September 21, 2008

MEMORANDUM

SUBJECT: Documentation of O_3 Monitoring Season Analysis for the Proposed O_3 Monitoring Rule

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TO: O_3 Monitoring Rule Docket (EPA-HQ-OAR-2008-0338)

This memo presents findings from an analysis to assess whether current O_3 monitoring seasons are adequate in light of the O_3 NAAQS revision to 0.075 ppm.

Executive Summary

Following EPA's decision to tighten the 8-hour primary and secondary O_3 NAAQS (see 73 FR 16436) to a level of 0.075 ppm and revise the breakpoints of the Air Quality Index (AQI), EPA performed an analysis to investigate whether in some areas the required O_3 monitoring season should be made longer. EPA's statistical analysis demonstrates that the required O_3 season should be proposed for modification in 30 states as detailed in the proceeding sections below. The analysis investigated (1) exceedences of the revised NAAQS (8-hour O_3 averages above 0.075 ppm) in months falling outside the currently required local O_3 monitoring season, and (2) occurrences of 8-hour O_3 averages of at least 0.060 ppm -- the concentration that serves as the revised AQI breakpoint between the Good and Moderate indicator level (see 73 FR 16484). Decisions regarding a state's proposed seasonal modification were based on observed data in and surrounding the state, while statistically predicted exceedences were used to help validate conclusions. In cases where year-round data were not available, EPA used a documented regression model to predict exceedences in areas during unmonitored months based on meteorological variables measured by the National Weather Service (NWS). The proposed changes as well as retainments to each state's required O_3 monitoring season are in Table 1.

EPA's analysis shows that certain states need a longer $_{O3}$ season

The length of each state's currently required O_3 monitoring season was selected depending on varying climate-related, O_3-forming photochemical activity based on seasonally-dependent factors such as ambient temperature, strength of solar insolation, and length of day.[1] Lengthening the season in certain states may be appropriate as ambient O_3 concentrations could approach the level of the revised standard more frequently and during more months of the year than before.

EPA's analysis addresses the issue of whether extensions of currently required monitoring seasons are appropriate in light of the revised NAAQS. The analysis used certified data from 2004 – 2006 that were extracted from EPA's Air Quality System (AQS)

[1] See 40 CFR Part 58 Appendix D, section 2.5 for a table of currently required O_3 seasons.

on September 12, 2007. The monitor locations that provided these data are displayed in Figure 1, showing good spatial U.S. representation as the year-round sites were equally distributed across the country. Furthermore, the year-round data was very dense -- 531 out of the total number of national monitors (~1180) were year-round (or mostly year-round), therefore ~45 percent of the national network could be used in the ambient portion of this analysis.

The analysis investigated (1) exceedences of the revised NAAQS (8-hour O_3 averages above 0.075 ppm) in months falling outside the currently required local O_3 monitoring season, and (2) occurrences of 8-hour O_3 averages of at least 0.060 ppm -- the concentration that serves as the revised Air Quality Index (AQI) breakpoint between the Good and Moderate indicator level (see 73 FR 16484).

EPA's findings – based on complete ambient data

In reviewing the year-round or close to year-round O_3 data between 2004 and 2006, EPA's analysis found observed exceedences of the revised O_3 NAAQS in eight states during months outside of the current required monitoring season. *Descriptions of the header fields in both Table 2 and Table 3 can be found on page 5 of this memo.*

As shown in Table 2, the eight states are Maine, Massachusetts, New Hampshire, New Jersey, New York, South Carolina, Vermont, and Wyoming. With the exception of Wyoming, the exceedances occurred in a very limited manner and timeframe, just before the beginning of these states' required O_3 monitoring season (beginning in these states on April 1). Every exceedance in the aforementioned states was found to occur either on March 30 or March 31. In Wyoming, the frequency of O_3 exceedances before the beginning of the required O_3 season was higher, with multiple occurrences noted at several sites up to two months before the April 1 startup of required O_3 monitoring.

The frequency of observed occurrences of maximum 8-hour average O_3 readings of at least 0.060 ppm, the breakpoint for the revised Moderate AQI level (alerting persons particularly sensitive to O_3), was quite high across the country in months outside of the current required monitoring season (Table 3). A total of 32 states experienced such occurrences; 22 states had Moderate level AQI readings only before the required monitoring season; 9 states had such levels both before and after the required monitoring season; and 1 state had such levels only after the required monitoring season. In a number of cases, the frequency of such observed Moderate AQI levels was high, with some states experiencing between 31 to 46 out-of-season Moderate days during 2004 to 2006 at a high percentage of all operating year-round O_3 monitors.

