

La Grande, OR NATTS Network Assessment Review

- Established 2004 (La Grande (#1), OR); relocated approximately 1.25 miles southeast in September 2016 and continued without interruption (La Grande (#2), OR): Carbonyls, PAHs, PM₁₀ Metals, and VOCs
 - Chromium VI began in 2005 and ended in 2014
- For the NATTS Network Assessment (2004-2018):
 - 10 of 18 Method Quality Objective (MQO) Core HAPs were included in the national trends
 - Benzene, Carbon Tetrachloride, Tetrachloroethylene, and Vinyl Chloride: Low completeness in 2015.
 - 1,3-Butadiene: Low completeness in 2015; Bias Percent Difference outside $\pm 35\%$ and analytical precision data not reported in 2013 and 2014.
 - Chloroform: Low completeness in 2015; Bias Percent Difference outside $\pm 35\%$ and analytical precision data not reported in 2018.
 - Naphthalene: Bias Percent Difference outside $\pm 35\%$ and analytical precision data not reported in 2016 and 2018.
 - Trichloroethylene: Bias Percent Difference outside $\pm 35\%$ in 2018 and analytical precision data not reported in 2014, 2016, and 2018.
 - 214 of 258 pollutant datasets were suitable for trends analysis
 - Annual Average and 3-Year Rolling Average Concentrations were generally flat over time, with the exception of a few pollutants (arsenic (PM₁₀), benzene, benzo(a)pyrene, and lead (PM₁₀)).
 - 100% Reporting of Datasets
- Method Quality Objectives (MQO): 2004-2018
 - Completeness: Met 85% completeness in 220 of 258 pollutant datasets
 - Method Detection Limits: Met MDL Target Ratio of 1.00 in 221 of 259 pollutant datasets
 - Bias: Met $\pm 25\%$ for 175 of 222 pollutant datasets
 - Overall Method Precision: Met $\leq 15\%$ CV for 0 of 0 pollutant datasets
 - Analytical Method Precision: Met $\leq 15\%$ CV for 19 of 116 pollutant datasets
- Analytical Laboratories for 2018

VOC	Carbonyl	PM ₁₀ Metals	Chromium VI	PAHs
ODEQ	ODEQ	ODEQ	NA	ODEQ

- Equipment Year Deployed

Equipment Type	VOC	Carbonyl	PM ₁₀ Metals	Chromium VI	PAHs
Sampler	2011	1989	1994	1998	1998
Analytical	2000	2000	2001	2005	2000
Preconcentrator	2011	NA	NA	NA	NA
Standards Preparation	Unknown	NA	NA	NA	NA
Canister Cleaning	2005	NA	NA	NA	NA
Extraction	NA	NA	2001	2005	Unknown

National Summary: NATTS data were collected at 27 locations across the United States, with sites beginning in 2003 or later (Figure 1) for 19 core HAPs. Over 528,000 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., 2013-2015 vs. 2016-2018) 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 19 core HAPs, 18 were assessed for the NATTS Trends DQO. Due to sampling and analytical issues, acrolein was not considered for trends analysis (Table 2). This assessment showed that across the network, 15 of those 18 pollutants were decreasing between the 3-year blocks, while two of those pollutants were increasing between the 3-year blocks. One pollutant did not exhibit a trend.

Figure 1. NATTS Site and Year Established

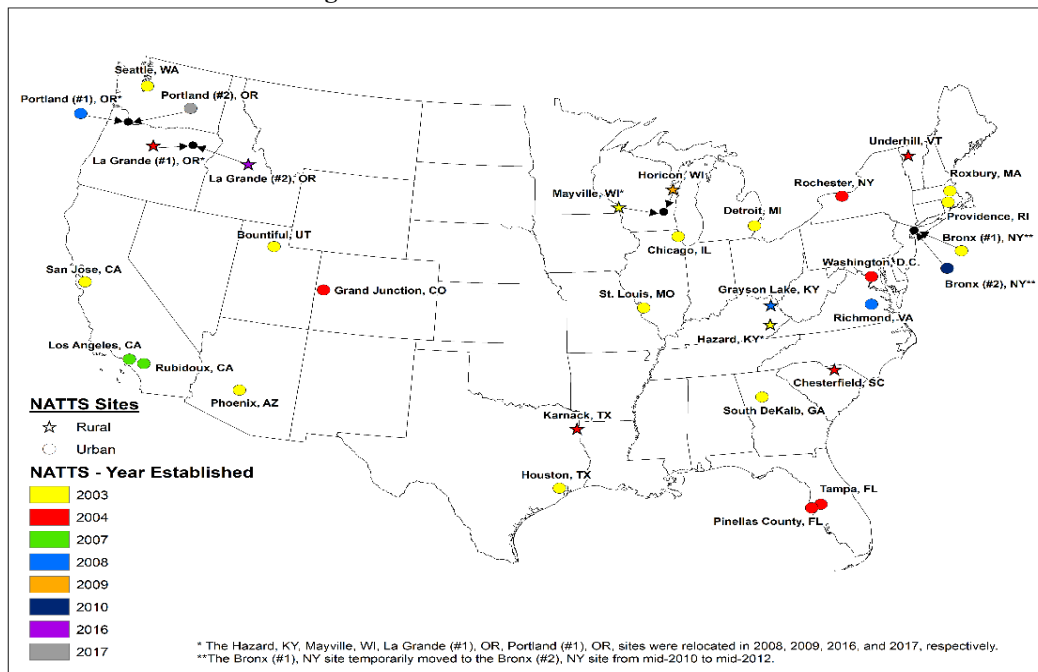


Table 1. NATTS Network Assessment: Count and Percentage of Suitable Datasets by Pollutant Group

Pollutant Group	A-rated		B-rated		Does Not Meet	
	#	%	#	%	#	%
VOCs	1,452	53%	737	27%	555	20%
Carbonyls	523	67%	193	25%	66	8%
PM ₁₀ Metals	1,418	61%	685	30%	213	9%
Chromium VI	159	74%	29	13%	27	13%
PAHs	410	74%	124	22%	18	3%
Total = 6,609	3,962	60%	1,768	27%	879	13%

Table 2. Three-Year Block Averages for National Trends

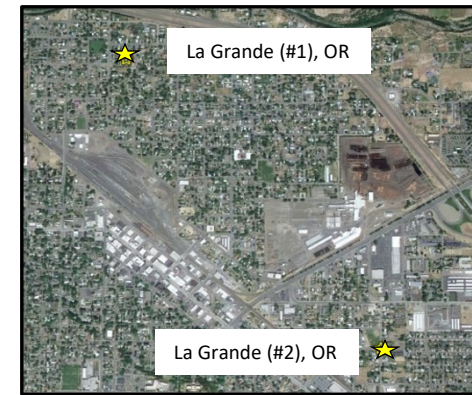
Pollutant	Units	# Sites	Block 1	Block 2	% Difference
Acetaldehyde	µg/m ³	19	1.51	1.39	-7.7%
Arsenic (PM ₁₀)	ng/m ³	21	0.71	0.68	-3.2%
Benzene	µg/m ³	19	0.65	0.59	-10.2%
Benzo(a)pyrene	ng/m ³	21	0.113	0.087	-23.2%
Beryllium (PM ₁₀)	ng/m ³	20	0.012	0.009	-26.4%
Butadiene, 1,3-	µg/m ³	19	0.071	0.063	-10.9%
Cadmium (PM ₁₀)	ng/m ³	21	0.170	0.097	-43.0%
Carbon Tetrachloride	µg/m ³	15	0.59	0.56	-4.7%
Chloroform	µg/m ³	20	0.256	0.255	-0.4%
Chromium VI	ng/m ³	18	0.029	0.026	-7.7%
Formaldehyde	µg/m ³	19	2.77	2.68	-3.3%
Lead (PM ₁₀)	ng/m ³	21	3.08	2.81	-8.9%
Manganese (PM ₁₀)	ng/m ³	20	8.06	7.93	-1.6%
Naphthalene	ng/m ³	20	66.70	51.08	-23.4%
Nickel (PM ₁₀)	ng/m ³	19	1.28	1.05	-18.0%
Tetrachloroethylene	µg/m ³	19	0.149	0.174	17.2%
Trichloroethylene	µg/m ³	19	0.020	0.022	10.7%
Vinyl Chloride	µg/m ³	17	0.0051	0.0048	-5.5%

NATTS Monitoring Site Report: La Grande (#1), OR and La Grande (#2), OR

Site Information

Region	10
NATTS Site Type	Rural
County	Union
AQS Site Code	41-061-0119 (#1); 41-061-0123 (#2)
NATTS Operating Agency	OR Dept. Of Environmental Quality
Latitude	45.33897 (#1); 45.3235 (#2)
Longitude	-118.0945 (#1); -118.0778 (#2)
AQS Land Use	Residential
AQS Location Setting	Urban/City Center
10-Mile Population	25,539

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
Acetaldehyde	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Arsenic (PM ₁₀)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Benzene	N ^a	N ^a	N ^a	Y	Y	Y	Y	Y	Y	Y	Y	N ^b	Y	Y	Y
Benzo(a)pyrene	--	--	--	N ^b	N ^b	Y	N ^c	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Beryllium (PM ₁₀)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Butadiene, 1,3-	N ^a	N ^a	N ^a	N ^a	N ^a	N ^a	N ^a	Y	Y	N ^{c,d}	N ^{c,d}	N ^b	Y	Y	Y
Cadmium (PM ₁₀)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Carbon tetrachloride	N ^a	N ^a	N ^a	Y	Y	N ^a	Y	Y	Y	Y	Y	N ^b	Y	Y	Y
Chloroform	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N ^b	Y	Y	N ^{c,d}
Chromium VI	--	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	--	--	--	--	--
Formaldehyde	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Lead (PM ₁₀)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Manganese (PM ₁₀)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Naphthalene	--	--	--	N ^b	N ^b	Y	N ^{b,d}	Y	Y	Y	Y	Y	N ^{c,d}	Y	N ^{c,d}
Nickel (PM ₁₀)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)	Y(T)
Tetrachloroethylene	N ^a	N ^a	N ^a	Y	Y	N ^a	Y	Y	Y	Y	Y	N ^b	Y	Y	Y
Trichloroethylene	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N ^d	N ^b	N ^d	Y	N ^{c,d}
Vinyl chloride	N ^a	N ^a	N ^a	Y	N ^a	Y	Y	Y	Y	N ^{c,d}	Y	N ^b	Y	Y	Y

^a: Reported MDL to NATTS Target Ratio greater than 2.0.

^b: Completeness was less than 75% based on 1-in-6 day sampling.

^c: Bias % Difference was outside ± 35%.

^d: Analytical precision data (required since 2012) was not reported to EPA or AQS for this pollutant.

Table 3. NATTS Network Assessment Data (2003-2018) - 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	15,704	100%	1.77 ± 0.02	0.50	0.66	0.97	1.45	2.19	3.24	4.04
	µg/m ³	Rural	4,930	100%	1.20 ± 0.04	0.36	0.46	0.65	0.93	1.38	2.02	2.76
	µg/m ³	All Sites	20,634	100%	1.63 ± 0.02	0.44	0.58	0.86	1.31	2.00	3.02	3.86
Arsenic (PM ₁₀)	ng/m ³	Urban	14,968	97%	0.89 ± 0.04	0.10	0.19	0.34	0.58	0.99	1.70	2.41
	ng/m ³	Rural	4,622	96%	0.49 ± 0.02	0.04	0.08	0.17	0.35	0.59	0.94	1.28
	ng/m ³	All Sites	19,590	97%	0.79 ± 0.03	0.06	0.14	0.29	0.52	0.89	1.54	2.19
Benzene	µg/m ³	Urban	15,984	99%	0.86 ± 0.01	0.25	0.30	0.43	0.66	1.05	1.64	2.21
	µg/m ³	Rural	2,494	95%	0.43 ± 0.02	0.04	0.13	0.21	0.33	0.52	0.78	1.01
	µg/m ³	All Sites	18,478	99%	0.81 ± 0.01	0.19	0.26	0.39	0.61	0.98	1.55	2.09
Benzo(a)pyrene	ng/m ³	Urban	12,336	70%	0.096 ± 0.004	ND	ND	ND	0.04	0.11	0.24	0.37
	ng/m ³	Rural	3,179	36%	0.067 ± 0.009	ND	ND	ND	ND	0.02	0.13	0.37
	ng/m ³	All Sites	15,515	63%	0.090 ± 0.004	ND	ND	ND	0.03	0.10	0.23	0.37
Beryllium (PM ₁₀)	ng/m ³	Urban	15,783	75%	0.051 ± 0.006	ND	ND	0.00003	0.005	0.018	0.050	0.101
	ng/m ³	Rural	4,687	49%	0.023 ± 0.003	ND	ND	ND	ND	0.005	0.017	0.072
	ng/m ³	All Sites	20,470	69%	0.045 ± 0.005	ND	ND	ND	0.003	0.012	0.049	0.100
Butadiene, 1,3-	µg/m ³	Urban	15,388	81%	0.092 ± 0.002	ND	ND	0.025	0.058	0.114	0.215	0.302
	µg/m ³	Rural	2,185	29%	0.012 ± 0.001	ND	ND	ND	ND	0.017	0.046	0.059
	µg/m ³	All Sites	17,573	75%	0.082 ± 0.002	ND	ND	ND	0.049	0.104	0.199	0.287
Cadmium (PM ₁₀)	ng/m ³	Urban	16,360	92%	0.21 ± 0.02	ND	0.01	0.05	0.09	0.17	0.42	0.63
	ng/m ³	Rural	4,684	87%	0.10 ± 0.01	ND	ND	0.03	0.06	0.11	0.20	0.29
	ng/m ³	All Sites	21,044	91%	0.18 ± 0.01	ND	0.01	0.04	0.08	0.16	0.35	0.56
Carbon Tetrachloride	µg/m ³	Urban	14,713	99%	0.569 ± 0.003	0.361	0.433	0.496	0.562	0.651	0.737	0.798
	µg/m ³	Rural	2,189	92%	0.534 ± 0.016	ND	0.180	0.402	0.537	0.633	0.727	0.798
	µg/m ³	All Sites	16,902	98%	0.565 ± 0.003	0.304	0.408	0.490	0.559	0.649	0.736	0.798
Chloroform	µg/m ³	Urban	16,068	87%	0.265 ± 0.022	ND	ND	0.093	0.132	0.217	0.420	0.668
	µg/m ³	Rural	3,802	43%	0.052 ± 0.003	ND	ND	ND	ND	0.095	0.144	0.230
	µg/m ³	All Sites	19,870	79%	0.224 ± 0.018	ND	ND	0.064	0.113	0.196	0.364	0.586
Chromium VI	ng/m ³	Urban	8,414	74%	0.036 ± 0.002	ND	ND	ND	0.020	0.042	0.081	0.120
	ng/m ³	Rural	2,586	41%	0.018 ± 0.004	ND	ND	ND	ND	0.017	0.031	0.051
	ng/m ³	All Sites	11,000	66%	0.032 ± 0.001	ND	ND	ND	0.016	0.036	0.073	0.114

Table 3. NATTS Network Assessment Data (2003-2018) - 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	16,118	100%	3.11 ± 0.04	0.66	0.99	1.60	2.47	3.84	5.63	7.25
	µg/m ³	Rural	5,002	100%	2.22 ± 0.05	0.53	0.68	1.06	1.69	2.74	4.19	5.45
	µg/m ³	All Sites	21,120	100%	2.90 ± 0.04	0.61	0.86	1.43	2.29	3.59	5.38	6.96
Lead (PM ₁₀)	ng/m ³	Urban	16,366	100%	4.21 ± 0.13	0.72	0.98	1.55	2.64	4.56	8.35	11.90
	ng/m ³	Rural	4,680	99%	2.10 ± 0.16	0.37	0.50	0.84	1.41	2.37	3.91	5.36
	ng/m ³	All Sites	21,046	99%	3.74 ± 0.11	0.55	0.80	1.31	2.31	4.04	7.41	10.56
Manganese (PM ₁₀)	ng/m ³	Urban	16,141	100%	9.80 ± 0.32	1.09	1.51	2.52	4.92	10.21	20.10	30.08
	ng/m ³	Rural	4,627	99%	3.96 ± 0.14	0.46	0.73	1.36	2.57	4.75	8.54	12.13
	ng/m ³	All Sites	20,768	100%	8.50 ± 0.25	0.85	1.23	2.15	4.18	8.89	17.98	26.70
Naphthalene	ng/m ³	Urban	12,332	100%	74.63 ± 1.14	15.62	21.27	33.55	55.89	94.64	150.05	196.16
	ng/m ³	Rural	3,301	100%	24.47 ± 1.38	3.74	4.73	7.74	13.86	26.25	50.88	79.17
	ng/m ³	All Sites	15,633	100%	64.04 ± 1.00	6.58	10.92	23.37	45.59	83.31	137.54	181.75
Nickel (PM ₁₀)	ng/m ³	Urban	16,125	97%	1.85 ± 0.05	0.25	0.41	0.67	1.11	2.00	3.52	5.27
	ng/m ³	Rural	4,623	85%	0.65 ± 0.08	ND	ND	0.10	0.28	0.64	1.15	1.89
	ng/m ³	All Sites	20,748	94%	1.58 ± 0.04	ND	0.15	0.47	0.92	1.73	3.14	4.74
Tetrachloroethylene	µg/m ³	Urban	15,612	86%	0.25 ± 0.01	ND	ND	0.06	0.13	0.25	0.48	0.74
	µg/m ³	Rural	2,272	36%	0.09 ± 0.04	ND	ND	ND	ND	0.04	0.08	0.16
	µg/m ³	All Sites	17,884	79%	0.23 ± 0.01	ND	ND	0.04	0.11	0.22	0.44	0.70
Trichloroethylene	µg/m ³	Urban	15,843	41%	0.040 ± 0.002	ND	ND	ND	ND	0.051	0.107	0.164
	µg/m ³	Rural	3,388	13%	0.021 ± 0.003	ND	ND	ND	ND	ND	0.017	0.250
	µg/m ³	All Sites	19,231	36%	0.037 ± 0.002	ND	ND	ND	ND	0.041	0.105	0.167
Vinyl Chloride	µg/m ³	Urban	14,778	19%	0.0044 ± 0.0003	ND	ND	ND	ND	ND	0.0137	0.0257
	µg/m ³	Rural	2,444	8%	0.0040 ± 0.0009	ND	ND	ND	ND	ND	ND	0.0156
	µg/m ³	All Sites	17,222	17%	0.0043 ± 0.0003	ND	ND	ND	ND	ND	0.0126	0.0254

