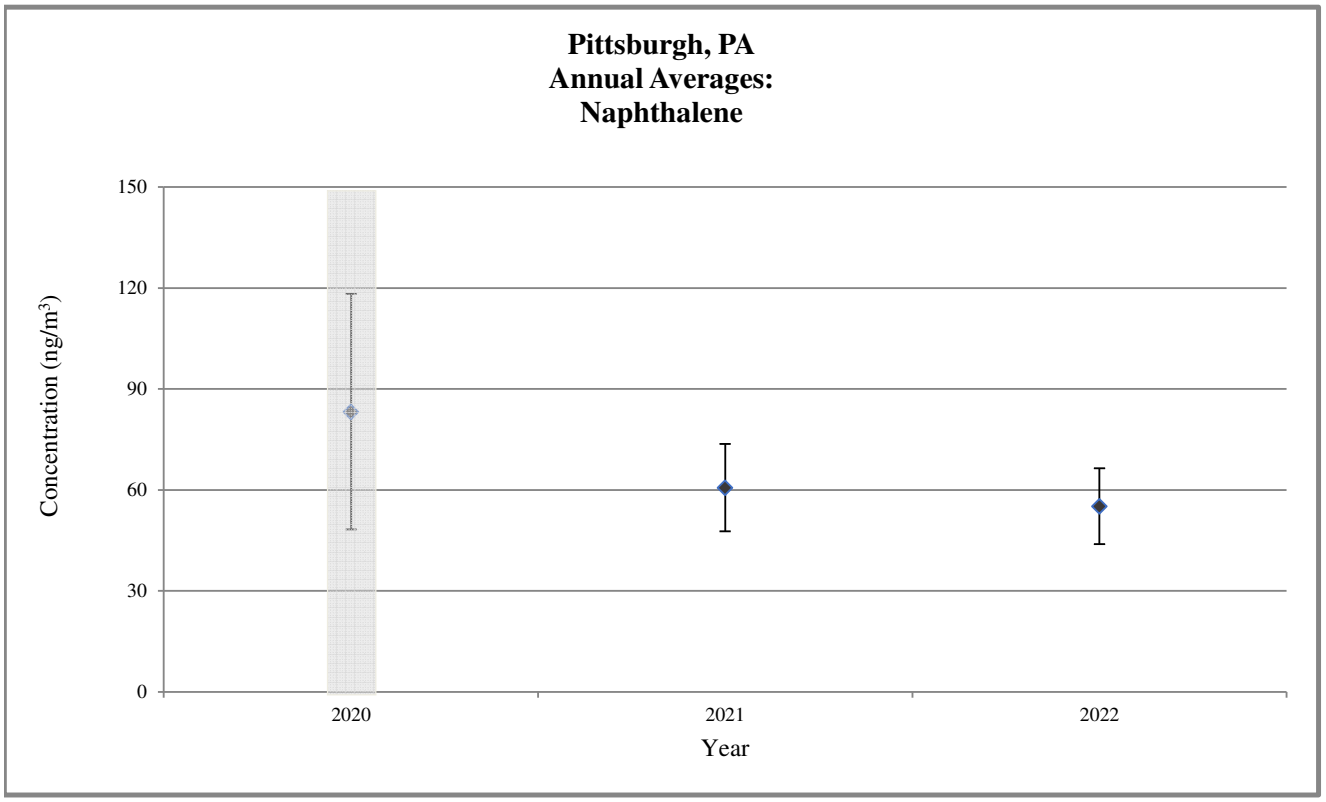
