



Air Quality Update

Environmental Quality Advisory Council (EQAC) Fairfax County

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Topics for Discussion

- Attainment Status of National Ambient Air Quality Standards
 - Ground Level Ozone
 - Nitrogen Dioxide
- Air Quality Update of Covanta Waste to Energy Facility
- Other Topics of Interest?

DC Area Ozone Standard Status

- DC-MD-VA Metropolitan Area – Marginal Nonattainment Area for 2015 Ozone Standard
 - Standard – 70 Parts Per Billion
- Several recent good air quality years, but not enough...
- Area did not attain by the CAA compliance date – 8/3/2021
- However – area is now in compliance using full unofficial 2021 ozone season data
- Official air quality planning group (MWAQC) currently discussing next steps
 - Attainment plan v. maintenance plan

Ozone Monitors

Metropolitan Washington Ozone Monitors
Washington, DC, MD, VA



Monitor Names

1. Takoma Rec Center
2. River Terrace
3. McMillan NCore
4. Prince George's Equestrian Center
5. HU-Beltsville
6. Rockville
7. Southern Maryland
8. Fredrick
9. Calvert
10. Beltsville
11. Aurora Hills
12. Long Park
13. Ashburn
14. Franconia



2021 Ozone Exceedance Days

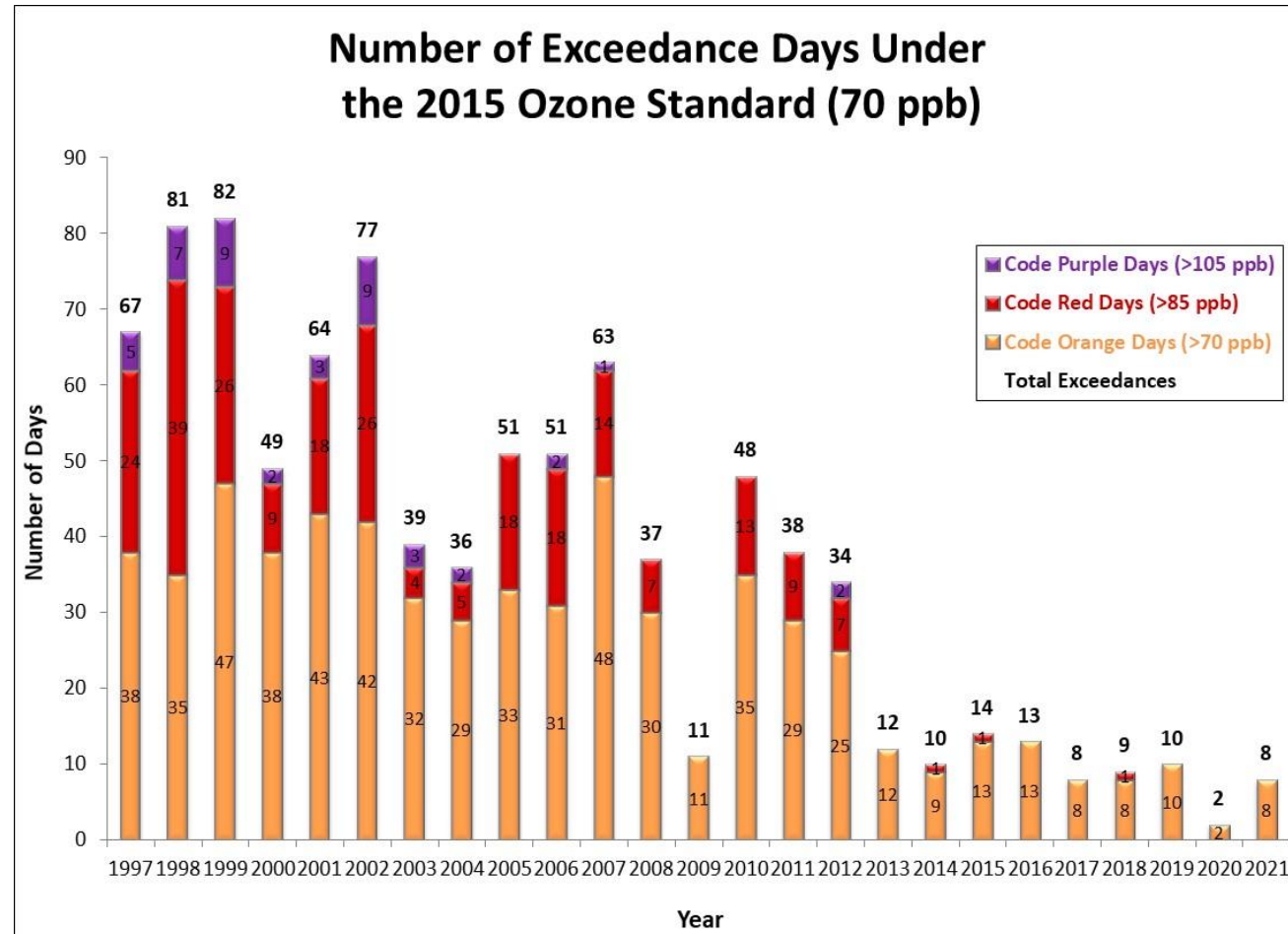
May 2021							June 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01	30	31	01	02	03	04	05
						49			50	52	38	54	73
02	03	04	05	06	07	08	06	07	08	09	10	11	12
57	38	46	44	43	41	44	64	48	53	51	52	30	48
09	10	11	12	13	14	15	13	14	15	16	17	18	19
44	49	51	41	50	49	60	38	58	48	55	60	64	53
16	17	18	19	20	21	22	20	21	22	23	24	25	26
53	59	66	71	82	74	66	50	46	31	51	59	53	33
23	24	25	26	27	28	29	27	28	29	30			
59	30	47	63	62	45	33	29	39	42	53			
30	31												
27	45												
July 2021							August 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	01	02	03	01	02	03	04	05	06	07
				44	40	37	47	54	55	61	71	67	58
04	05	06	07	08	09	10	08	09	10	11	12	13	14
50	50	64	63	37	45	44	61	62	55	50	60	58	49
11	12	13	14	15	16	17	15	16	17	18	19	20	21
43	46	50	52	64	64	54	51	37	31	23	42	42	49
18	19	20	21	22	23	24	22	23	24	25	26	27	28
45	54	61	63	46	49	56	43	53	67	80	63	59	61
25	26	27	28	29	30	31	29	30	31				
52	68	74	74	61	62	49	52	51	50				