^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 La Grande (#1), OR and La Grande (#2), OR Combined

Analyte	Units	# Data Records	% Detection	Arithmetic Mean ^a	Percentile Value ^b						
					5th	10th	25th	50th	75th	90th	95th
Acetaldehyde	µg/m ³	848	100%	1.63 ± 0.06	0.69	0.77	1.03	1.41	2.02	2.78	3.26
Arsenic (PM ₁₀)	ng/m ³	856	100%	0.21 ± 0.02	0.05	0.06	0.09	0.14	0.21	0.35	0.52
Benzene	µg/m ³	800	91%	0.57 ± 0.05	ND	0.14	0.20	0.44	0.75	1.05	1.33
Benzo(a)pyrene	ng/m ³	629	35%	0.26 ± 0.04	ND	ND	ND	ND	0.37	0.82	1.35
Beryllium (PM ₁₀)	ng/m ³	856	98%	0.0054 ± 0.0004	0.0005	0.0008	0.002	0.003	0.007	0.012	0.015
Butadiene, 1,3-	µg/m ³	804	33%	0.049 ± 0.006	ND	ND	ND	ND	0.104	0.153	0.213
Cadmium (PM ₁₀)	ng/m ³	855	99%	0.052 ± 0.016	0.006	0.009	0.017	0.031	0.053	0.087	0.125
Carbon Tetrachloride	µg/m ³	804	80%	0.31 ± 0.01	ND	ND	0.17	0.30	0.46	0.60	0.70
Chloroform	µg/m ³	806	29%	0.071 ± 0.008	ND	ND	ND	ND	0.222	0.236	0.243
Chromium VI	ng/m ³	541	28%	0.008 ± 0.002	ND	ND	ND	ND	0.017	0.021	0.040
Formaldehyde	µg/m ³	849	100%	2.29 ± 0.08	0.96	1.12	1.50	2.01	2.83	3.77	4.53
Lead (PM ₁₀)	ng/m ³	853	100%	1.18 ± 0.09	0.25	0.34	0.51	0.81	1.32	2.31	3.18
Manganese (PM ₁₀)	ng/m ³	857	100%	5.63 ± 0.41	0.98	1.22	1.96	3.68	6.98	12.18	16.23
Naphthalene	ng/m ³	628	99%	33.24 ± 3.91	0.79	5.63	9.80	18.04	39.89	73.55	111.20
Nickel (PM ₁₀)	ng/m ³	856	96%	0.18 ± 0.01	0.01	0.04	0.08	0.14	0.24	0.33	0.42
Tetrachloroethylene	µg/m ³	806	34%	0.192 ± 0.118	ND	ND	ND	ND	0.308	0.328	0.336
Trichloroethylene	µg/m ³	806	27%	0.072 ± 0.009	ND	ND	ND	ND	0.242	0.259	0.264
Vinyl Chloride	µg/m ³	802	27%	0.034 ± 0.004	ND	ND	ND	ND	0.115	0.123	0.125

^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	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ
Carbonyls	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ
PM ₁₀ Metals	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ
Chromium VI	--	ERG	ERG/ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	CHLBNT	CHLBNT	CHLBNT	CHLBNT	--	--	--	--
PAHs	--	--	--	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ	ODEQ

--: Not Applicable

ODEQ: Oregon Department of Environmental Quality

ERG: Eastern Research Group, Inc.

Figure 3. La Grande (#1), OR and La Grande (#2), OR Combined Annual Average Concentrations

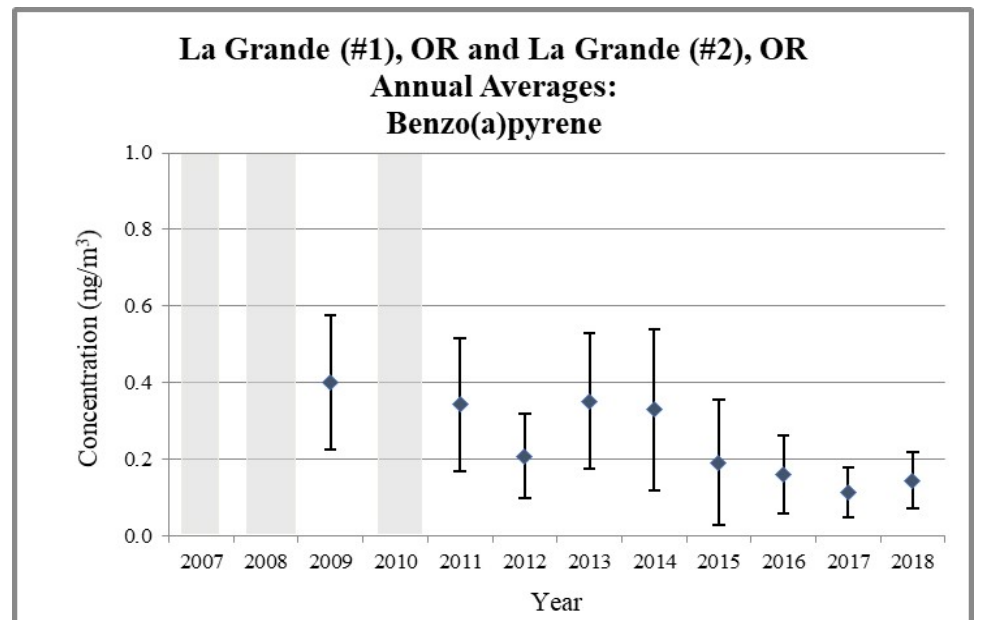
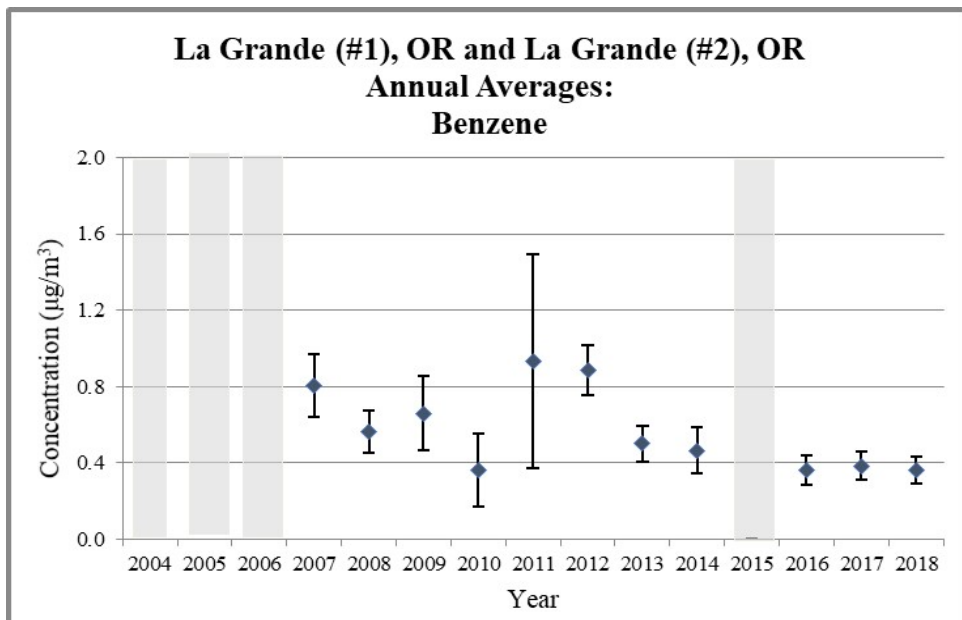
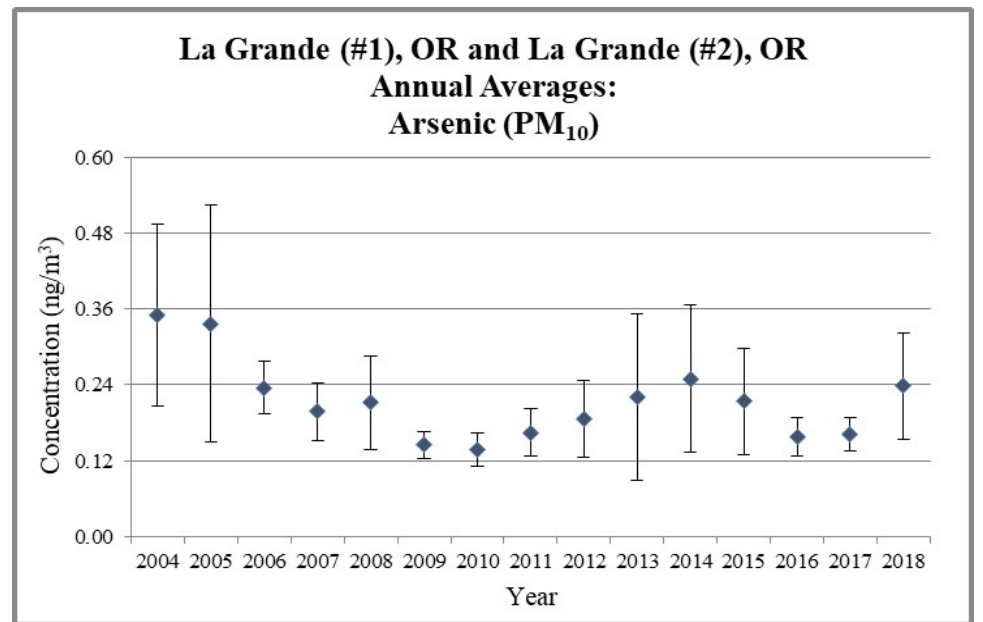
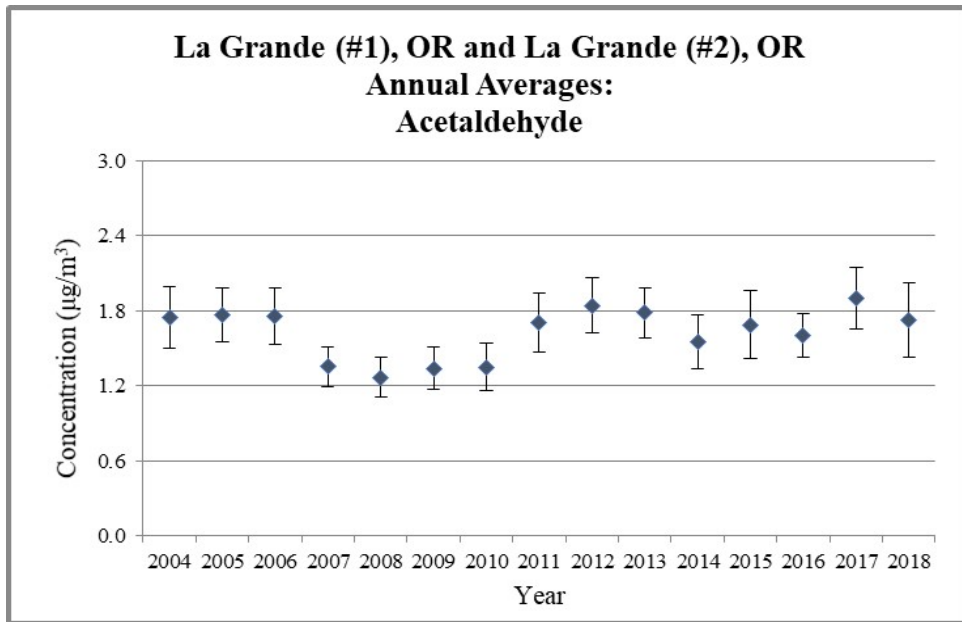


Figure 3. La Grande (#1), OR and La Grande (#2), OR Combined Annual Average Concentrations

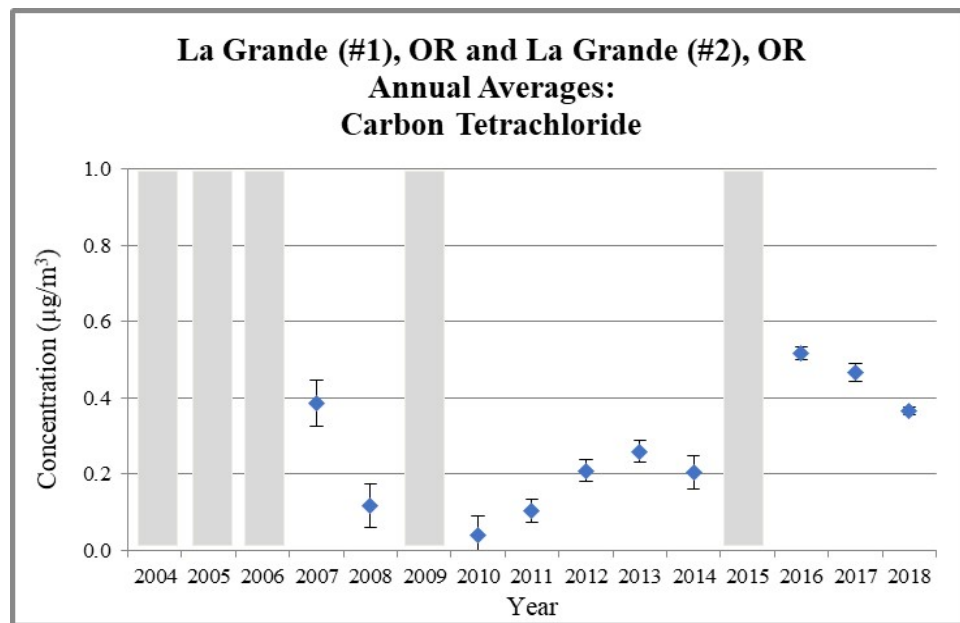
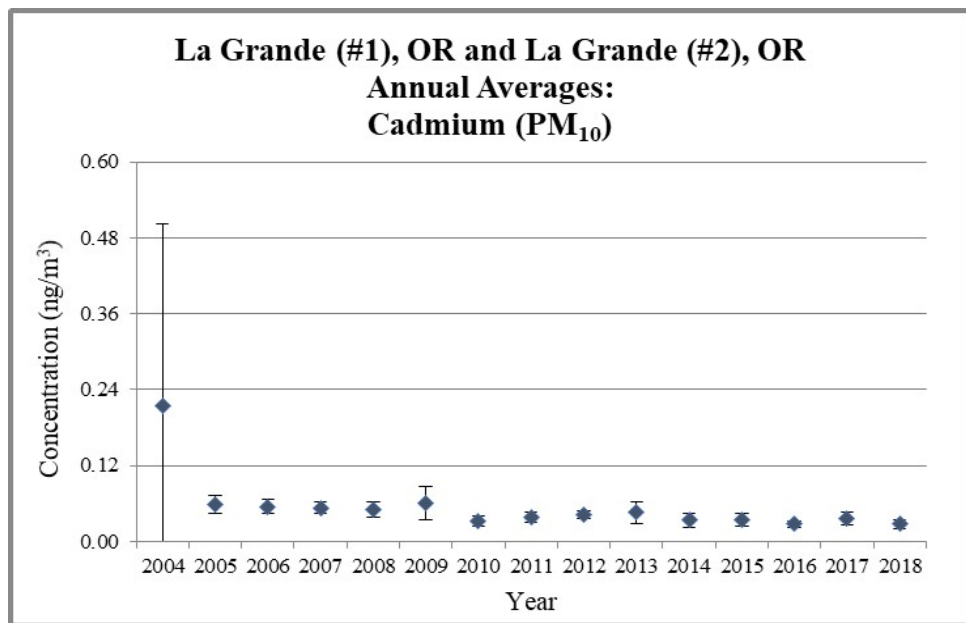
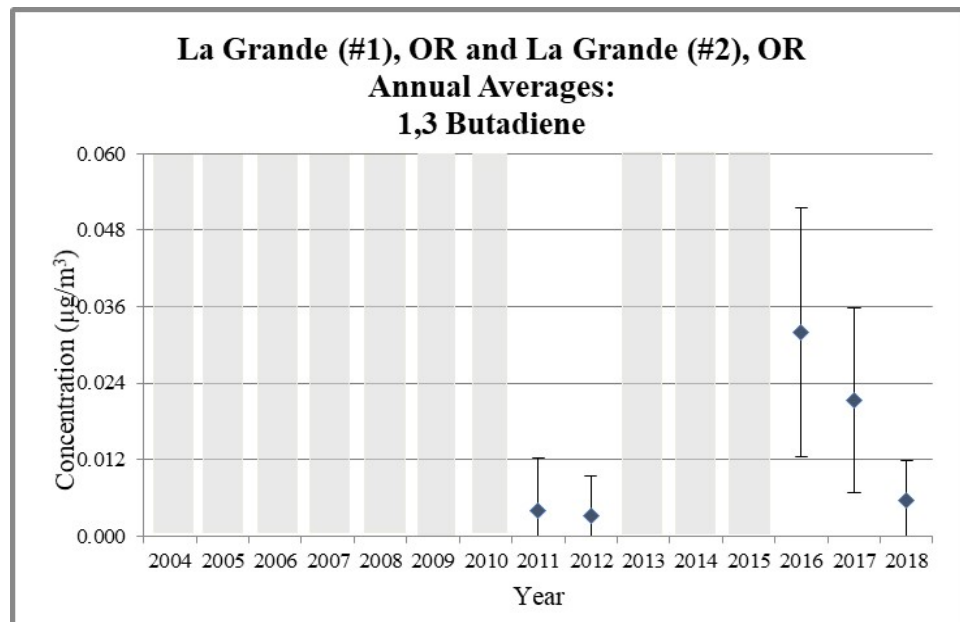
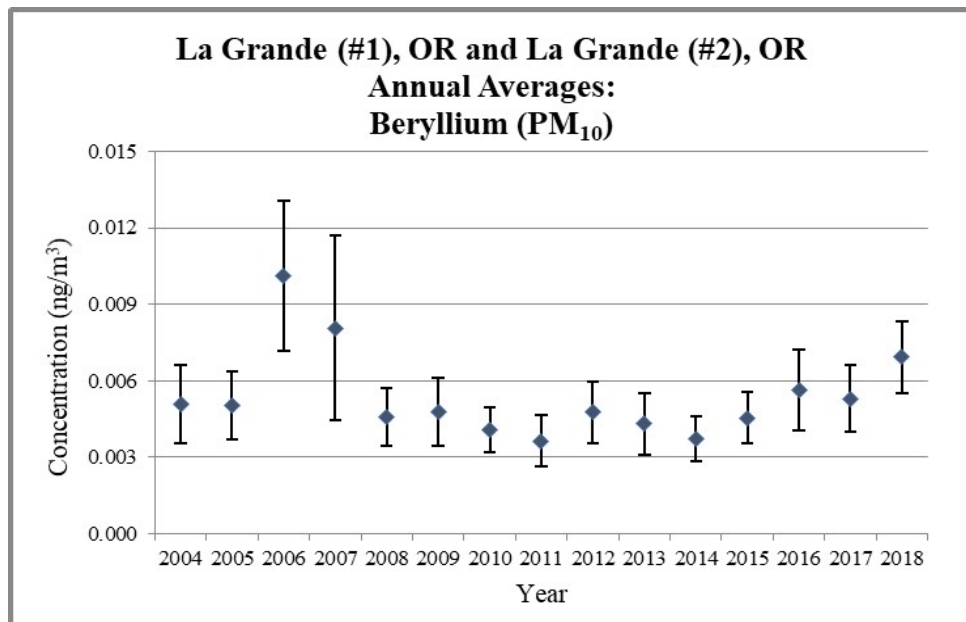