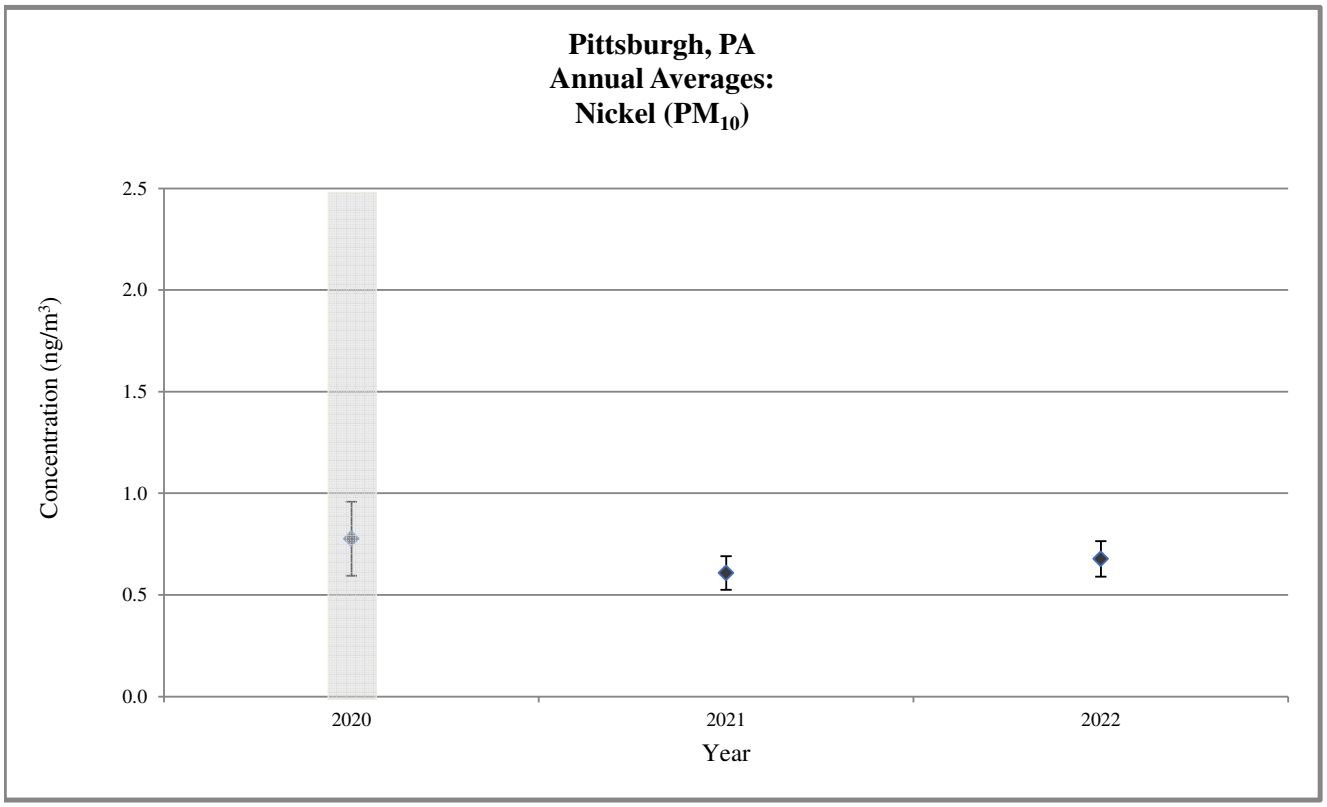
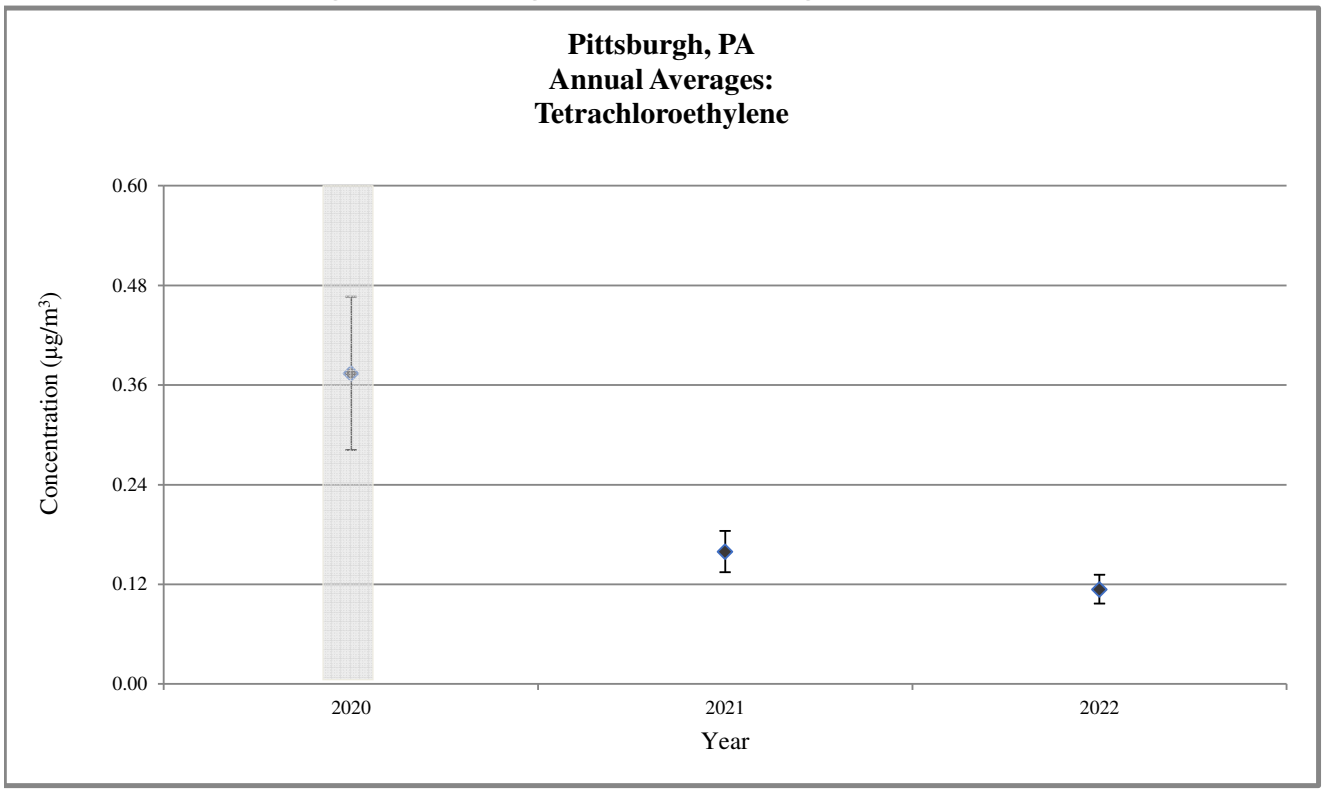