* Draft data as of October 31, 2021

What Causes Exceedances in Washington Region?

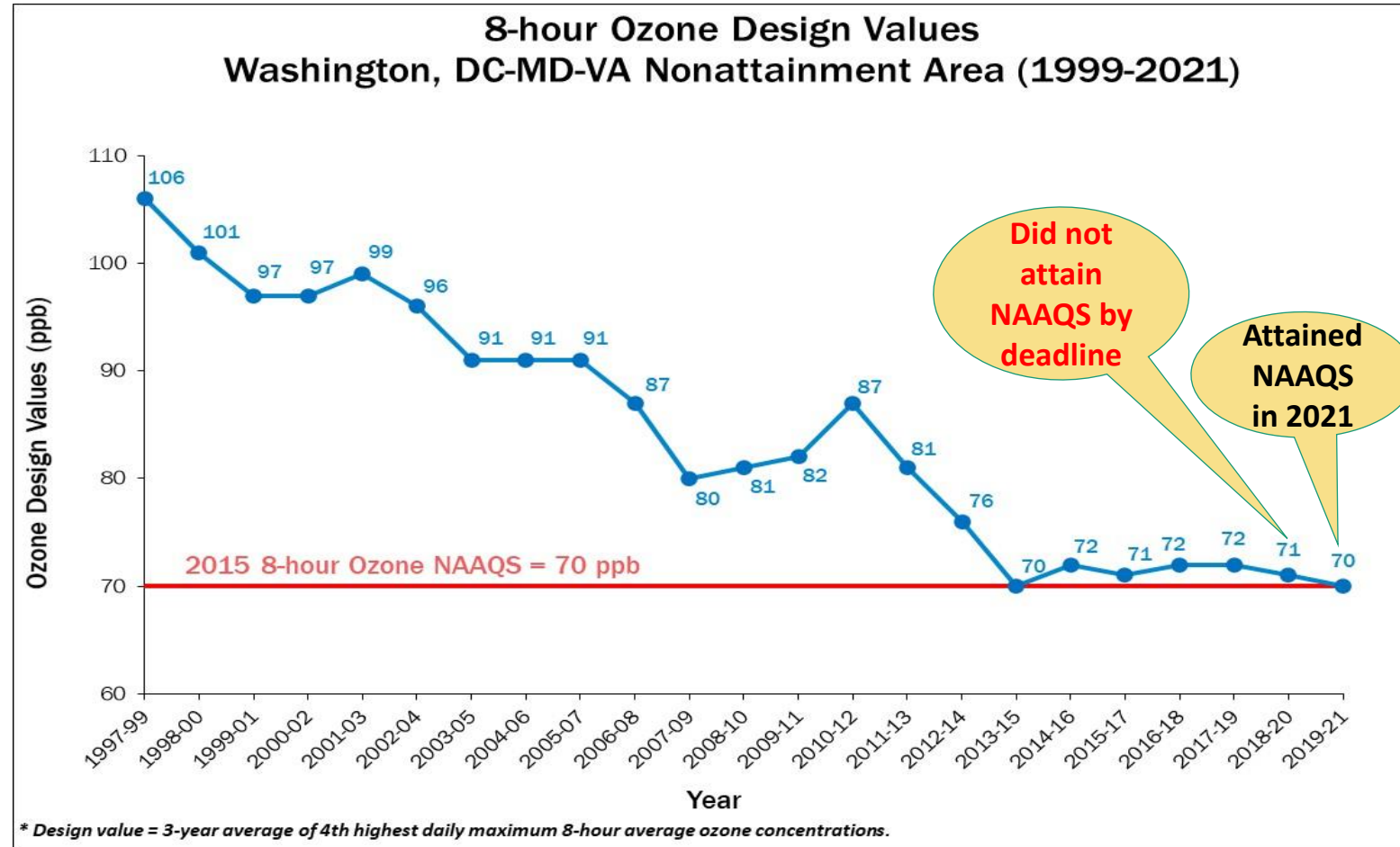
- Exceedances in the Washington region are caused by emissions of ozone precursors such as, VOCs and NOx that are produced locally as well that come from outside.
- While local sources of emissions remain important, outside sources play a significant role too.
- Several research studies have shown that ozone and its precursors (VOCs & NOx) coming from outside the region can contribute significantly to ozone levels in the region, more so on high ozone days.

Ozone Exceedance Trend



2021 data is draft and incomplete as of September 30, 2021.

Ozone Design Value Trend (Continued)