Figure 3. La Grande (#1), OR and La Grande (#2), OR Combined Annual Average Concentrations

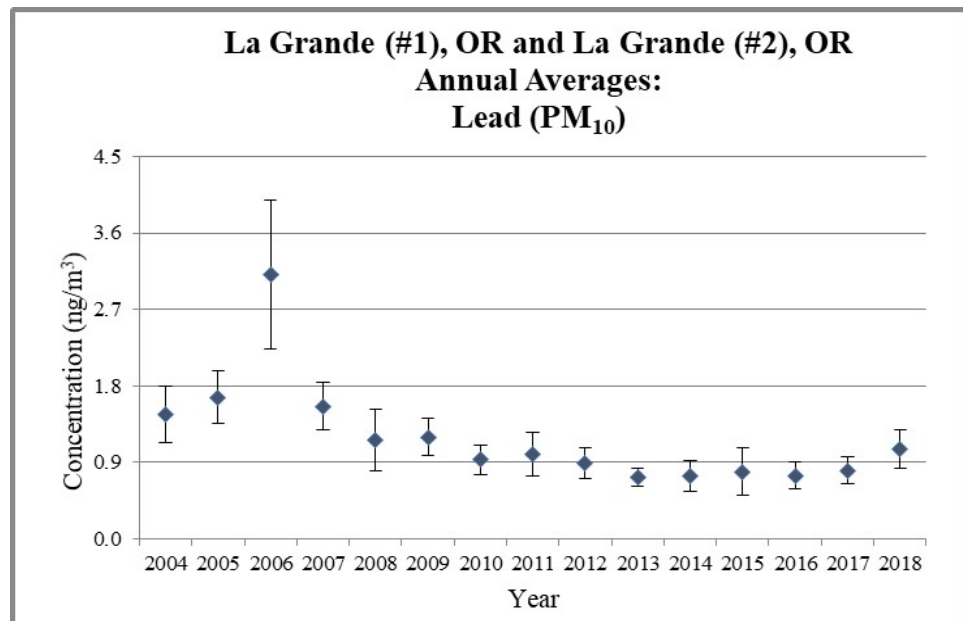
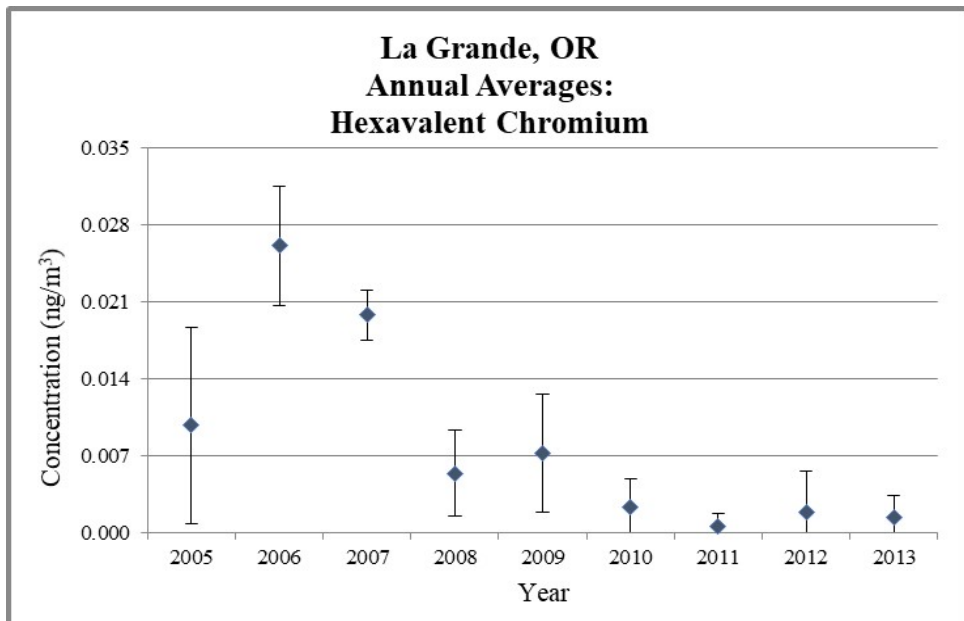
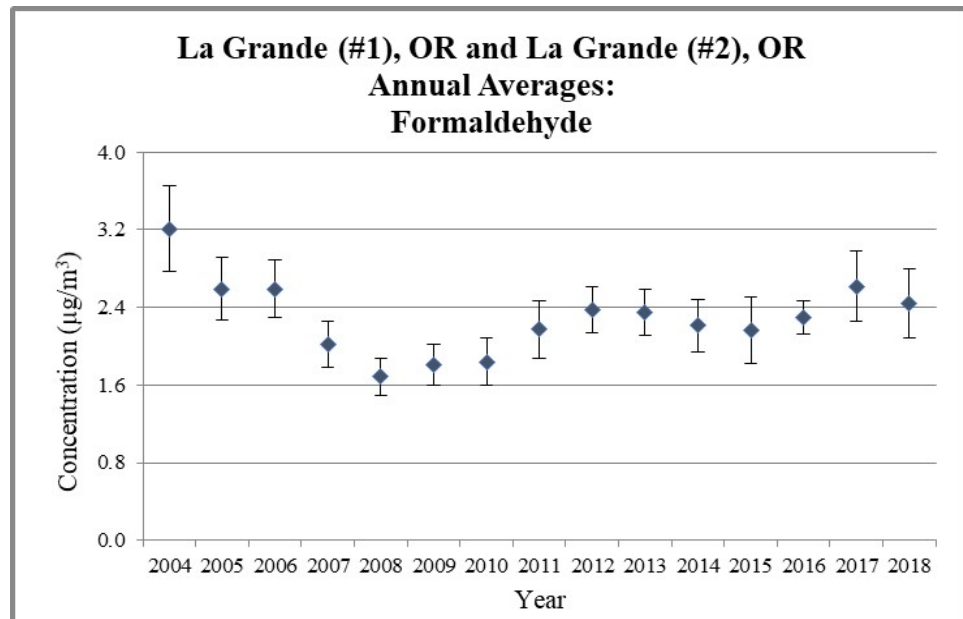
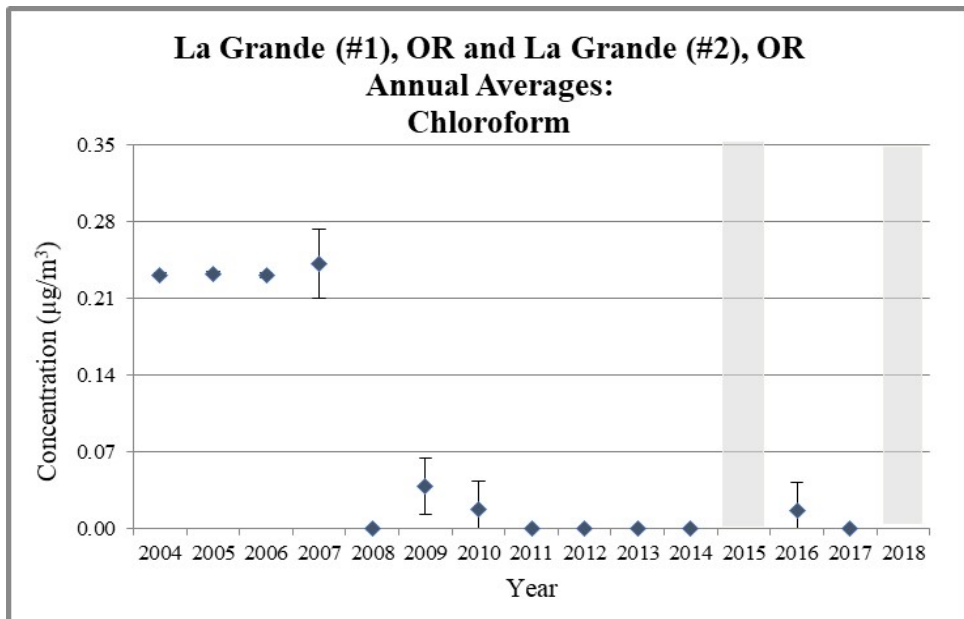


Figure 3. La Grande (#1), OR and La Grande (#2), OR Combined Annual Average Concentrations

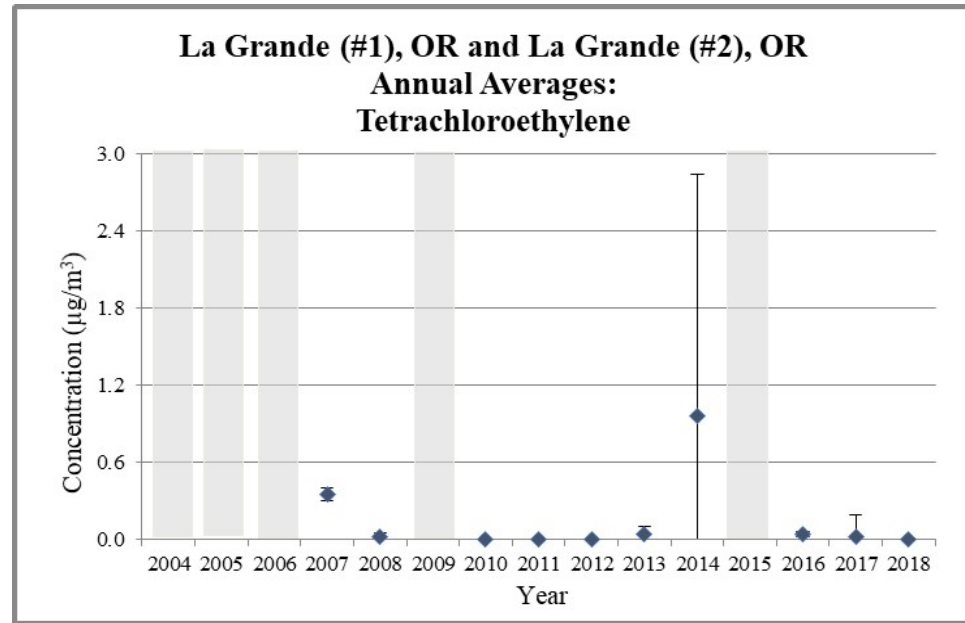
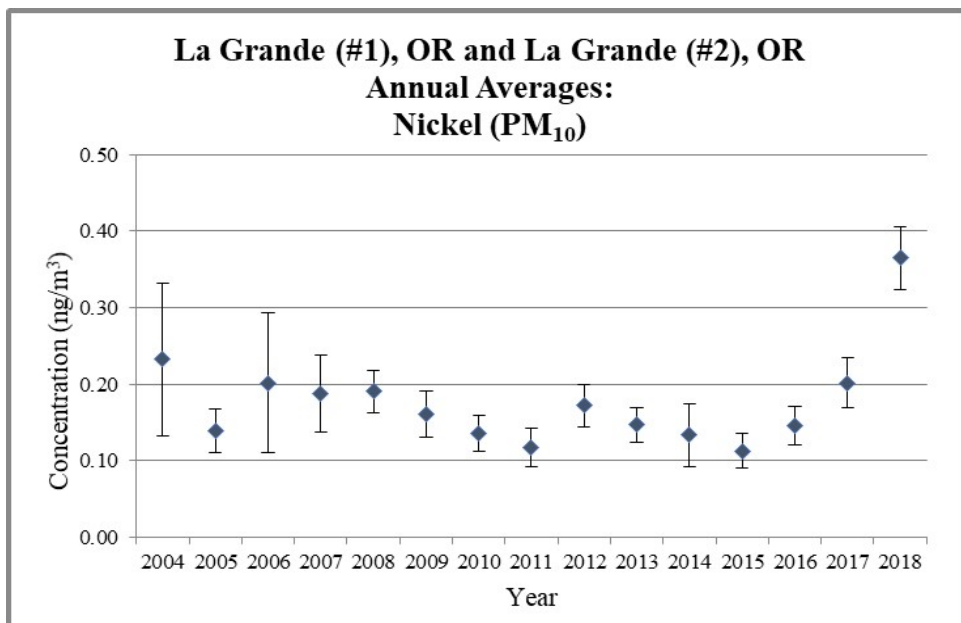
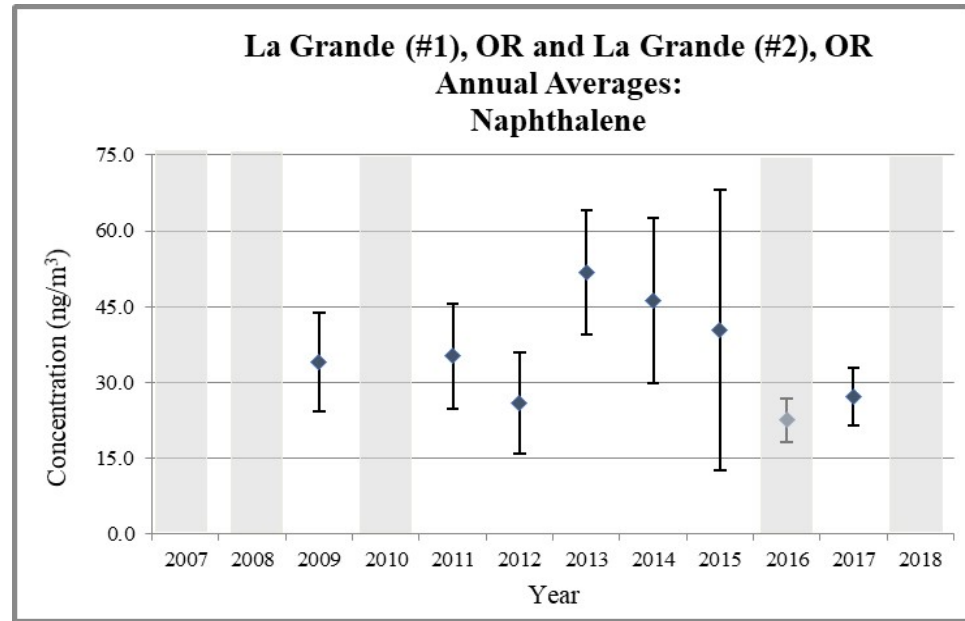
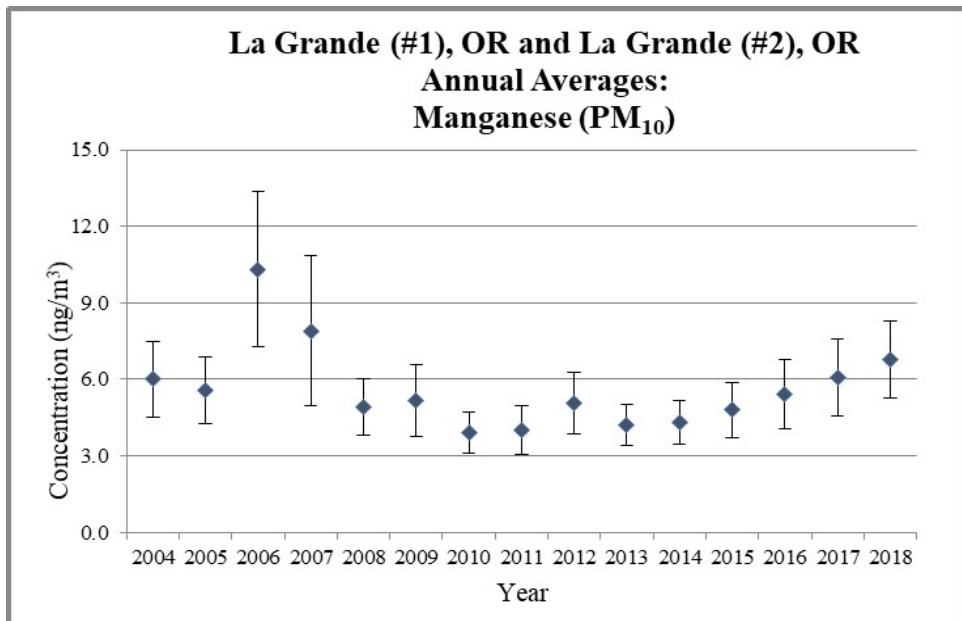
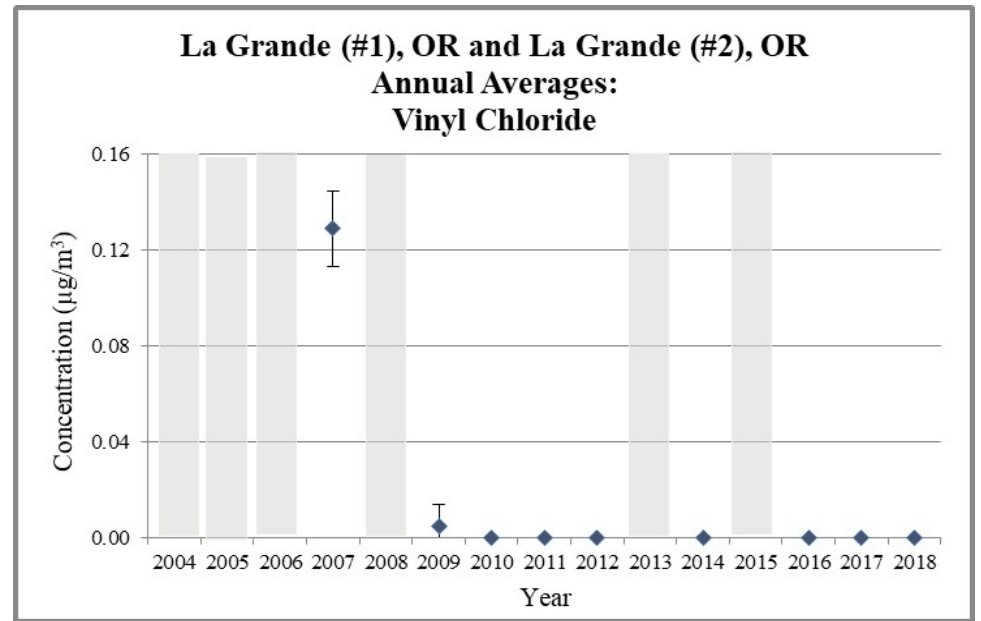
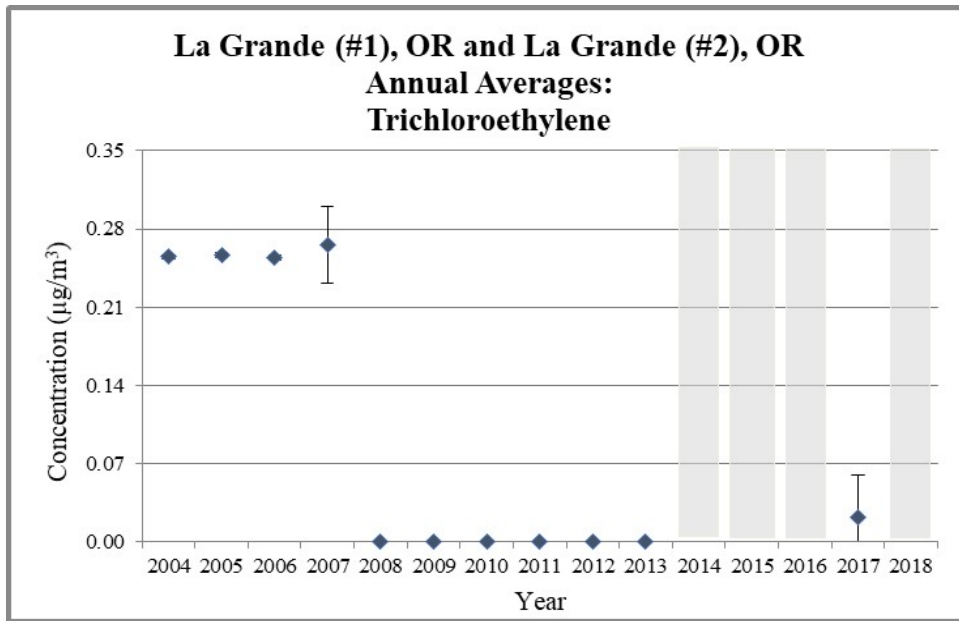