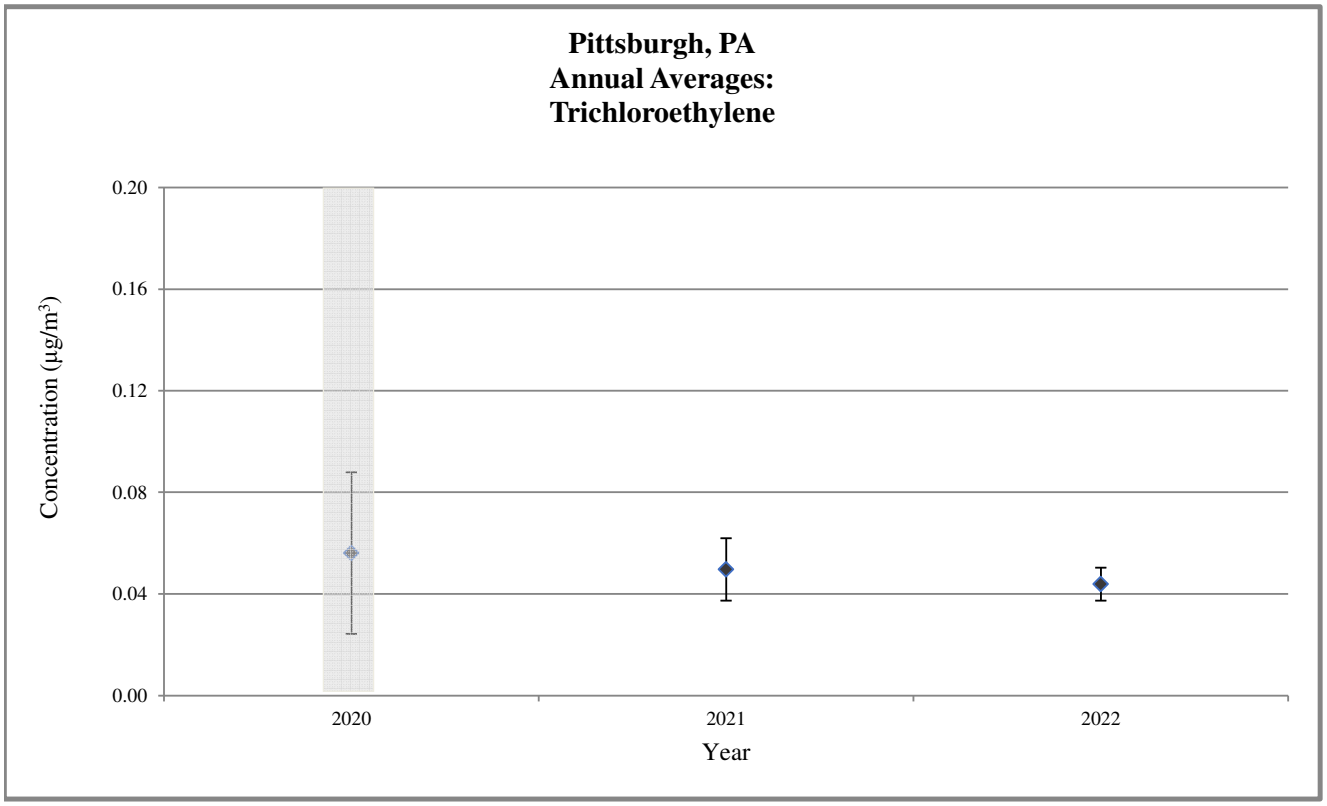