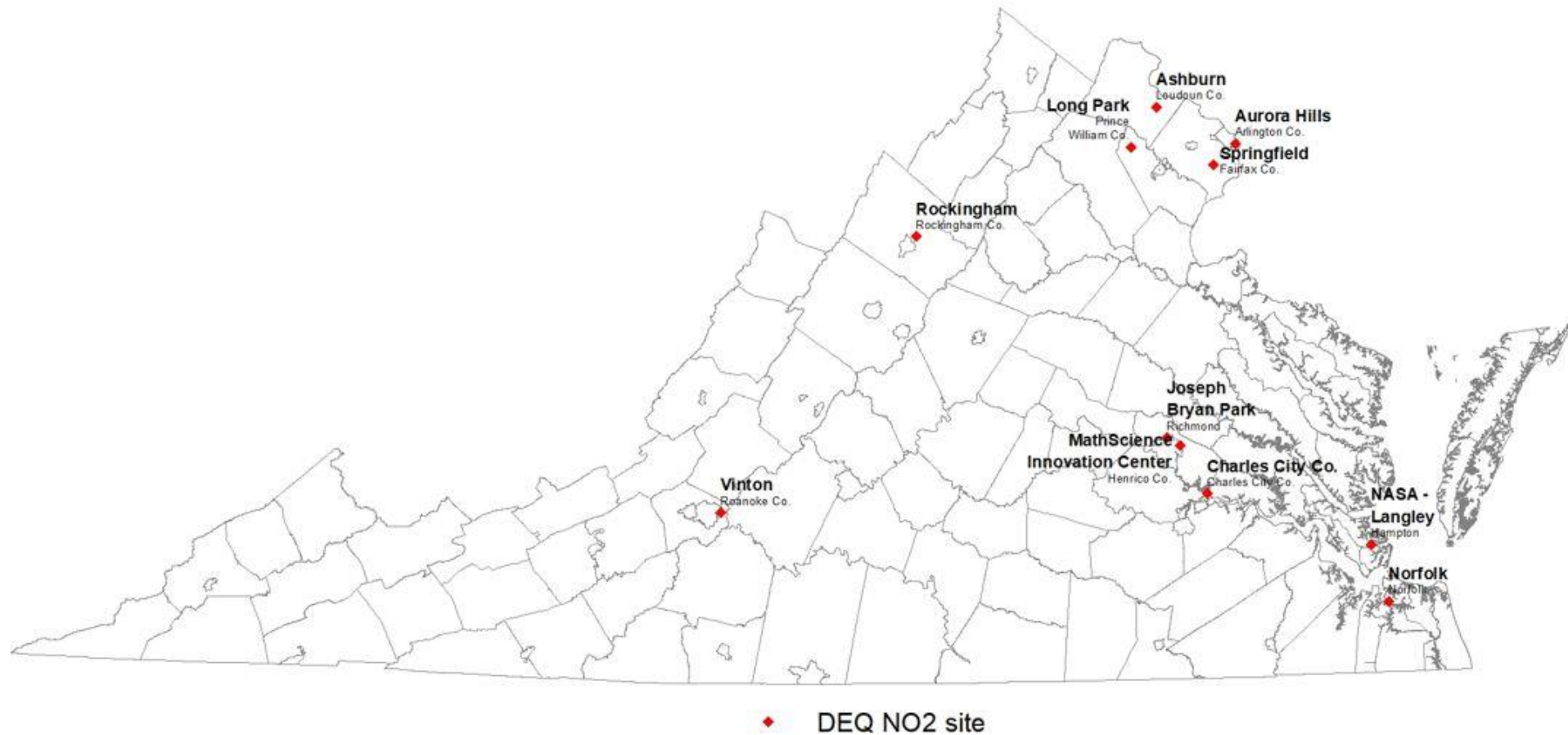
2019-21 data is draft as of September 30, 2021.

Ozone Design Values (Individual Monitors)