Figure 3. La Grande (#1), OR and La Grande (#2), OR Combined Annual Average Concentrations



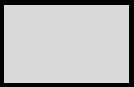
 Does not meet MQO

Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

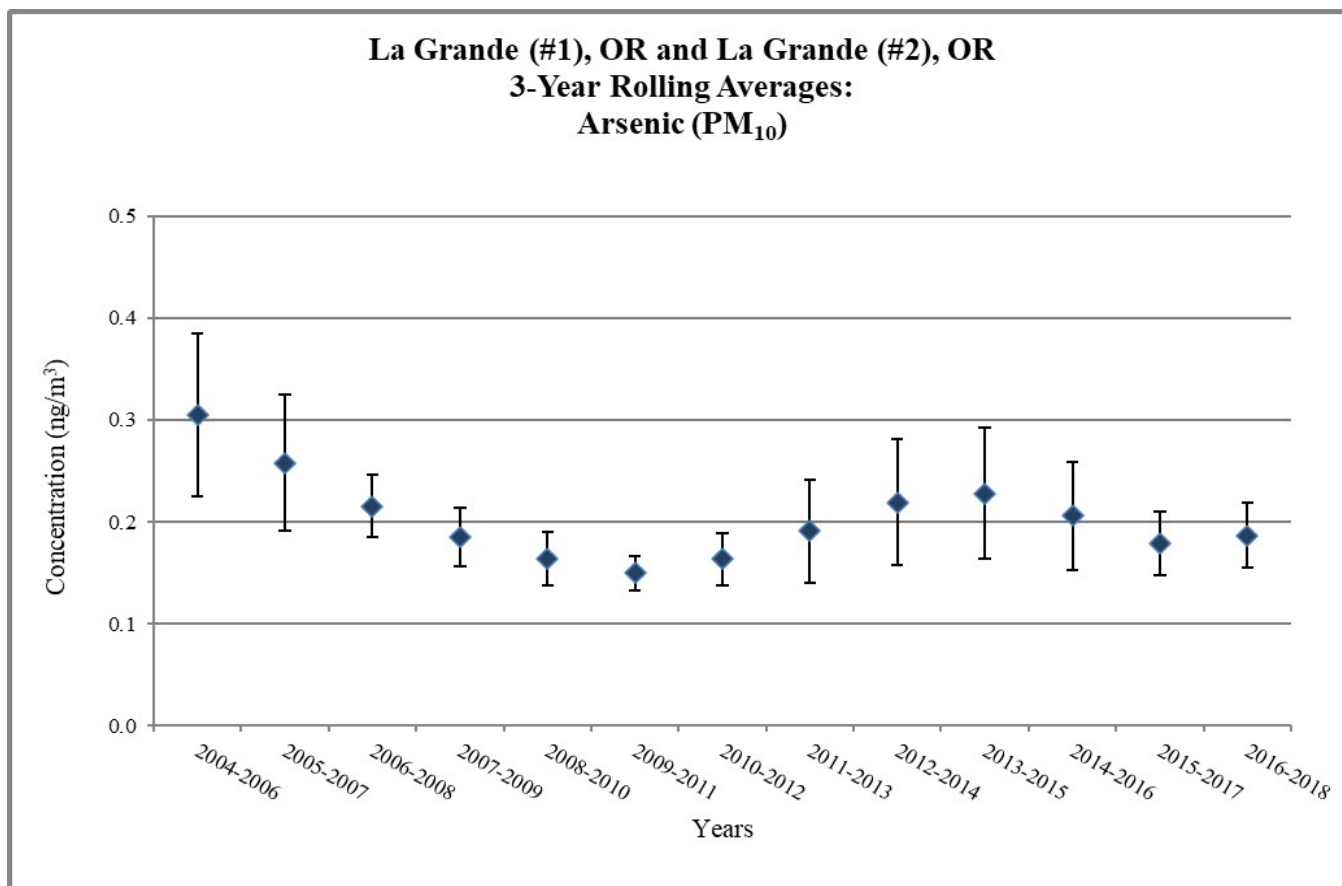
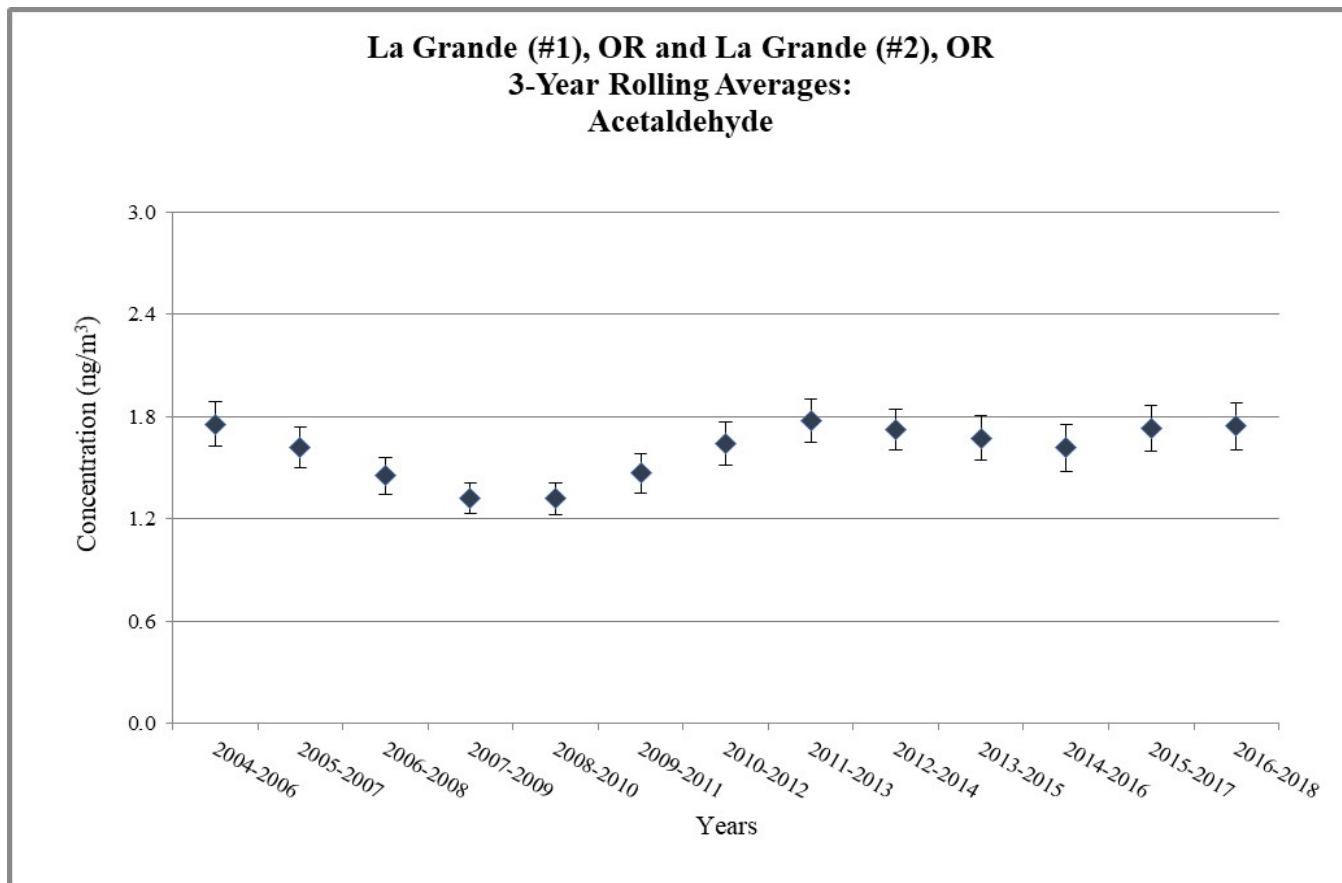


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

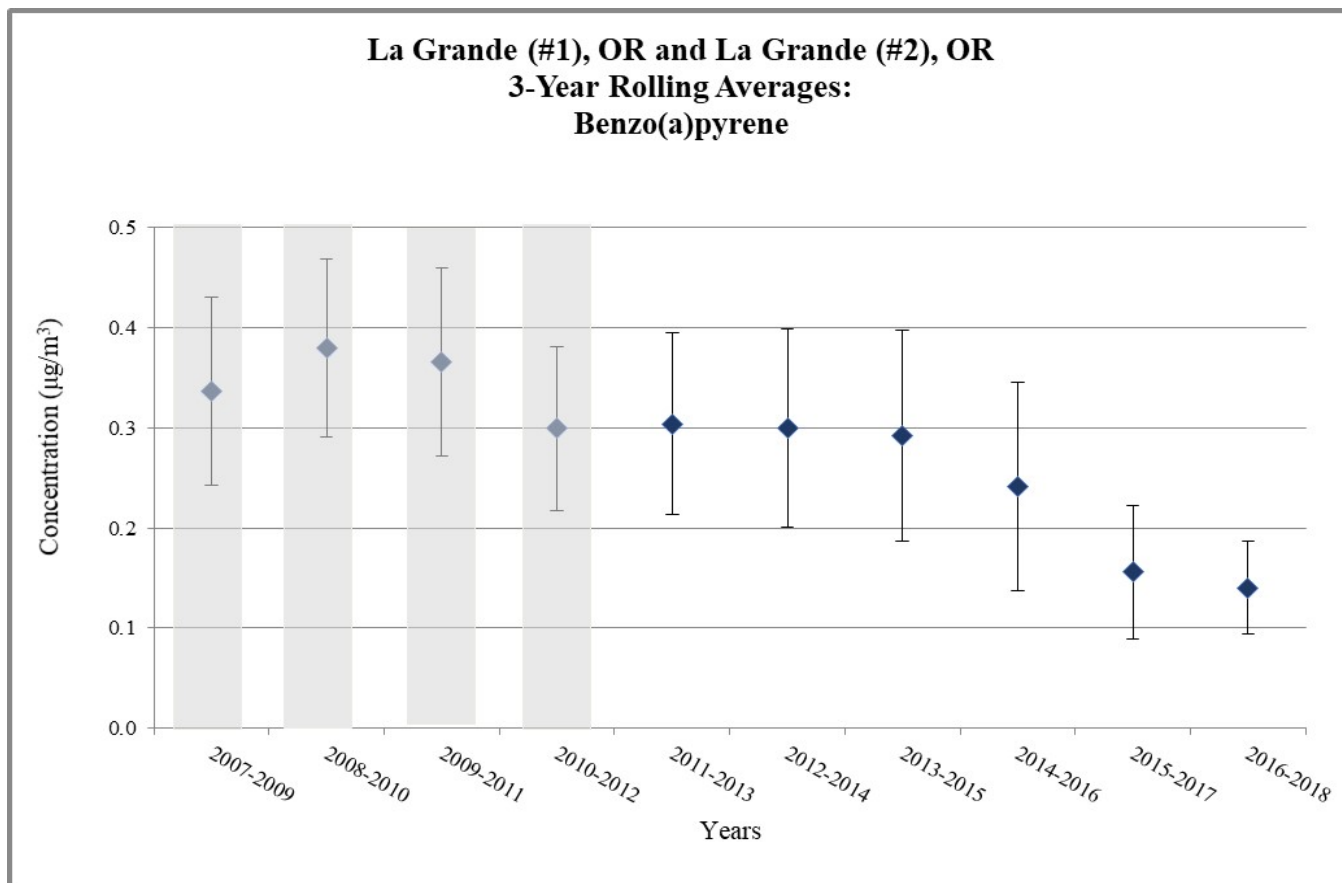
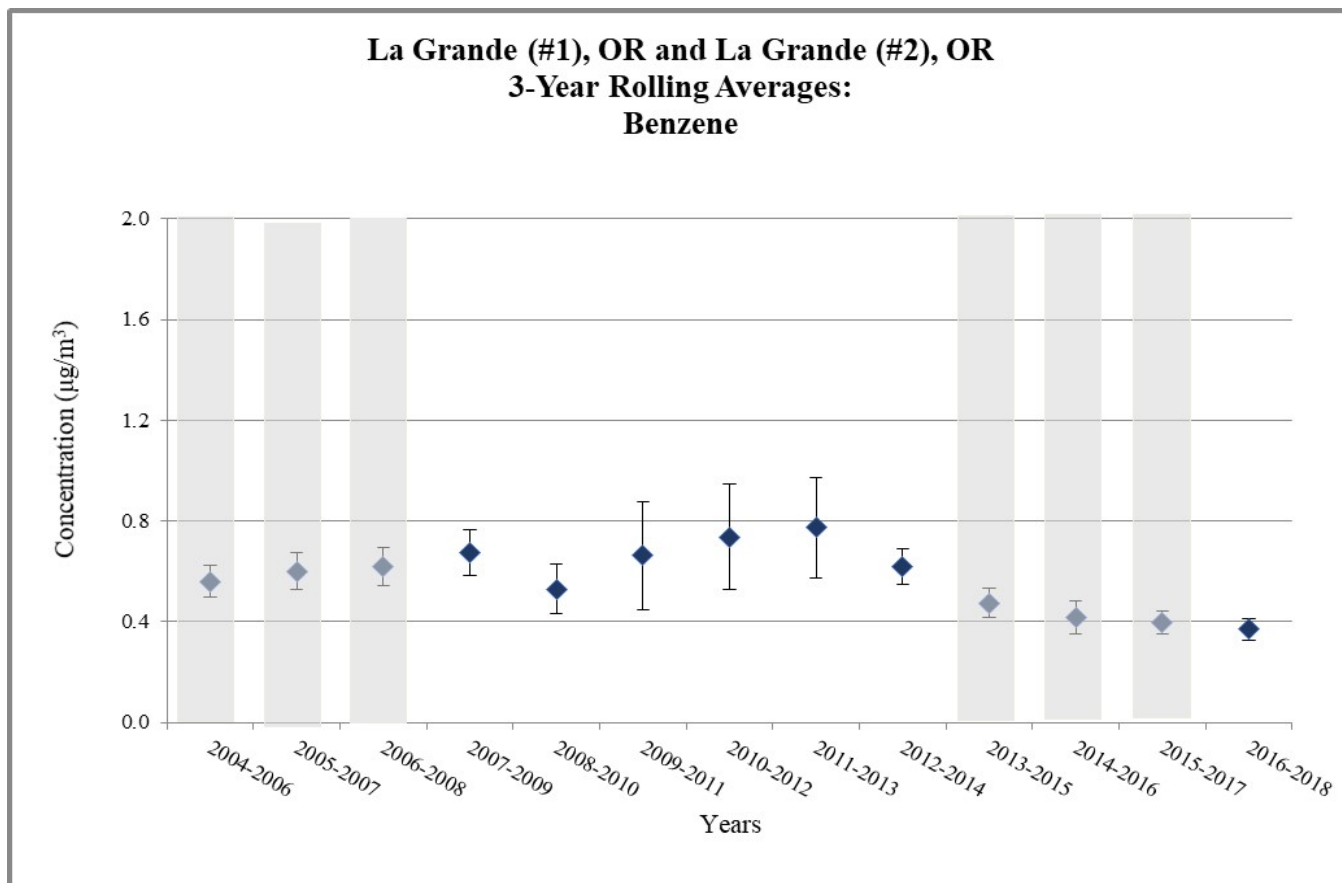