Sampling began midway through the year.

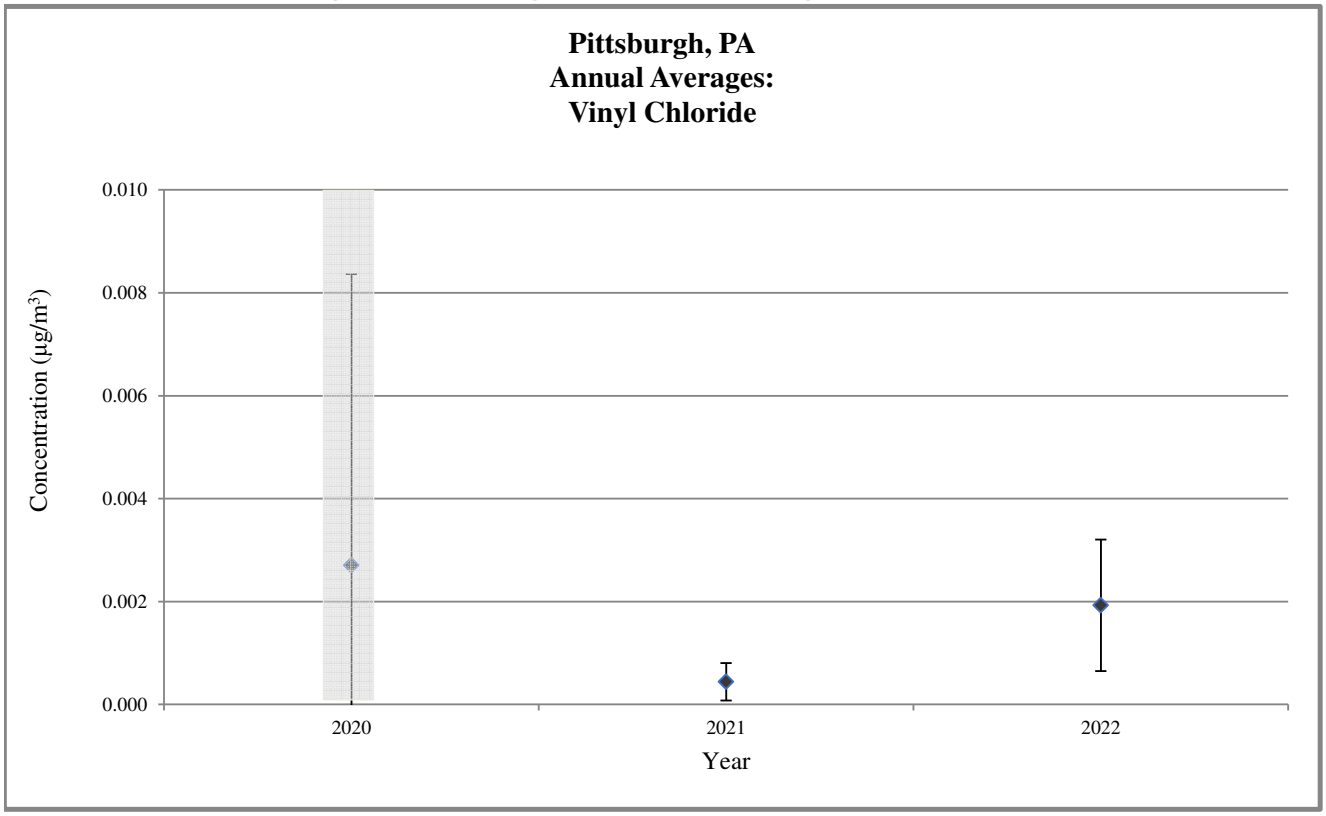
Figure 3. Pittsburgh, PA Annual Average Concentrations