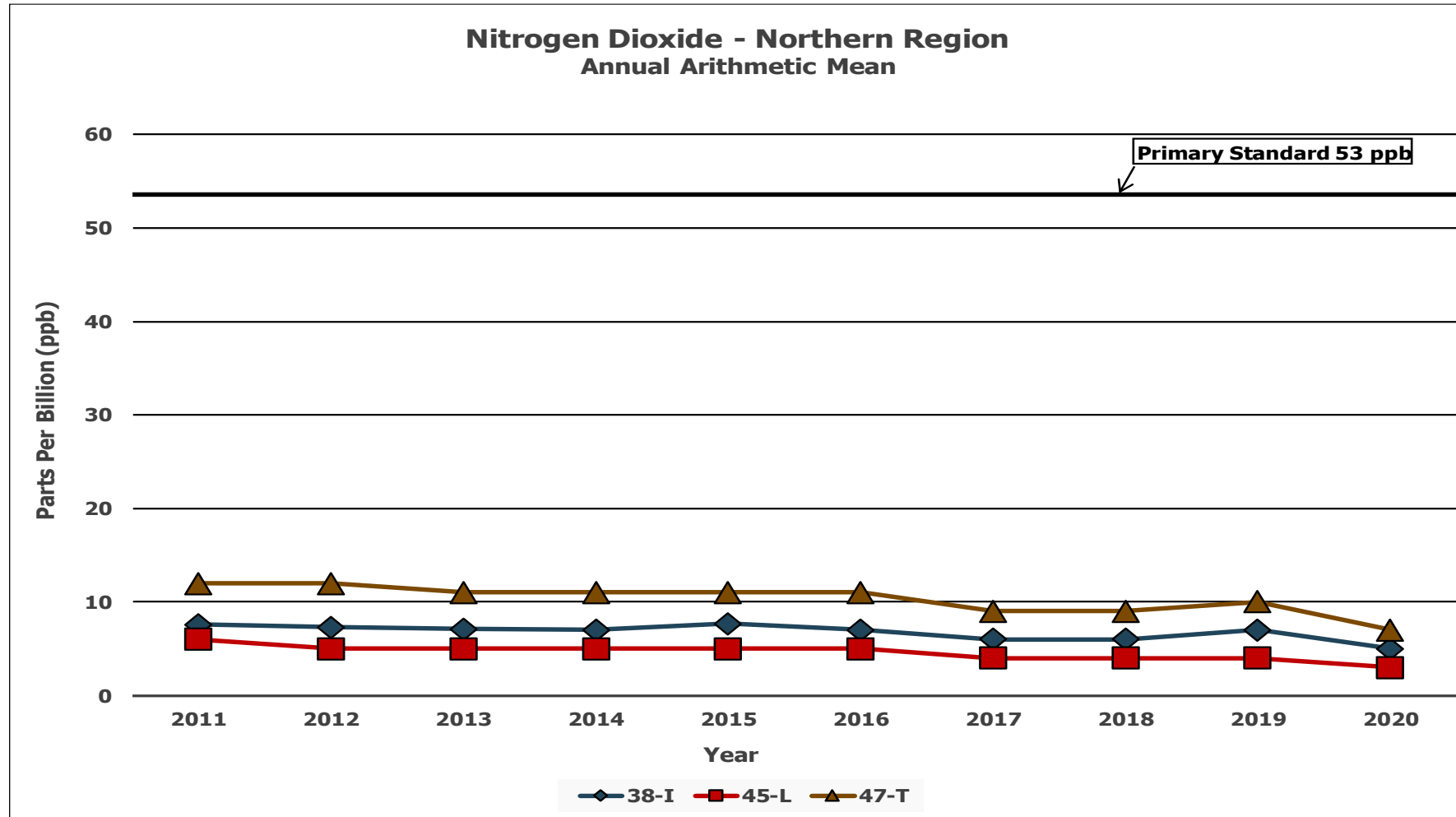
Monitor	County, State	Draft 2019-2021 Design Value (ppb)
Beltsville	Prince George's, MD	70
McMillian	District of Columbia	69
HU- Beltsville	Prince George's, MD	67
Takoma	District of Columbia	66
Arlington	Arlington, VA	66
PG Equestrian	Prince George's, MD	65
Franconia	Fairfax, VA	65
Frederick	Fredrick, MD	65
Rockville	Montgomery, MD	63
Ashburn	Loudoun, VA	62
River Terrace	District of Columbia	60
S. Maryland	Charles, MD	59
Long Park	Prince William, VA	59
Calvert	Calvert, MD	58

2021 data is draft and incomplete as of September 30, 2021.