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

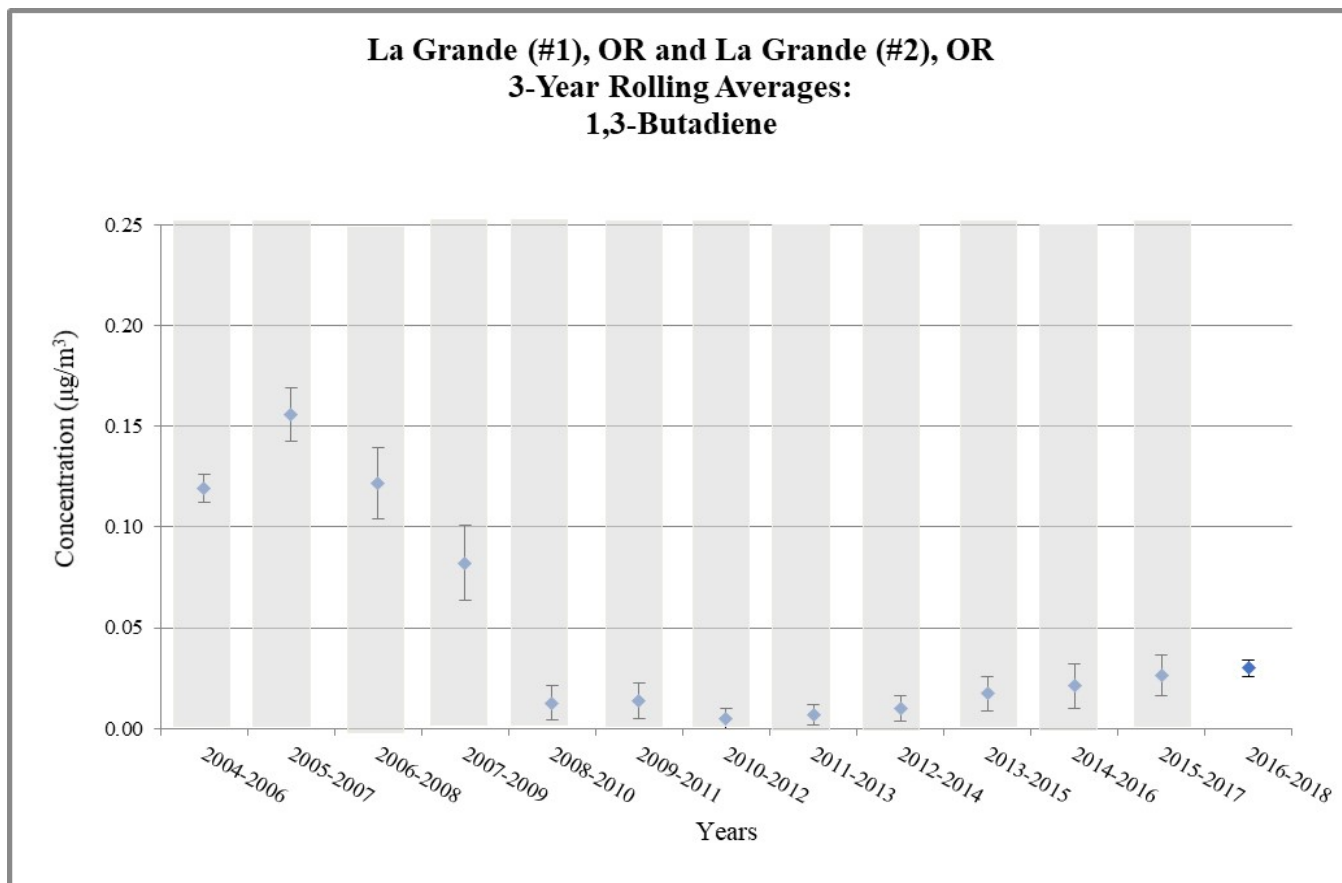
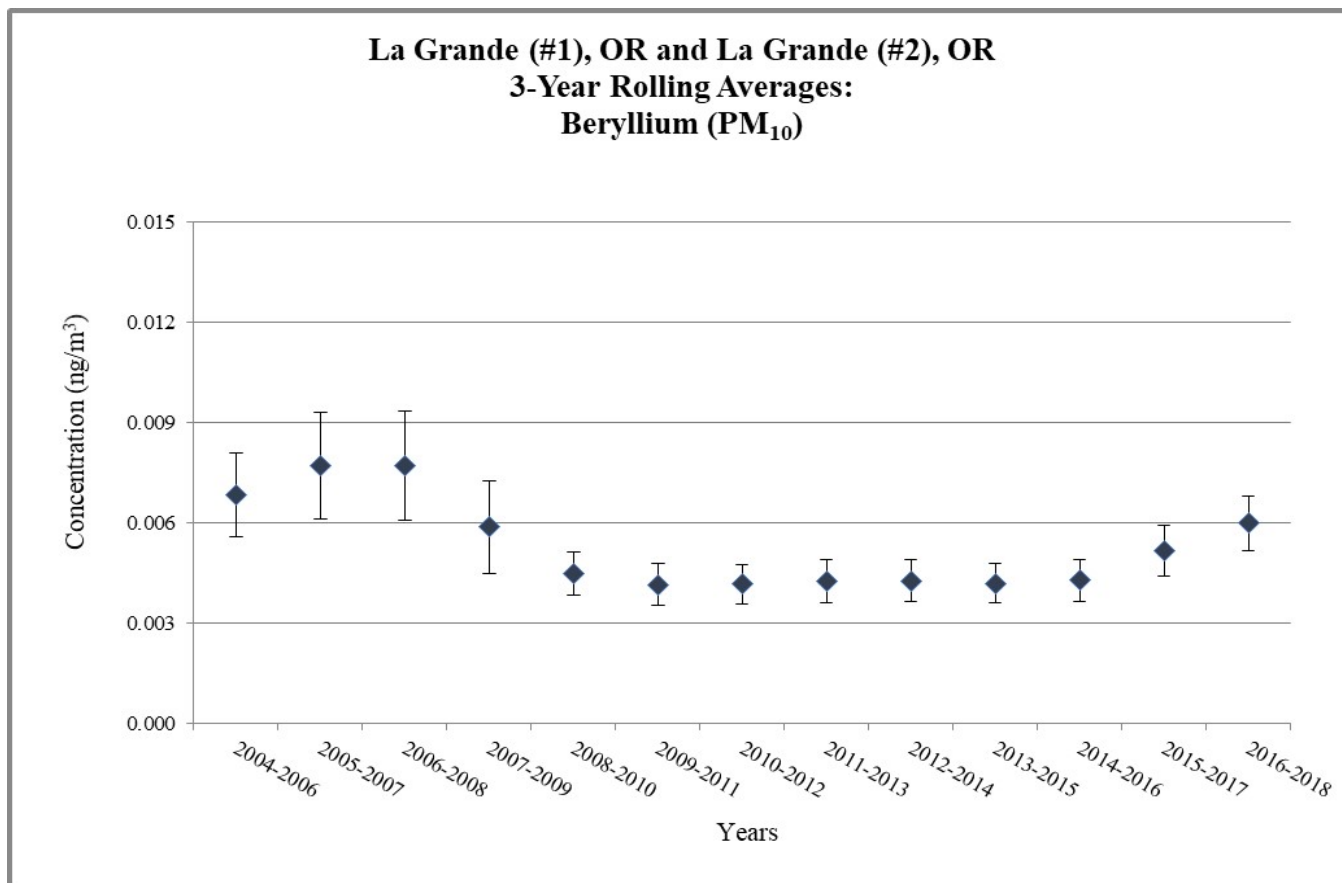


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

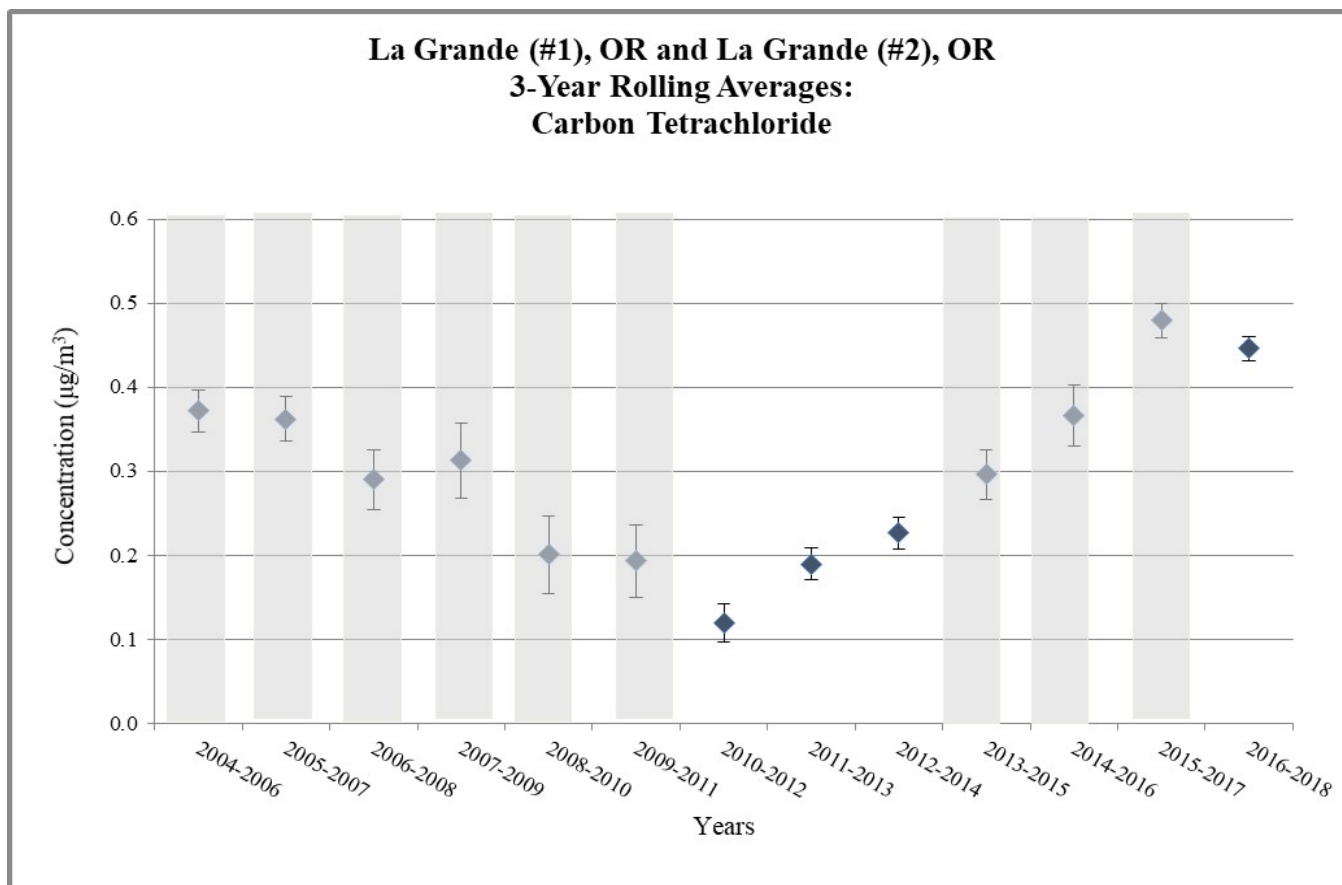
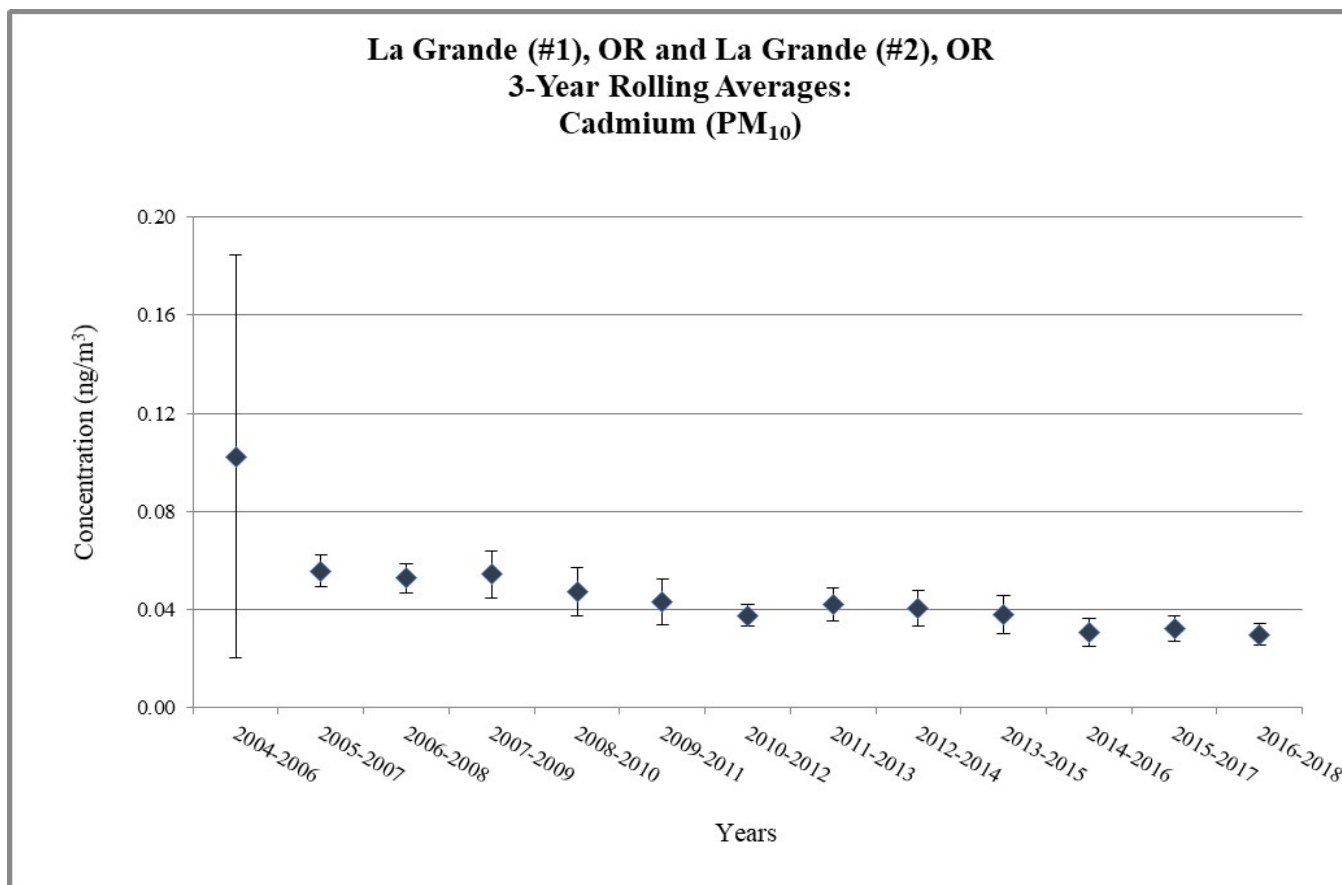