Sampling began midway through the year.

Figure 3. Pittsburgh, PA Annual Average Concentrations



Sampling began midway through the year.

Table 6. NATTS Network Assessment: MQO#1 - Completeness Percentage at Pittsburgh, PA

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	
Pittsburgh, PA (AQS Site Code: 42-003-0008)																	
2020	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
2021	90	90	90	90	90	90	90	97	97	95	95	95	95	95	95	95	95
2022	85	85	85	85	85	85	85	98	98	97	97	97	97	97	97	97	97

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.

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

	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
Year	**VOCs**							**Carbonyls**		**PM10 Metals**						**PAHs**	
Pittsburgh, PA (AQS Site Code: 42-003-0008)																	
2020	0.42	0.71	0.96	0.28	1.36	0.51	0.81	0.28	1.23	0.05	0.02	0.026	0.011	0.08	0.14	0.01	0.03
2021	0.25	0.26	0.41	0.07	0.49	0.24	0.20	0.03	0.24	0.05	0.02	0.026	0.011	0.08	0.15	0.01	0.03
2022	0.25	0.37	0.41	0.07	0.73	0.33	0.18	0.05	0.38	0.05	0.02	0.026	0.012	0.08	0.15	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

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

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	
Pittsburgh, PA (AQS Site Code: 42-003-0008)																	
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	1.5	1.2	12.1	9.0	10.3	5.9	6.7	-9.5	-11.2	-5.9	-7.4	-5.4	-2.9	-3.8	-8.7	0.1	-2.0
2022	9.7	-19.3	6.9	2.0	5.6	-1.0	-8.6	-1.5	-1.0	--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

[a]: No Proficiency Test samples were sent for this pollutant and year.

Table 9. NATTS Network Assessment: MQO#4 - Overall Method Precision %CV at Pittsburgh, PA

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	
Pittsburgh, PA (AQS Site Code: 42-003-0008)																	
2020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2021	--	--	--	--	--	--	--	0.8	0.5	--	--	--	--	--	--	--	--
2022	--	--	--	--	--	--	--	0.7	2.9	--	--	--	--	--	--	--	--

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

Table 10. NATTS Network Assessment: MQO#4 - Analytical Method Precision %CV at Pittsburgh, PA

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	
Pittsburgh, PA (AQS Site Code: 42-003-0008)																	
2020	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	2.3	8.4
2021	2.2	--b	0.8	1.1	2.0	--b	--b	0.5	0.4	--a	--a	--a	--a	--a	--a	2.0	4.0
2022	2.4	1.5	0.2	1.4	--b	--b	--b	0.6	0.5	--a	--a	--a	--a	--a	--a	2.9	0.6

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

Appendix A. Equipment Inventory

Method	Year(s)	Manufacturer/Model, Extraction Type, and Year
Sampling Equipment		
Carbonyls	2020-2022	ATEC-8000 (Year Deployed: 2020)
PAHs	2020-2022	Tisch TE-1000 (Year Deployed: 2020)
PM_{10} Metals	2020-2022	Tisch TE-6070 (Year Deployed: 2020)
VOCs	2020-2022	ATEC 2200 (Year Deployed: 2020)
Analytical Equipment		
Carbonyls	2020	Waters Alliance 2695 HPLC with UV/Vis detection (Year Deployed: 2003)
	2021-2022	Waters Alliance 2695 HPLC /model 2489 Dual Absorbance (Year Deployed: 2018)
PAHs	2020	HP/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_{10} Metals	2020-2022	Agilent 7700x ICP-MS (Year Deployed: 2011)
VOCs	2020	Agilent 7890B/5977B (Year Deployed: 2020)
	2021-2022	HP/Agilent 8890/5977B GC/MS (Year Deployed: 2019)
Preconcentrator Equipment		
VOCs	2020	Nutech 8900DS (Year Deployed: 2013)
	2021-2022	Entech 7200A (Year Deployed: 2019)
Standards Preparation Equipment		
VOCs	2020	Entech 4700D (dynamic dilution) (Year Deployed: 2019)
	2021-2022	Custom-built (dynamic dilution) (Year Deployed: 1985)
Canister Cleaning Equipment		
VOCs	2020	Entech 3100A (hot) (Year Deployed: 2015)
	2021-2022	Wasson-ECE TO Clean (Hot) (Year Deployed: 2010)
PM_{10} Extraction Equipment		
PM_{10} Metals	2020-2022	SCP Science Digi Prep MS (Hotblock) (Year Deployed: 2017)
PAHs Extraction Equipment		
PAHs	2020-2022	Dionex -350 (ASE) (Year Deployed: 2019)