Finally, Predicting Data is useful for states without year-round information

While proposals for revising each State's required monitoring season have been based on observed data in and surrounding the state, statistically predicted exceedences were used to validate conclusions. For States where year-round data were not available, EPA developed and employed a regression model to predict the frequency of exceedences in areas during unmonitored months. Based on the documented "met-adjustment" model for O_3 in

Camalier et al., the model was fit separately for each major urban area and uses the relationship between maximum 8-hour O_3 concentrations and certain meteorological variables, including temperature, relative humidity, wind speed, and transport information to predict exceedences of a prescribed O_3 level.[2] As discussed further in the cited article, a generalized linear model was used and non-linear effects of each meteorological variable were incorporated via a natural spline function, used in the R statistical software environment. Since the relationship between O_3 exceedance rate and meteorology changes with season, we must use only the data in the non-summer months, i.e., all months except June-August, in order to best represent the relationship in the months during which the state is not required to monitor. While we do not need to use the predicted information during the summer months, the numbers are peaking as we expect during June through August.

Tables 4 and 5 show the respective predicted exceedance rates for O_3 thresholds of 0.075 and 0.060 ppm. The blank rows for certain states represent where we did not have meteorological information to match the observed data. Gray cells represent a currently monitored month. Orange cells in Table 4 represent a potential, proposed additional month because of a non-zero prediction rate based on the revised standard (using 0.075 ppm). Yellow cells in Table 5 represent a potential, proposed additional month because of a prediction rate that is above 1.0 (using 0.060 ppm).

While the model predicts quite well for most cities (R^2=70 to 80%), it is used for validation purposes only. The true conclusions for seasonal modifications rest mainly on the ambient data in and surrounding the particular state.

[2] Camalier, L., Cox, W, and Dolwick, P. *The effects of meteorology on ozone in urban areas and their use in assessing ozone trends*. Atmospheric Environment, Volume 41, Issue 33, October 2007, pages 7127-7137.

Table 1 - Ozone Monitoring Season - Summary Of Proposed Changes					
State	Current Begin	Proposed Begin	Current End	Proposed End	Net Change (months)
Alabama	March	March	October	October	0
Alaska	April	April	October	October	0
Arizona	January	January	December	December	0
Arkansas	March	March	November	November	0
California	January	January	December	December	0
Colorado	March	March	September	September	0
Connecticut	April	March	September	October	2
Delaware	April	March	October	October	1
DC	April	March	October	October	1
Florida	March	January	October	December	4
Georgia	March	February	October	October	1
Hawaii	January	January	December	December	0
Idaho	May	April	September	September	1
Illinois	April	April	October	October	0
Indiana	April	March	September	October	2
Iowa	April	April	October	October	0
Kansas	April	April	October	October	0
Kentucky	March	March	October	October	0
Louisiana **	January	January	December	December	0
Louisiana **	March	March	October	November	1
Maine	April	April	September	September	0
Maryland	April	March	October	October	1
Massachusetts	April	March	September	September	1
Michigan	April	April	September	September	0
Minnesota	April	April	October	September	-1
Mississippi	March	January	October	December	4
Missouri	April	March	October	October	1
Montana	June	May	September	September	1
Nebraska	April	April	October	October	0
Nevada	January	January	December	December	0
New Hampshire	April	March	September	September	1
New Jersey	April	March	October	October	1
New Mexico	January	January	December	December	0
New York	April	March	October	October	1
North Carolina	April	March	October	October	1
North Dakota	May	April	September	September	1
Ohio	April	April	October	October	0
Oklahoma	March	March	November	November	0
Oregon	May	May	September	September	0
Pennsylvania	April	March	October	October	1
Rhode Island	April	April	September	September	0
South Carolina	April	February	October	October	2
South Dakota	June	April	September	September	2
Tennessee	March	February	October	October	1
Texas **	January	January	December	December	0
Texas **	March	January	October	December	4
Utah	May	April	September	October	2
Vermont	April	March	September	September	1
Virginia	April	March	October	October	1
Washington	May	March	September	September	2
West Virginia	April	April	October	October	0
Wisconsin	15-Apr	April	15-Oct	October	1
Wyoming	April	January	October	December	5
American Samoa	January	January	December	December	0
Guam	January	January	December	December	0
Puerto Rico	January	January	December	December	0
Virgin Islands	January	January	December	December	0