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

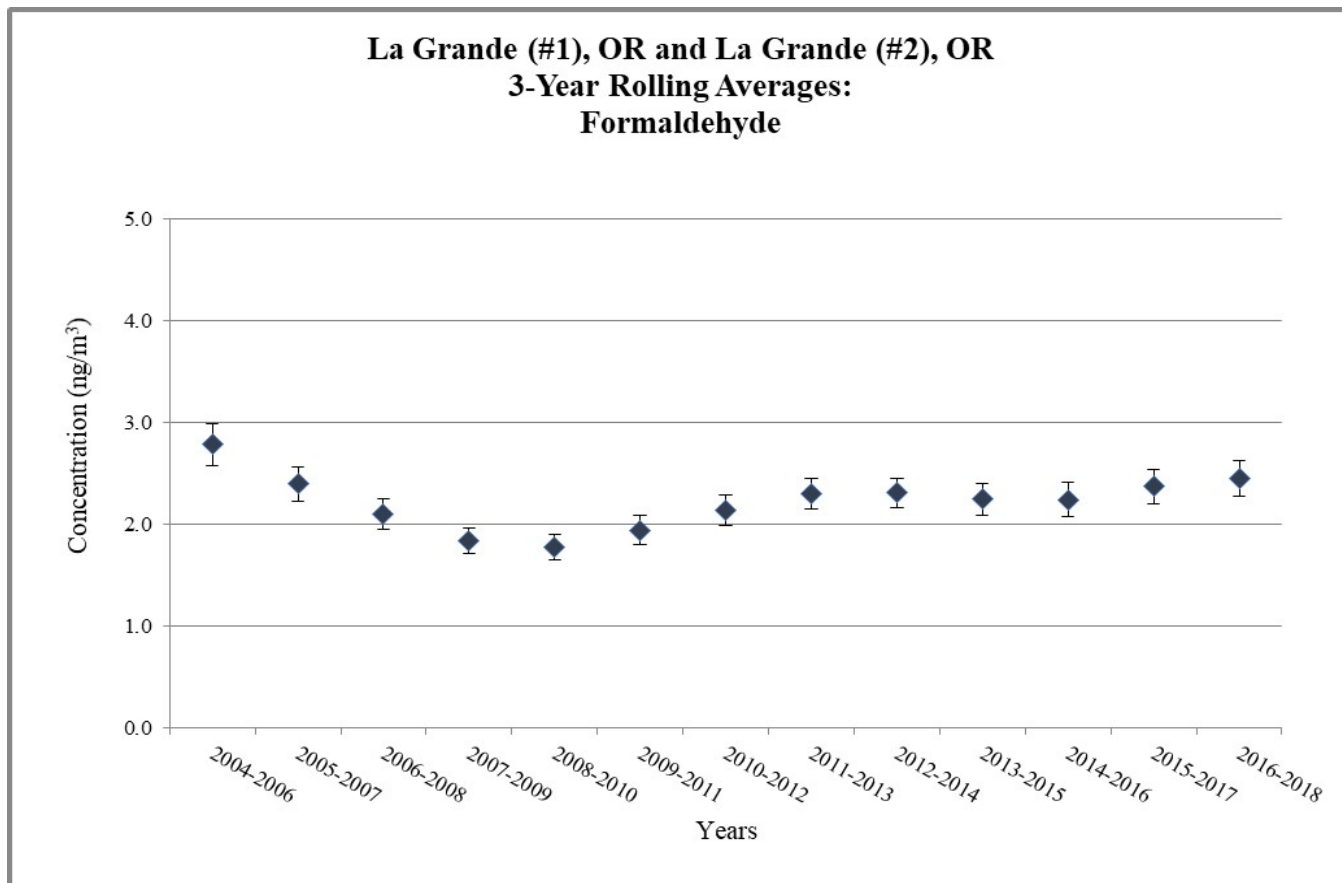
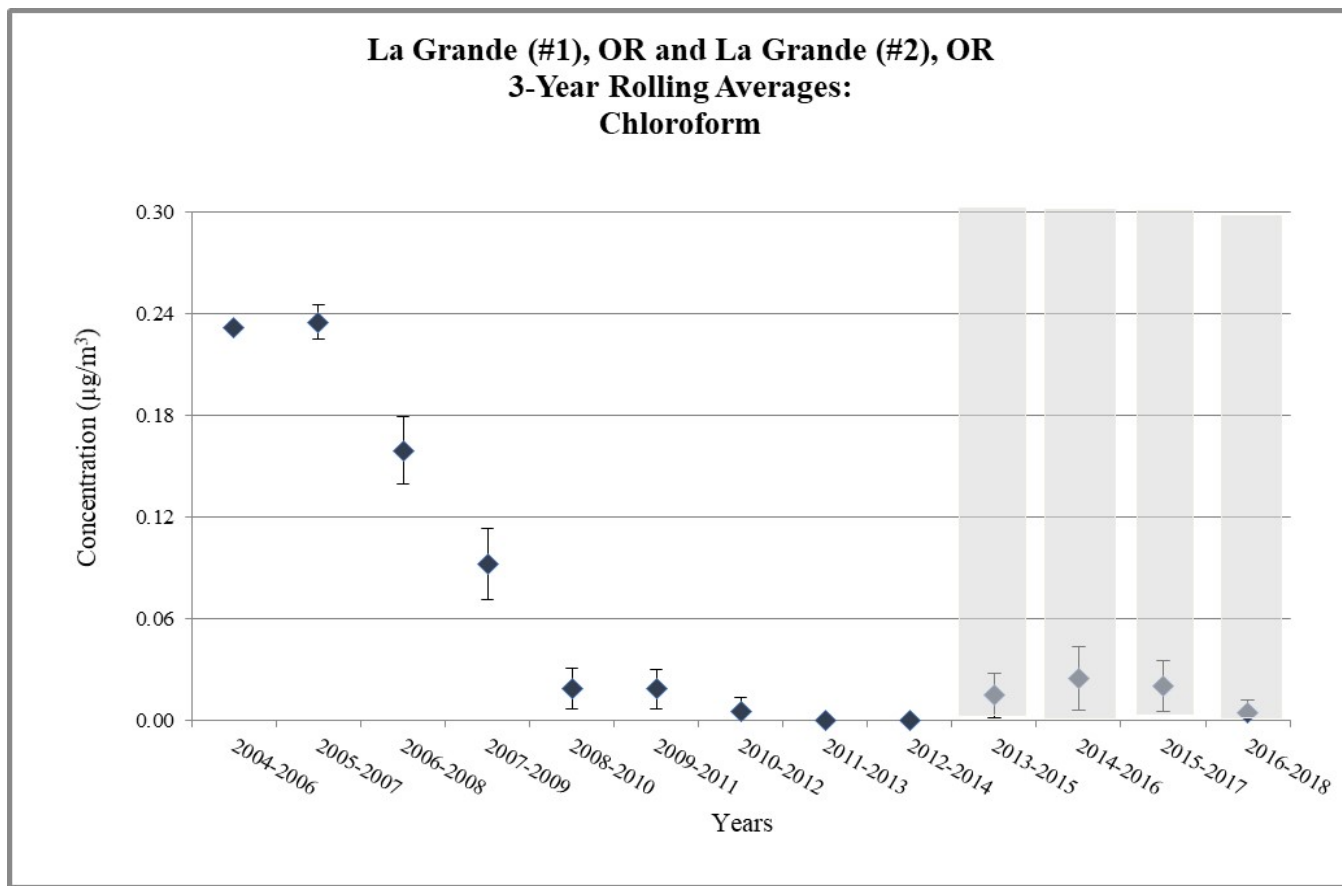


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

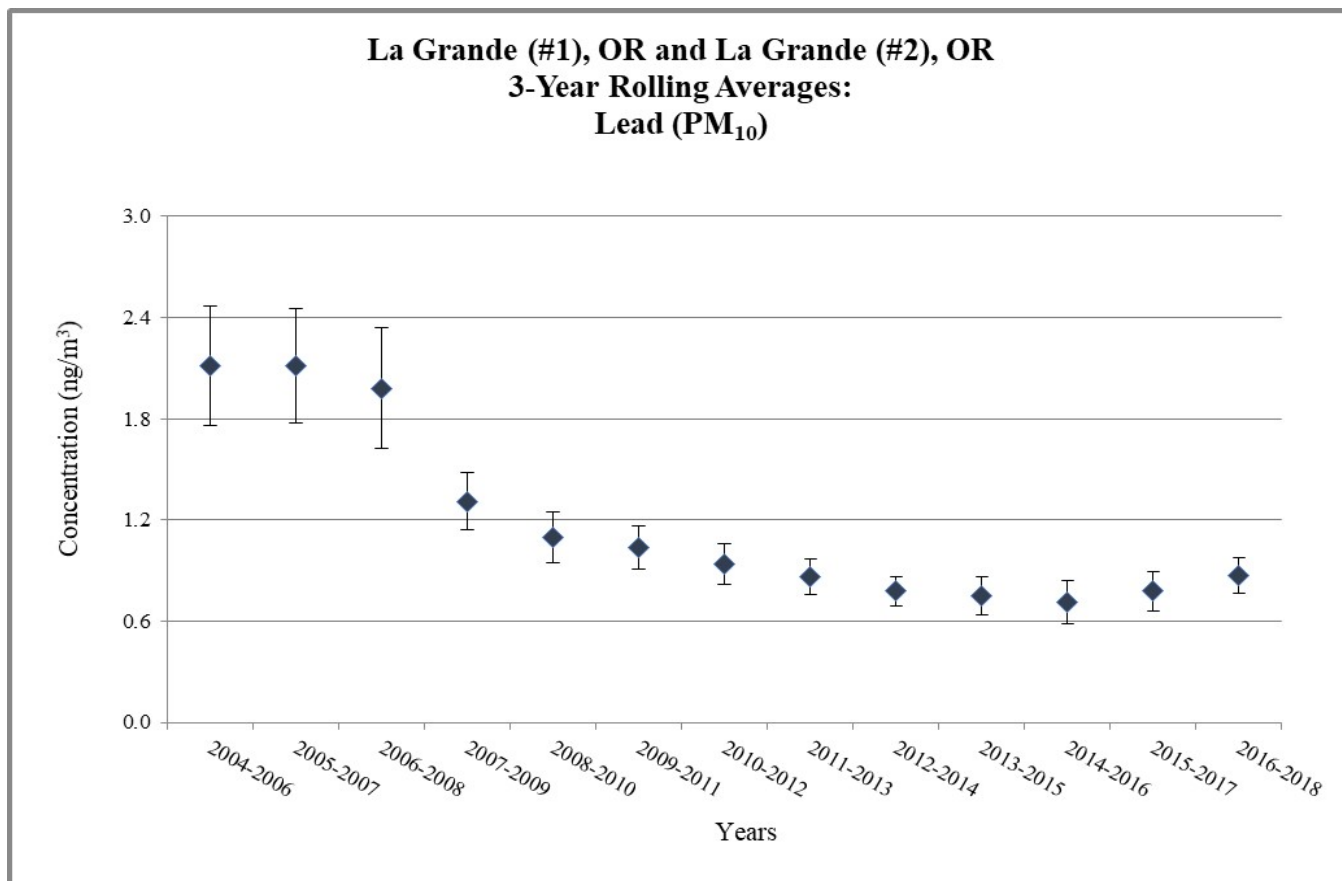
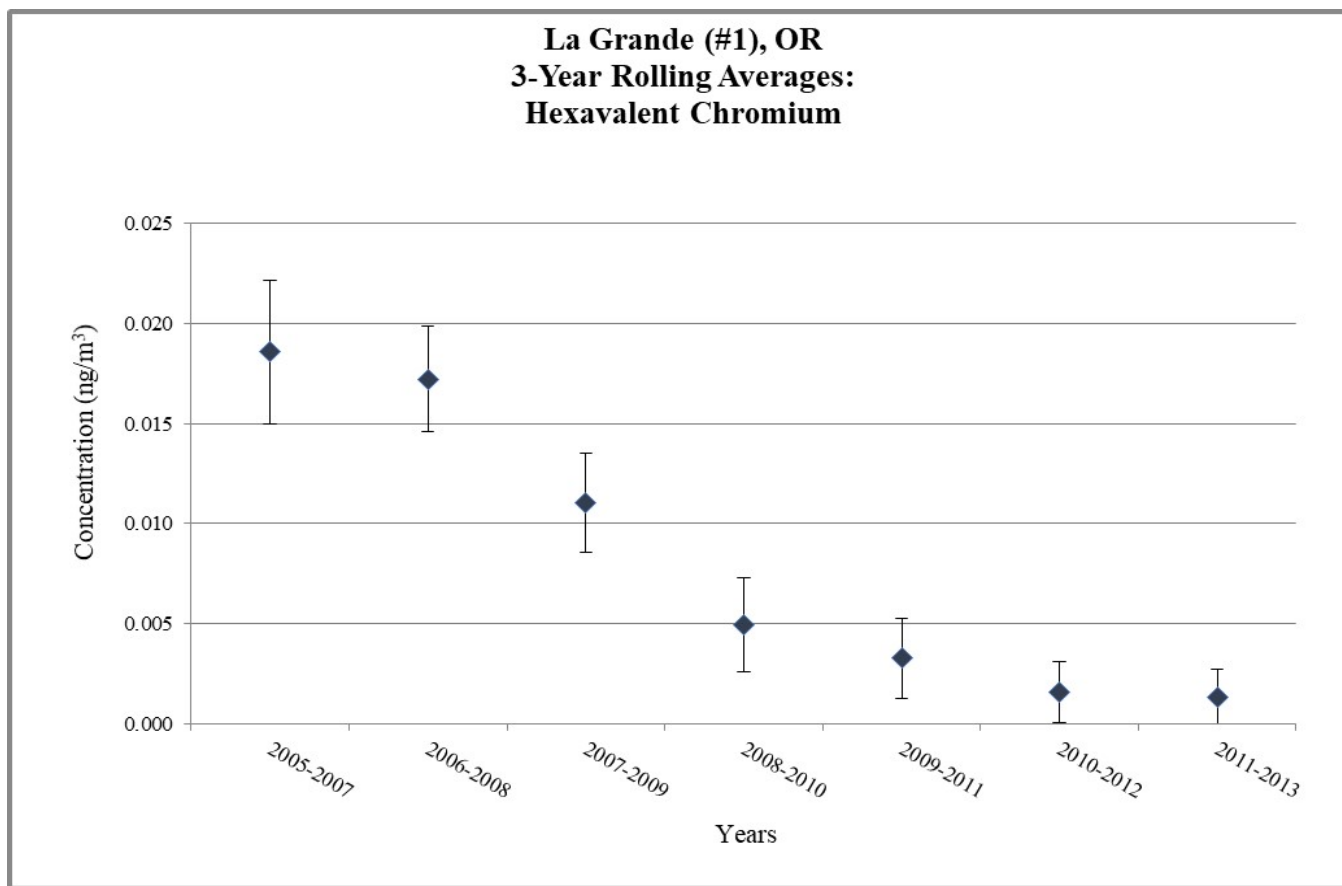