Virginia Nitrogen Dioxide (NO₂) Monitoring Network



Northern Virginia NO₂ Air Quality Trends



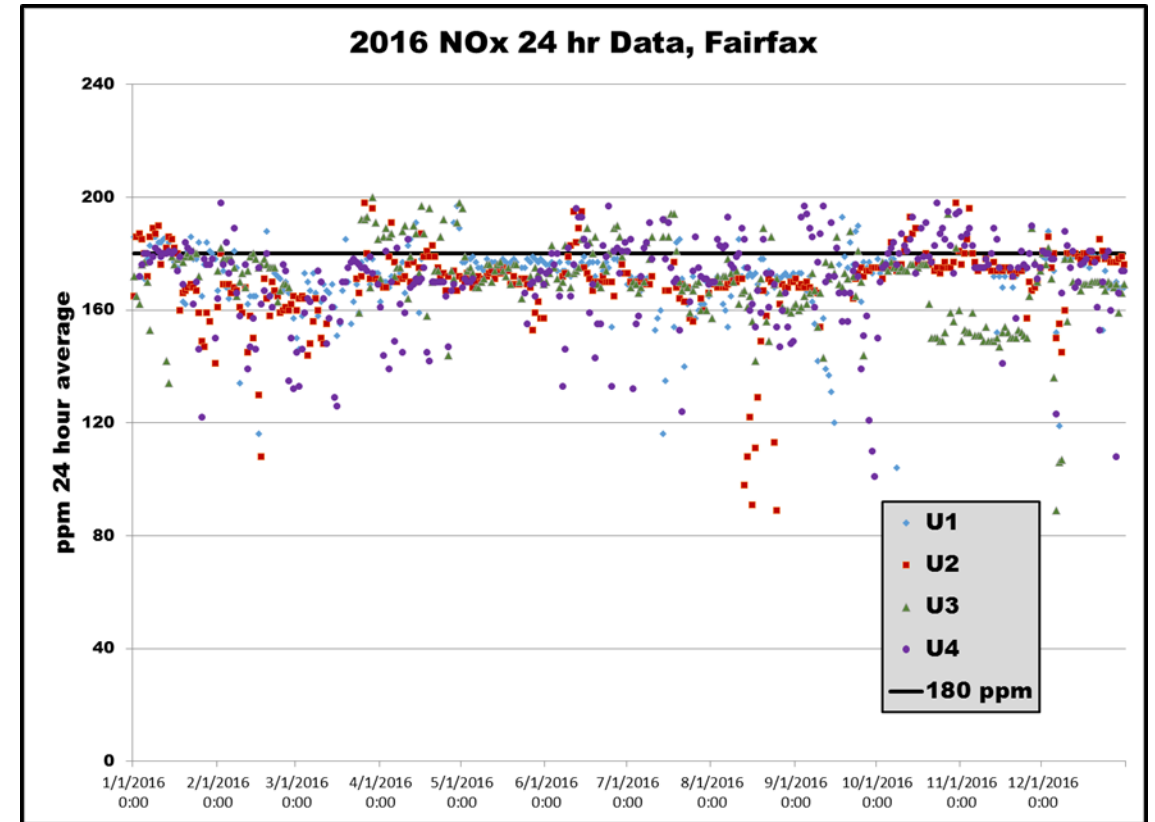
Covanta Fairfax

- *Reasonably Available Control Technology (RACT)* – lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility (9VAC5-40-7380)
 - CAA Requirement for Fairfax County as part of the Ozone Transport Region whenever a new ozone National Ambient Air Quality Standard (NAAQS) is published - §184(b)(2), §172(c)(1), §182(b)(2)
 - Applicable requirement for major stationary sources (> 100 tons per year) of nitrogen oxides (NO_x) and volatile organic compounds (VOC)
- Covanta Fairfax RACT review concluded with a federally enforceable permit dated February 8, 2019.

Covanta Fairfax NOx RACT Requirements

2008 O3 NAAQS

- Facility was subjected to RACT for NOx under the 2008 O3 NAAQS
- Existing NOx controls:
 - Selective noncatalytic reduction (SNCR)
 - Limited to 205 ppmvd NOx @ 7% O₂ on a 24 hour basis
 - Average actual values in the range of 155 ppvd to 185 ppmvd (2016 data)



Covanta Fairfax NOx RACT Requirements

2008 03 NAAQS (Continued)

- RACT determined to be LNTM technology
 - Similar to the addition of tertiary overfire air for improved ammonia mixing in the furnaces
- RACT Limitation for Each Furnace:
 - 110 ppmvd @ 7% O₂, daily (24 hour) average
 - 90 ppmvd @ 7% O₂, annual average
- Timeline for compliance:
 - 1st system retrofitted NLT June 30, 2019.
 - 2nd system retrofitted NLT December 31, 2019.
 - 3rd system retrofitted NLT December 31, 2020.
 - 4th system retrofitted NLT December 31, 2021.

Covanta Fairfax NOx RACT Requirements

Projected Benefit

- DEQ Office of Air Quality Assessment performed an episodic, regional scale photochemical modeling using the 2011 modeling platform
- Assumed 20% reduction in NOx from Covanta Alexandria/Arlington and Covanta Fairfax during 2011 based on actual emissions
- Results estimated air quality improvements of up to 1.5 ppm ozone in the Metro DC area during episodes of poor air quality in June and July 2011