** Season depends on Air Quality Control Region (AQCR)

Figure 1. Map of year- round O_3 sites that were used in this analysis

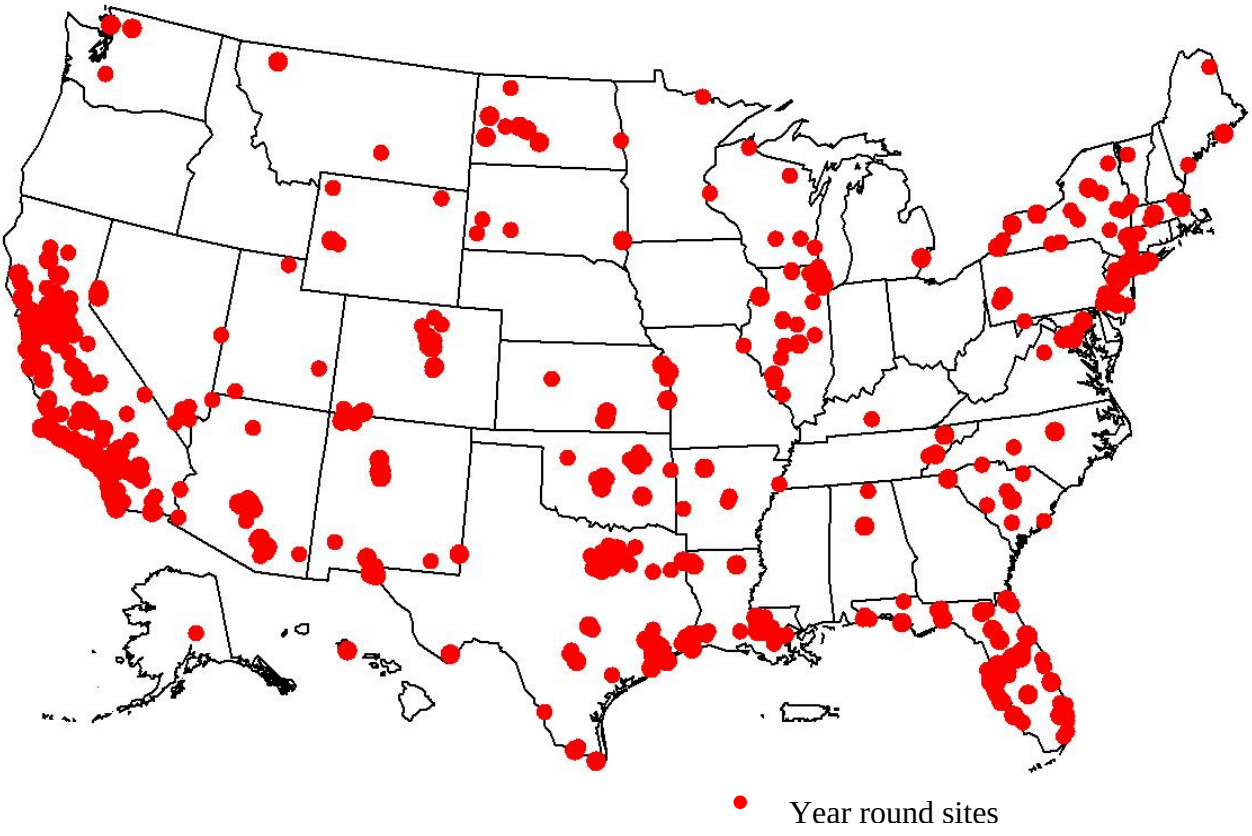

Table Descriptions for Tables 2 and 3

Begin Month: current begin of season
End Month: current end of season
Sites: number of sites in state
yr rd: number of year round sites
sites: number of sites at or above threshold
days: number of days at or above threshold
ex: number of days >= threshold
when: specific days >= threshold