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

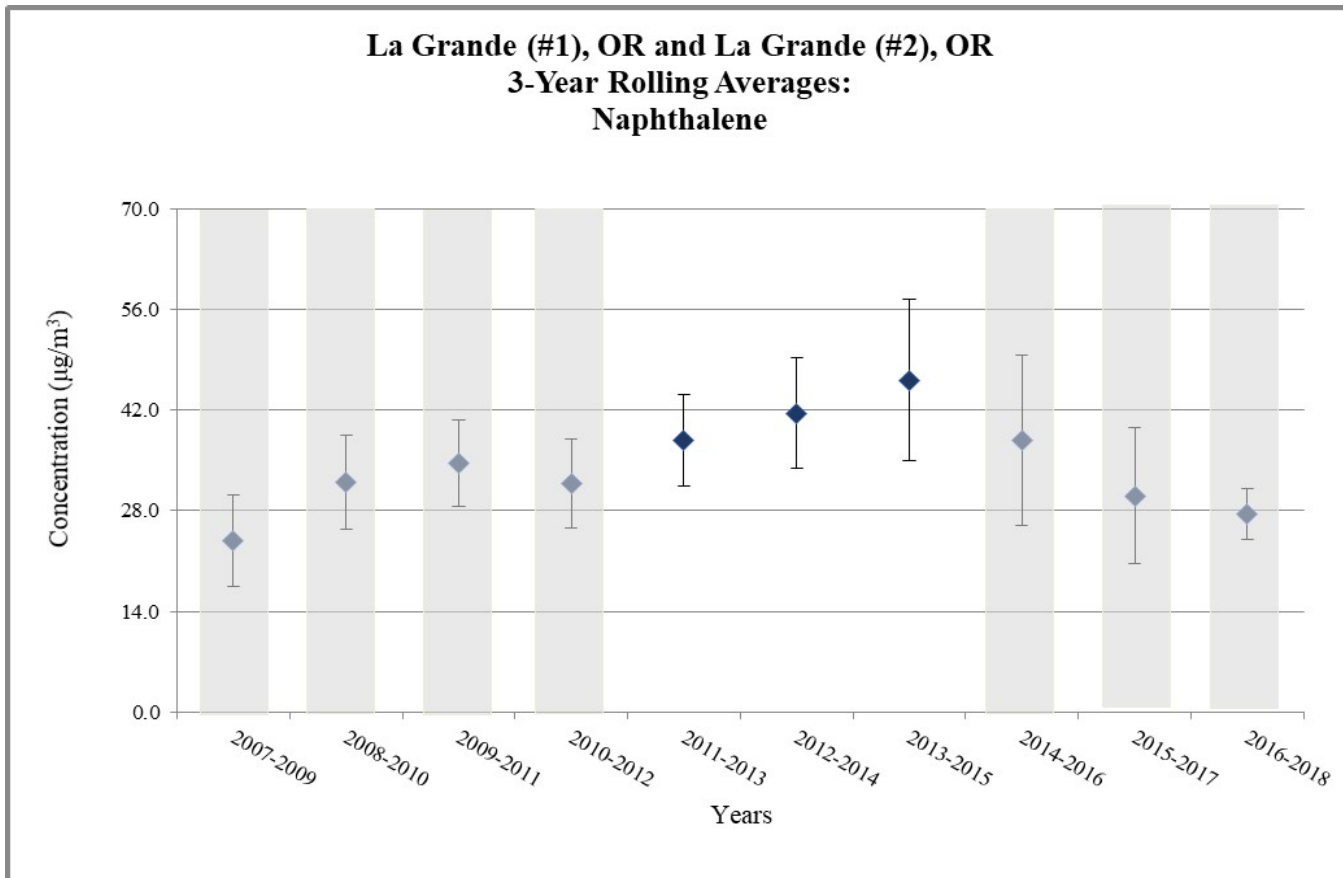
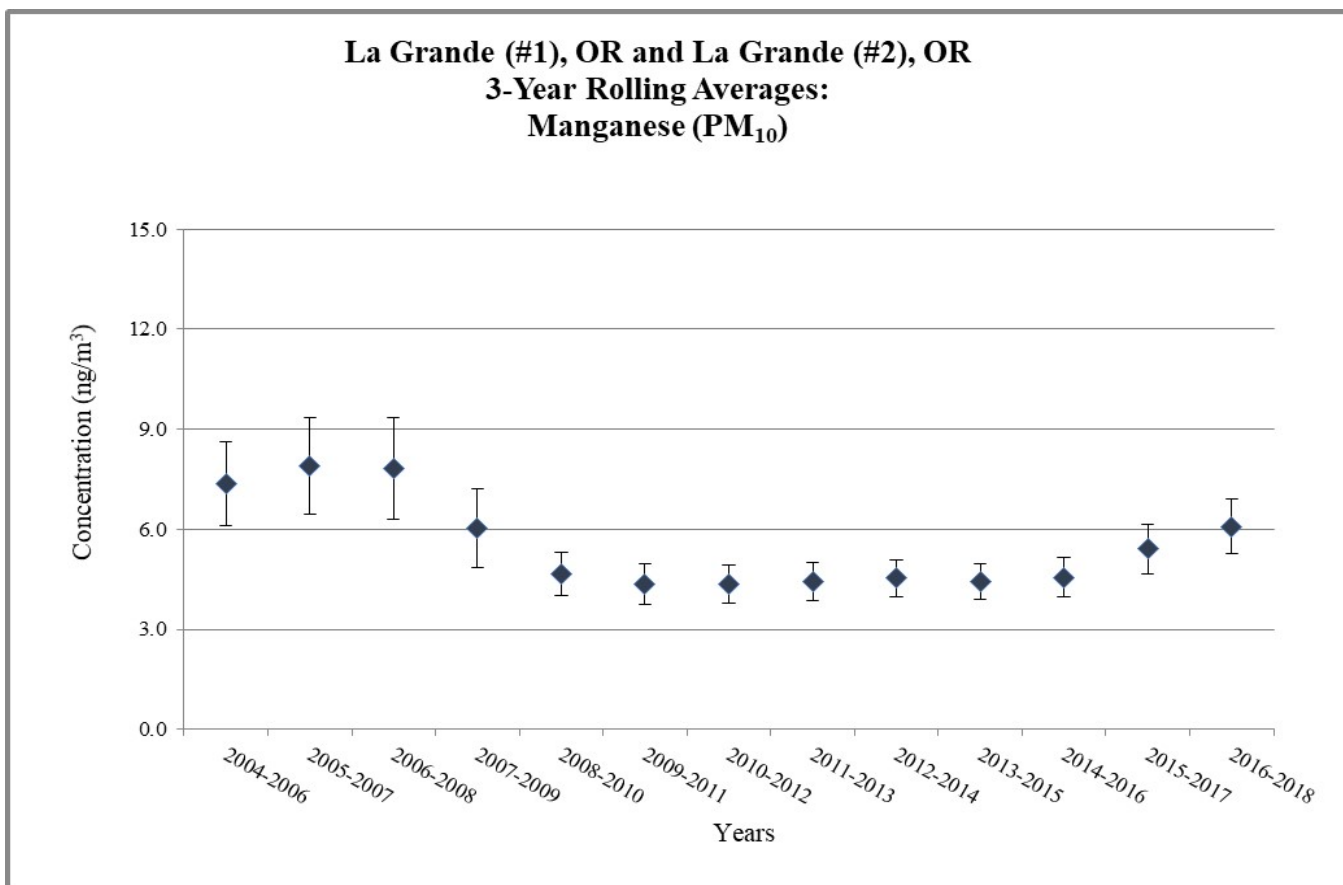


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations

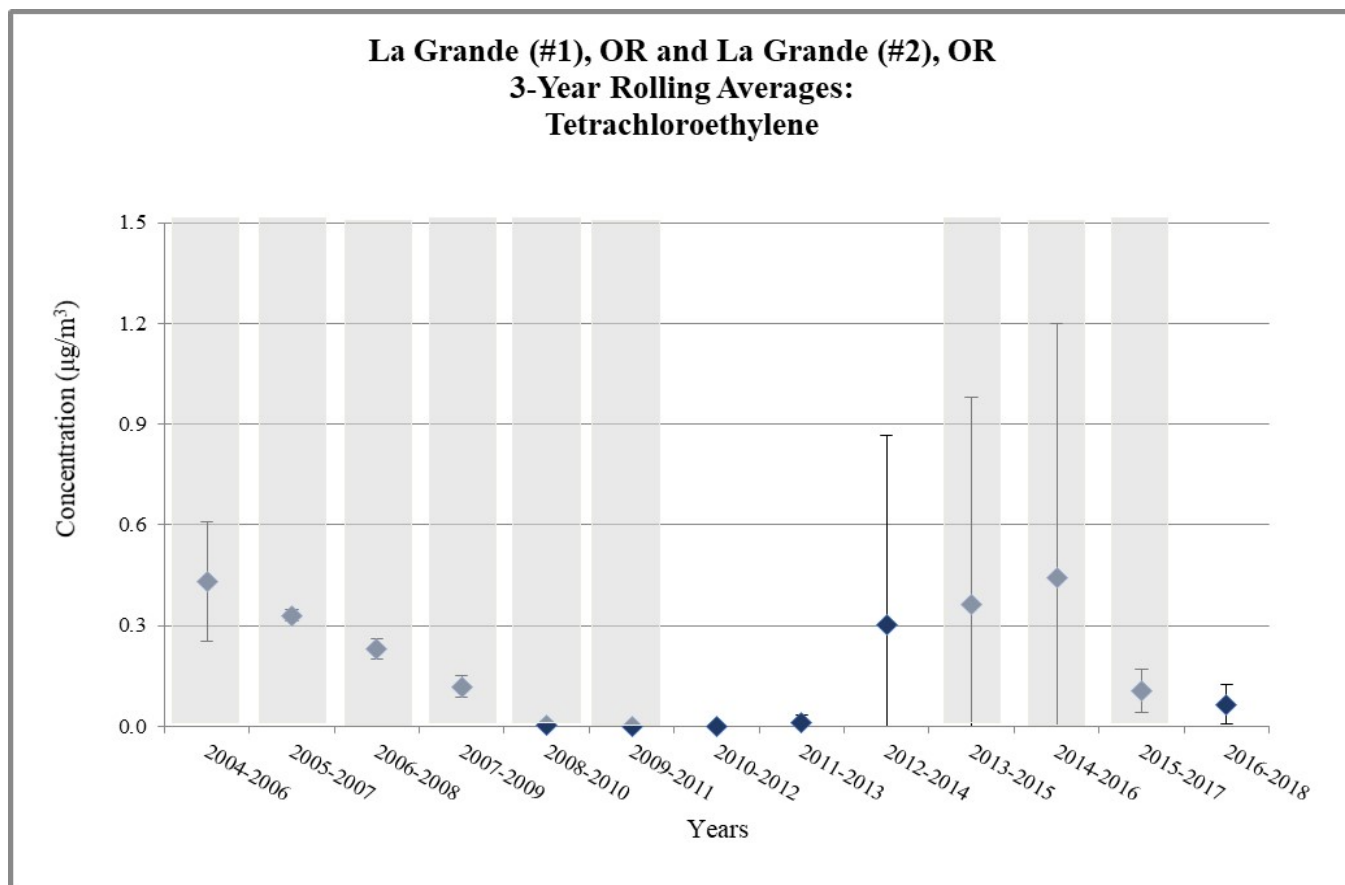
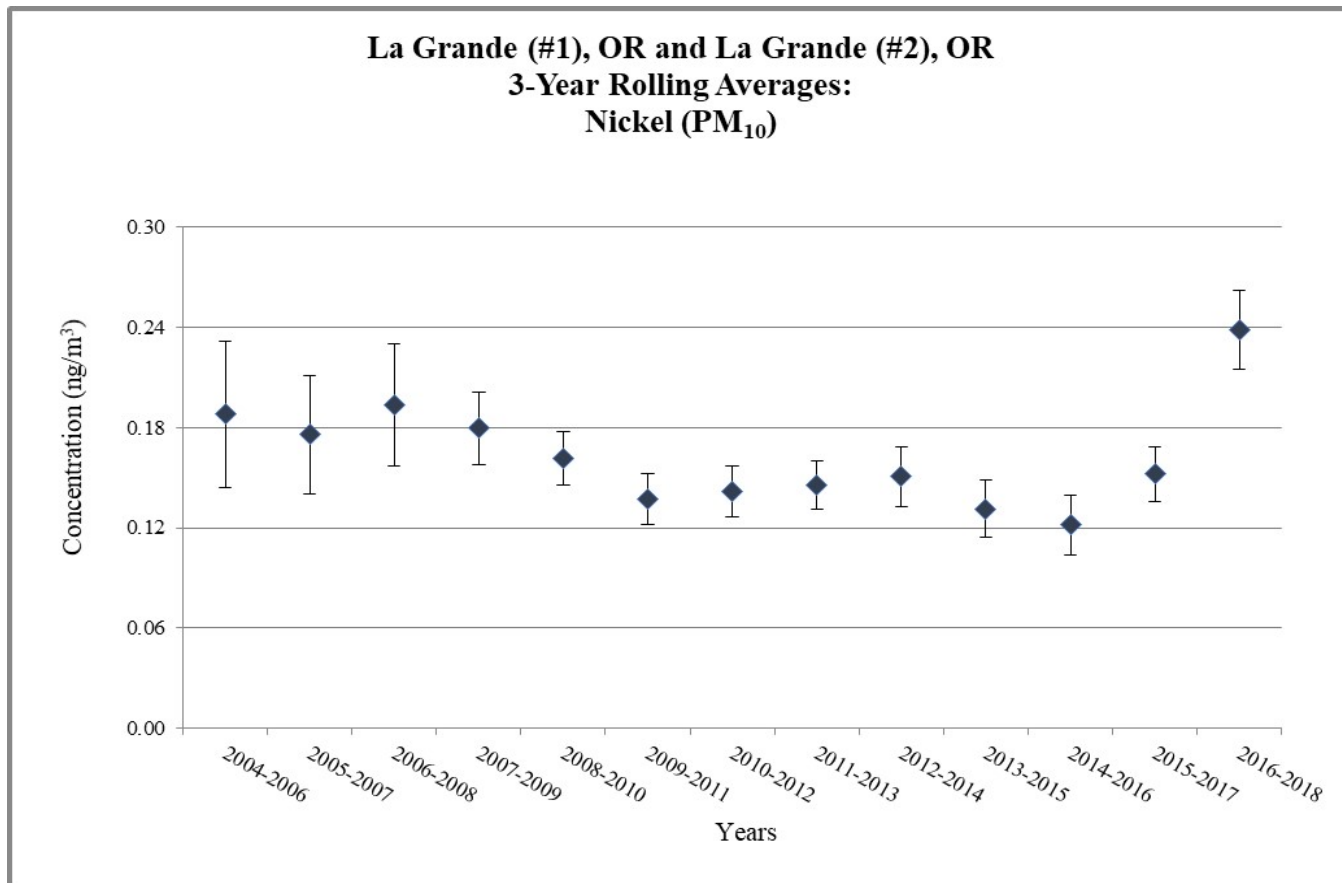
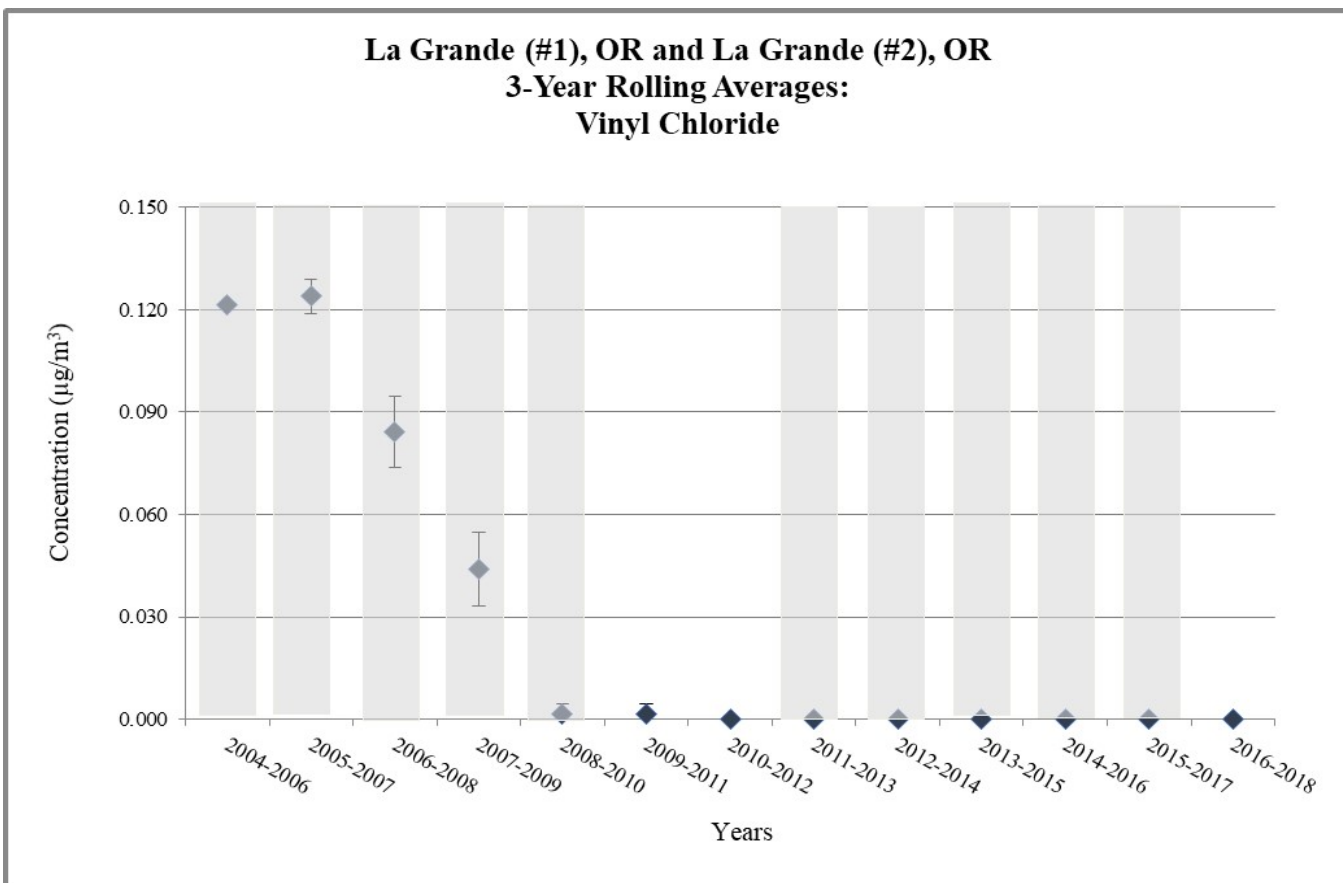
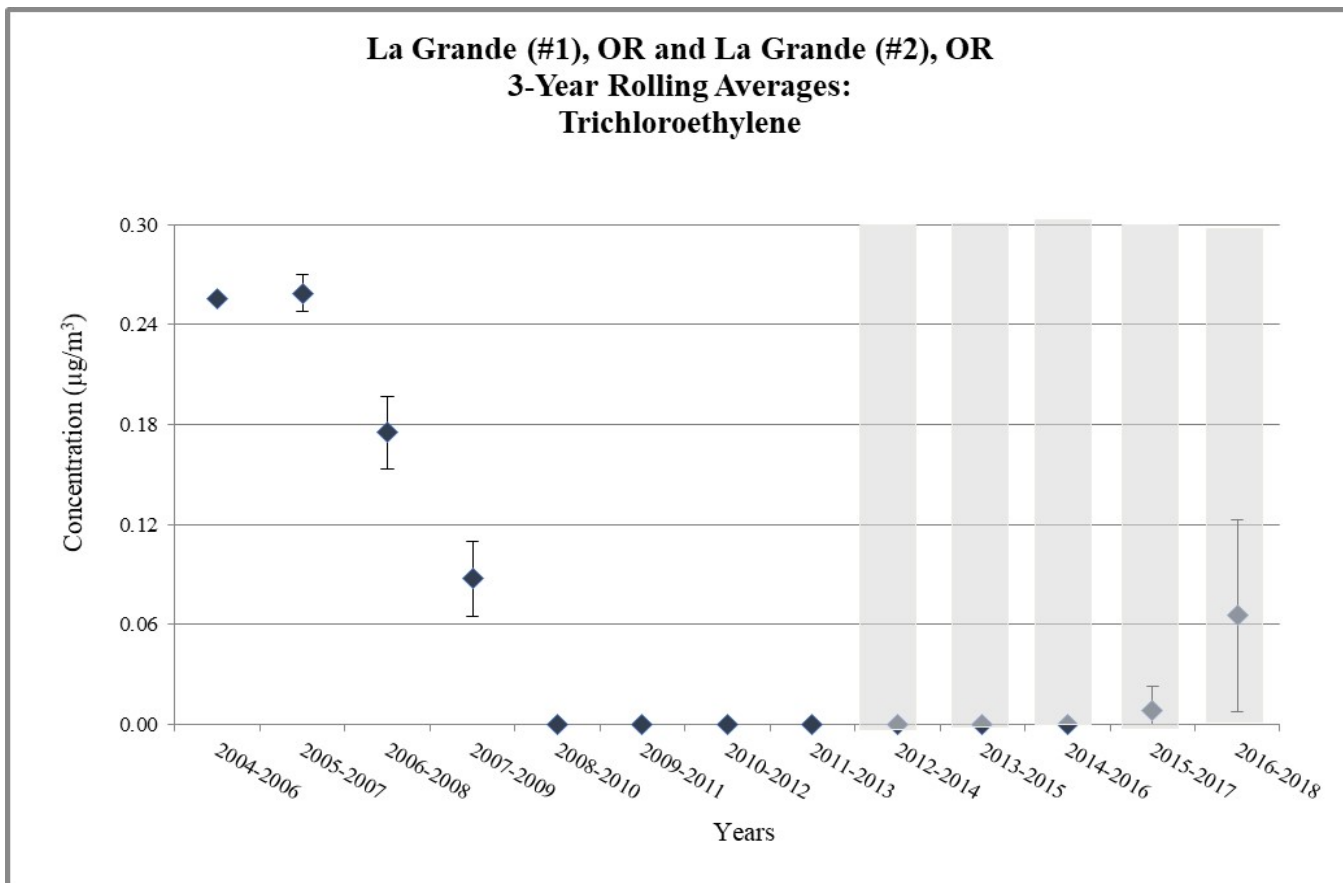