Table 2 - Observed Exceedances of 8-hour 0.075 ppm by State (>0.075 ppm)					exceedences of 0.075 ppm			
Current Season					before season			
State	Begin Month	End Month	sites	# yr rd	# sites	# days	# ex	when
Alabama	March	October	28	3	-	-	-	-
Alaska	April	October	1	1	-	-	-	-
Arizona	January	December	26	26	-	-	-	-
Arizona*	April	October	19	0	-	-	-	-
Arkansas	March	November	7	6	-	-	-	-
California	January	December	154	150	-	-	-	-
California*	May	October	23	0	-	-	-	-
Colorado	March	September	19	18	-	-	-	-
Connecticut	April	September	11	1	-	-	-	-
Delaware	April	October	6	1	-	-	-	-
District of Columbia	April	October	3	3	-	-	-	-
Florida	March	October	57	55	-	-	-	-
Georgia	March	October	24	0	-	-	-	-
Hawaii	January	December	1	1	-	-	-	-
Idaho	May	September	4	0	-	-	-	-
Illinois	April	October	39	22	-	-	-	-
Indiana	April	September	42	0	-	-	-	-
Iowa	April	October	13	0	-	-	-	-
Kansas	April	October	10	8	-	-	-	-
Kentucky	March	October	30	1	-	-	-	-
Louisiana AQCR 019, 022	March	October	20	20	-	-	-	-
Louisiana AQCR 106	January	December	3	3	-	-	-	-
Maine	April	September	18	3	1	1	1	3/31
Maryland	April	October	17	3	-	-	-	-
Massachusetts	April	September	16	5	1	1	1	3/31
Michigan	April	September	29	1	-	-	-	-
Minnesota	April	October	16	1	-	-	-	-
Mississippi	March	October	8	0	-	-	-	-
Missouri	April	October	19	0	-	-	-	-
Montana	June	September	2	2	-	-	-	-
Nebraska	April	October	4	0	-	-	-	-
Nevada	January	December	22	19	-	-	-	-
New Hampshire	April	September	13	0	1	1	1	3/31
New Jersey	April	October	14	11	1	1	1	3/31
New Mexico	January	December	24	21	-	-	-	-
New York	April	October	36	23	8	8	1	3/31
North Carolina	April	October	42	2	-	-	-	-
North Dakota	May	September	8	8	-	-	-	-
Ohio	April	October	49	0	-	-	-	-
Oklahoma	March	November	24	14	-	-	-	-
Oregon	May	September	8	0	-	-	-	-
Pennsylvania	April	October	49	5	-	-	-	-
Rhode Island	April	September	3	0	-	-	-	-
South Carolina	April	October	21	8	1	1	1	3/30
South Dakota	June	September	4	4	-	-	-	-
Tennessee	March	October	30	3	-	-	-	-
Texas AQCR 106, 153, 213, 21	January	December	44	39	-	-	-	-
Texas AQCR 022, 210, 211, 21	March	October	31	5	-	-	-	-
Utah	May	September	17	4	-	-	-	-
Vermont	April	September	2	2	2	2	1	3/31
Virginia	April	October	25	5	-	-	-	-
Washington	May	September	16	3	-	-	-	-
West Virginia	April	October	8	0	-	-	-	-
Wisconsin	April 15	October 15	32	6	-	-	-	-
Wyoming	April	October	7	4	3	12	9	1/24-2/27
American Samoa	January	December	-	-	-	-	-	-
Guam	January	December	-	-	-	-	-	-
Puerto Rico	January	December	1	0	-	-	-	-
Virgin Islands	January	December	-	-	-	-	-	-