Figure 4. La Grande (#1), OR and La Grande (#2), OR Combined - 3-Year Rolling Average Concentrations



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

Table 6. NATTS Network Assessment: MQO#1 - Completeness Percentage at La Grande (#1), OR and La Grande (#2), OR Combined

Pollutant Group	Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carbonyl	Acetaldehyde	98	97	90	98	90	95	82	92	90	98	95	87	97	100	97
Carbonyl	Formaldehyde	98	97	90	98	90	95	84	92	90	98	95	87	97	100	97
Chromium VI	Chromium VI	--	92	92	98	90	90	93	98	98	102	--	--	--	--	--
PAH	Benzo(a)pyrene	--	--	--	45	59	93	75	95	89	98	100	98	93	100	87
PAH	Naphthalene	--	--	--	45	56	97	74	95	93	97	100	98	93	100	84
PM ₁₀ Metals	Arsenic (PM ₁₀)	91	98	95	93	84	87	89	97	95	102	98	100	98	92	100
PM ₁₀ Metals	Beryllium (PM ₁₀)	91	98	95	93	84	87	89	97	97	100	98	100	98	92	100
PM ₁₀ Metals	Cadmium (PM ₁₀)	91	98	95	93	84	87	89	97	95	102	98	100	98	92	98
PM ₁₀ Metals	Lead (PM ₁₀)	91	98	95	93	84	87	89	97	90	102	98	100	98	92	100
PM ₁₀ Metals	Manganese (PM ₁₀)	91	98	95	93	84	87	89	97	97	102	98	100	98	92	100
PM ₁₀ Metals	Nickel (PM ₁₀)	91	98	95	93	84	87	89	97	95	102	98	100	98	92	100
VOC	Benzene	96	87	93	88	85	92	87	97	90	93	80	70	77	95	95
VOC	Butadiene, 1,3-	96	90	95	90	89	92	84	97	90	93	80	70	77	95	95
VOC	Carbon tetrachloride	96	90	95	90	89	90	85	97	90	93	80	70	77	95	95
VOC	Chloroform	96	90	95	90	89	92	87	97	90	93	80	70	77	95	95
VOC	Tetrachloroethylene	96	90	95	90	89	92	87	97	90	93	80	70	77	95	95
VOC	Trichloroethylene	96	90	95	90	89	92	87	97	90	93	80	70	77	95	95
VOC	Vinyl chloride	96	90	95	90	89	92	80	97	90	93	80	70	77	95	95

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

^a: The La Grande (#1), OR site moved approximately 1.25 miles southeast to La Grande (#2), OR in September 2016.

Table 7. NATTS Network Assessment: MQO#2 - Reported Method Detection Limits (MDLs) at La Grande (#1), OR and La Grande (#2), OR Combined

Pollutant Group	Pollutant Name	Target MDL	Units	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carbonyl	Acetaldehyde	0.45	µg/m ³	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.04	0.06	0.059	0.06	0.06	0.06	0.06	0.07
Carbonyl	Formaldehyde	0.98/0.08 ^a	µg/m ³	0.02	0.02	0.02	0.02	0.12	0.11	0.10	0.10	0.11	0.98	0.94	0.93	0.94	0.91	0.98
Chromium VI	Chromium VI	0.08	ng/m ³	--	0.15	0.15	0.43	0.44	0.41	0.43	0.42	0.43	0.42	0.43	--	--	--	--
PAH	Benzo(a)pyrene	0.91	ng/m ³	--	--	--	0.11	0.22	0.24	0.27	0.25	0.22	0.21	0.42	0.43	0.42	0.41	0.43
PAH	Naphthalene	29.00	ng/m ³	--	--	--	0.00	0.02	0.03	0.03	0.03	0.03	0.05	0.10	0.06	0.06	0.06	0.06
PM ₁₀ Metals	Arsenic (PM ₁₀)	0.23	ng/m ³	0.15	0.15	0.15	0.15	0.15	0.14	0.15	0.15	0.14	0.13	0.13	0.10	0.10	0.10	0.17
PM ₁₀ Metals	Beryllium (PM ₁₀)	0.42	ng/m ³	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
PM ₁₀ Metals	Cadmium (PM ₁₀)	0.56	ng/m ³	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.14
PM ₁₀ Metals	Lead (PM ₁₀)	15.0	ng/m ³	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
PM ₁₀ Metals	Manganese (PM ₁₀)	5.0	ng/m ³	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.06	0.06	0.06	0.15	0.15	0.16
PM ₁₀ Metals	Nickel (PM ₁₀)	2.1	ng/m ³	0.17	0.16	0.17	0.16	0.16	0.15	0.16	0.16	0.15	0.15	0.14	0.15	0.18	0.18	0.37
VOC	Benzene	0.13	µg/m ³	2.46	2.46	2.46	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
VOC	Butadiene, 1,3-	0.10	µg/m ³	2.21	2.21	2.21	2.21	2.21	2.21	2.21	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
VOC	Carbon tetrachloride	0.17	µg/m ³	3.70	3.70	3.70	1.85	1.85	1.85	1.85	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.93
VOC	Chloroform	0.50	µg/m ³	0.98	0.98	0.98	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
VOC	Tetrachloroethylene	0.17	µg/m ³	3.99	3.99	3.99	1.99	1.99	1.99	1.99	0.80	0.80	0.80	0.80	0.80	0.80	0.80	1.00
VOC	Trichloroethylene	0.5/0.2 ^a	µg/m ³	1.07	1.07	1.07	0.54	0.54	0.54	0.54	0.54	0.54	1.34	1.34	1.34	1.34	0.94	0.94
VOC	Vinyl chloride	0.11	µg/m ³	2.32	2.32	2.32	1.39	1.39	1.39	1.39	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93

	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: For the 2012 sampling year, the Target MDL for this pollutant was reduced.

Table 8. NATTS Network Assessment: MQO#3 - Bias Percent Difference at La Grande (#1), OR and La Grande (#2), OR Combined

Pollutant Group	Pollutant Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carbonyls	Acetaldehyde	4.8	6.3	-1.6	-5.1	-7.4	-14.3	2.7	-1.8	a	3.7	-3.1	a	-4.6	7.1	-16.9
Carbonyls	Formaldehyde	22.6	-0.9	-7.3	-8.9	8.8	-10.8	-2.0	-3.6	a	5.0	0.1	a	-20.0	-1.2	-18.5
Chromium VI	Chromium VI	--	a	a	a	a	a	b	a	11.0	-21.0	-2.5	--	--	--	--
PAH	Benzo(a)pyrene	--	--	--	a	a	-7.5	-40.7	-11.1	25.7	-10.2	-16.6	-23.4	-26.2	-24.0	-30.3
PAH	Naphthalene	--	--	--	a	a	-18.3	-42.3	-32.0	-9.0	3.8	-15.7	-34.5	-44.3	-30.7	-54.4
PM ₁₀ Metals	Arsenic (PM ₁₀)	c	11.7	6.1	7.7	22.2	-12.5	12.0	1.4	10.8	-1.0	1.9	a	-7.0	-5.1	-8.5
PM ₁₀ Metals	Beryllium (PM ₁₀)	c	21.2	7.7	12.7	11.8	-7.1	11.6	-8.6	8.4	-2.2	d	a	-1.7	-3.7	-11.8
PM ₁₀ Metals	Cadmium (PM ₁₀)	c	3.0	-2.2	2.1	13.4	-8.9	5.1	-5.7	8.5	-2.2	d	a	-2.8	0.3	-8.7
PM ₁₀ Metals	Lead (PM ₁₀)	c	0.4	-0.7	-6.1	3.7	-32.9	-6.0	-3.3	5.0	-3.6	8.5	a	-5.8	-1.7	-7.7
PM ₁₀ Metals	Manganese (PM ₁₀)	c	2.4	-8.4	-19.0	-23.4	-41.9	-2.5	-5.4	7.5	-13.5	4.2	a	-3.6	-3.2	-10.9
PM ₁₀ Metals	Nickel (PM ₁₀)	c	2.4	-6.7	-10.2	0	-32.9	-1.4	-9.2	-3.3	-10.7	e	a	15.8	16.9	7.4
VOC	Benzene	3.2	-14.6	-19.3	-19.8	-36.9	-31.8	-12.1	-10.2	a	-24.9	11.4	-16.3	-14.3	-31.6	-29.7
VOC	Butadiene, 1,3-	-16.7	-47.9	-30.7	-18.5	-4.3	-10.9	-11.0	-23.2	a	-56.6	-52.2	-19.4	9.7	-31.3	-30.2
VOC	Carbon tetrachloride	1.9	-12.2	-14.3	-17.0	-9.1	-45.9	-30.6	-13.2	a	-32.4	5.7	16.0	27.9	9.6	-25.6
VOC	Chloroform	4.4	-12.3	-17.7	-19.4	-36.1	-26.7	-41.2	-27.6	a	-27.6	-10.8	-17.7	-4.8	-13.3	-35.4
VOC	Tetrachloroethylene	-17.0	-9.6	-16.7	-21.2	-24.5	-43.8	8.6	-20.4	a	-12.1	13.9	5.1	17.6	-1.4	-27.0
VOC	Trichloroethylene	-2.7	-12.0	-8.6	-19.7	-23.3	-36.8	-14.7	-18.7	a	-16.8	2.4	-25.9	-14.1	-32.0	-36.2
VOC	Vinyl chloride	16.0	-29.0	-28.3	-12.8	-42.0	1.0	-23.5	-17.0	a	-46.7	-31.4	-5.6	0.3	-26.0	-34.7

	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.

^b: 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.

^c: Pollutant was sampled at this site and year, but no bias data were reported.

^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 La Grande (#1), OR and La Grande (#2), OR Combined

Pollutant Group	Pollutant Name	Overall Method precision % CV														
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carbonyls	Acetaldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonyls	Formaldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium VI	Chromium VI	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PAH	Benzo(a)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PAH	Naphthalene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM ₁₀ Metals	Arsenic (PM ₁₀)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM ₁₀ Metals	Beryllium (PM ₁₀)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM ₁₀ Metals	Cadmium (PM ₁₀)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM ₁₀ Metals	Lead (PM ₁₀)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM ₁₀ Metals	Manganese (PM ₁₀)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM ₁₀ Metals	Nickel (PM ₁₀)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Benzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Butadiene, 1,3-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Carbon tetrachloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Chloroform	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Tetrachloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Trichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC	Vinyl chloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

	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

Table 10. NATTS Network Assessment: MQO#4 - Analytical Precision %CV at La Grande (#1), OR and La Grande (#2), OR Combined

Pollutant Group	Pollutant Name	Analytical Method precision % CV														
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carbonyls	Acetaldehyde	--	--	--	--	--	--	--	--	a	3.7	a	a	a	a	a
Carbonyls	Formaldehyde	--	--	--	--	--	--	--	--	a	3.7	a	a	a	a	a
Chromium VI	Chromium VI	--	--	--	--	--	--	--	--	a	a	--	--	--	--	--
PAH	Benzo(a)pyrene	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
PAH	Naphthalene	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
PM ₁₀ Metals	Arsenic (PM ₁₀)	--	--	--	--	--	--	--	--	a	6.3	4.2	a	2.9	1.2	a
PM ₁₀ Metals	Beryllium (PM ₁₀)	--	--	--	--	--	--	--	--	a	12.9	b	a	5.9	3.8	a
PM ₁₀ Metals	Cadmium (PM ₁₀)	--	--	--	--	--	--	--	--	a	12.2	34.1	a	a	a	a
PM ₁₀ Metals	Lead (PM ₁₀)	--	--	--	--	--	--	--	--	a	4.6	51.4	a	2.0	0.7	a
PM ₁₀ Metals	Manganese (PM ₁₀)	--	--	--	--	--	--	--	--	a	1.9	1.5	a	2.4	0.7	a
PM ₁₀ Metals	Nickel (PM ₁₀)	--	--	--	--	--	--	--	--	a	b	b	a	b	b	a
VOC	Benzene	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
VOC	Butadiene, 1,3-	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
VOC	Carbon tetrachloride	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
VOC	Chloroform	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
VOC	Tetrachloroethylene	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
VOC	Trichloroethylene	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a
VOC	Vinyl chloride	--	--	--	--	--	--	--	--	a	a	a	a	a	a	a

	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

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

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

Appendix A. Equipment Inventory

Pollutant Type	Year(s)	Manufacturer/Model, Extraction Type, and Year
<i>Sampling Equipment</i>		
Carbonyls	2004-2014	Custom-built (Year Deployed: <1989)
	2015-2018	WAITING (Year Deployed:)
Chormium VI	2005-2014	Thermo R&P Parisol-FRM2000 Air Sampler (Year Deployed: 1998)
PAHs	2007-2014	Tisch Environmental TE-1000 PUF Sampler (Year Deployed: 1998)
	2015-2018	WAITING (Year Deployed:)
PM ₁₀ Metals	2004-2013	Andersen Hi-Volume PM10 Sampler (Year Deployed: <1994)
	2015-2018	WAITING (Year Deployed:)
VOCs	2004-2010	SIS Canister Cleaning System AGS-1 A (Year Deployed: <1989)
	2011-2014	Entech 1800 Dual Channel Field Sampler (Year Deployed: 2011)
	2015-2018	WAITING (Year Deployed:)
<i>Analytical Equipment</i>		
Carbonyls	2004-2014	HP/Agilent HPLC 1100 with variable wavelength detection (Year Deployed: <2000)
	2015-2018	WAITING (Year Deployed:)
Chormium VI	2005-2006	Dionex 300 Ion Chromatography (Year Deployed: 2001)
	2007-2010	Dionex model DX-500 Ion Chromatography (Year Deployed: 2005)
	2011-2014	Dionex model DX-500 Ion Chromatography (Year Deployed: 2005)
PAHs	2007-2014	HP/Agilent 6890/5973 GC/MS (Year Deployed: 2000)
	2015-2018	WAITING (Year Deployed:)
PM ₁₀ Metals	2004-2014	Thermo/VG Elemental PQ ExCell ICP-MS (Year Deployed: 2001)
	2015-2018	WAITING (Year Deployed:)
VOCs	2004-2014	HP/Agilent 5890/5971 GC/MS (Year Deployed: <2000)
	2015-2018	WAITING (Year Deployed:)
<i>Preconcentrator Equipment</i>		
VOCs	2004-2010	Teledyne TekMar, AUTOCAN (Year Deployed: <2002)
	2011-2014	Entech Model 7100A, Entech 7150 (Year Deployed: 2011)
	2015-2018	WAITING (Year Deployed:)
<i>Standards Preparation Equipment</i>		
VOCs	2004-2012	Unknown (dynamic dilution) (Year Deployed: <2000)
	2013-2014	Entech 4600 (dynamic dilution) (Year Deployed: unknown)
	2015-2018	WAITING (Year Deployed:)
<i>Canister Cleaning Equipment</i>		
VOCs	2004	Unknown (hot) (Year Deployed: unknown)
	2005-2010	Entech 3100 (Hot), Entech 3100A (Hot) (Year Deployed: 2005)
	2011-2014	Entech 3100A (Hot) (Year Deployed: 2005)
	2015-2018	WAITING (Year Deployed:)
<i>PM₁₀ Extraction Equipment</i>		
PM ₁₀ Metals	2007-2014	Branson 8510 (Sonicator) (Year Deployed: 2001)
	2015-2018	WAITING (Year Deployed:)
<i>Chromium VI Extraction Equipment</i>		
Chormium VI	2005-2006	Branson 8510 (Sonicator) (Year Deployed: 2001)
	2007-2013	Branson Sonicator (Year Deployed: 2005)
	2010-2014	Branson 8510 (Sonicator) (Year Deployed: 2005)
<i>PAHs Extraction Equipment</i>		
PAHs	2007-2014	glassware (Soxhlet) (Year Deployed: NA)
	2015-2018	WAITING (Year Deployed:)