Table 3 - Observed Exceedances of 8-hour 0.060 ppm by State (≥ 0.060 ppm)					exceedences of 0.060 ppm						
Current Season						before season			after season		
State	Begin Month	End Month	sites	# yr rd	# sites	# ex	# days	when	#ex	# days	when
Alabama	March	October	28	3	-	-	-	-	-	-	-
Alaska	April	October	1	1	-	-	-	-	-	-	-
Arizona	January	December	26	26	-	-	-	-	-	-	-
Arizona*	April	October	19	0	2	2	2	3/5-3/25	-	-	-
Arkansas	March	November	7	6	-	-	-	-	-	-	-
California	January	December	154	150	-	-	-	-	-	-	-
California*	May	October	23	0	1	1	1	4/30	-	-	-
Colorado	March	September	19	18	-	-	-	-	-	-	-
Connecticut	April	September	11	1	3	4	2	3/30-3/31	2	2	10/2-10/3
Delaware	April	October	6	1	-	-	-	-	-	-	-
District of Columbia	April	October	3	3	1	2	2	3/30-3/31	-	-	-
Florida	March	October	57	55	37	21	14	1/25-2/19	55	4	11/7-11/24
Georgia	March	October	24	0	-	-	-	-	-	-	-
Hawaii	January	December	1	1	-	-	-	-	-	-	-
Idaho	May	September	4	0	3	9	5	4/11-4/30	-	-	-
Illinois	April	October	39	22	-	-	-	-	-	-	-
Indiana	April	September	42	0	2	-	-	-	4	3	10/4-10/19
Iowa	April	October	13	0	-	-	-	-	-	-	-
Kansas	April	October	10	8	7	9	4	3/15-3/29	-	-	-
Kentucky	March	October	30	1	-	-	-	-	-	-	-
Louisiana AQCR 019, 022	March	October	20	20	1	1	1	2/27	1	1	11/25
Louisiana AQCR 106	January	December	3	3	-	-	-	-	-	-	-
Maine	April	September	18	3	4	4	2	3/30-3/31	1	1	10/3
Maryland	April	October	17	3	2	4	2	3/30-3/31			
Massachusetts	April	September	16	5	10	14	4	3/1-3/31 (mainly)	-	-	-
Michigan	April	September	29	1	2	2	2	3/28-3/29	4	3	10/2-10/5
Minnesota	April	October	16	1	1	1	1	3/29	-	-	-
Mississippi	March	October	8	0	-	-	-	-	-	-	-
Missouri	April	October	19	0	-	-	-	-	-	-	-
Montana	June	September	2	2	2	3	3	5/12-5/15	-	-	-
Nebraska	April	October	4	0	-	-	-	-	-	-	-
Nevada	January	December	22	19	-	-	-	-	-	-	-
New Hampshire	April	September	13	0	2	2	1	3/31	-	-	-
New Jersey	April	October	14	11	12	24	5	3/11-3/31	-	-	-
New Mexico	January	December	24	21	-	-	-	-	-	-	-
New York	April	October	36	23	21	42	6	3/1-3/31	-	-	-
North Carolina	April	October	42	2	2	5	3	3/9-3/31	-	-	-
North Dakota	May	September	8	8	4	6	5	4/4-4/23	-	-	-
Ohio	April	October	49	0	-	-	-	-	-	-	-
Oklahoma	March	November	24	14	3	3	2	2/22-2/27	-	-	-
Oregon	May	September	8	0	-	-	-	-	-	-	-
Pennsylvania	April	October	49	5	2	2	1	3/31	-	-	-
Rhode Island	April	September	3	0	1	1	1	3/31	-	-	-
South Carolina	April	October	21	8	21	126	31	2/16-3/31	-	-	-
South Dakota	June	September	4	4	4	23	18	3/24-5/27	-	-	-
Tennessee	March	October	30	3	2	2	2	2/19-2/28	-	-	-
Texas AQCR 106, 153, 213, 21	January	December	44	39	-	-	-	-	-	-	-
Texas AQCR 022, 210, 211, 21	March	October	31	5	7	5	2	2/18-2/19	4	4	11/6-12/29
Utah	May	September	17	4	4	56	38	3/15-4/29	2	2	10/1-10/31
Vermont	April	September	2	2	2	6	3	3/26-3/31	3	3	10/3-10/5
Virginia	April	October	25	5	4	16	6	3/9-3/31	1	1	11/11
Washington	May	September	16	3	-	-	-	-	-	-	-
West Virginia	April	October	8	0	-	-	-	-	-	-	-
Wisconsin	April 15	October 15	32	6	2	6	2	3/26-4/11	-	-	-
Wyoming	April	October	7	4	4	67	46	1/20-3/28	-	-	-
American Samoa	January	December	-	-	-	-	-	-	-	-	-
Guam	January	December	-	-	-	-	-	-	-	-	-
Puerto Rico	January	December	1	0	-	-	-	-	-	-	-
Virgin Islands	January	December	-	-	-	-	-	-	-	-	-

Table 4 - Predicted Exceedances of 0.075 ppm (revised NAAQS level)												
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alabama	0	0	0.3	1.4	4.3	7.3	7.2	5.6	3.2	0.4	0	0
Alaska												
Arizona												
Arizona*	0	0	0	0.2	1.2	3.1	3.1	1	0.2	0	0	0
Arkansas	0	0	0	0.4	1.2	3.1	2.5	2.7	1.3	0.1	0	0
California												
California*	0	0	3.1	5.8	19.8	27.5	31	29.9	21.5	4.5	0	0
Colorado	0	0	0	0.3	1.8	5.2	7.6	1.4	0.2	0	0	0
Connecticut	0	0	0	0.4	1.2	5.4	5.1	3.9	0.4	0	0	0
Delaware												
DC	0	0	0.1	1.5	4.2	7.4	12.1	9.6	2	0	0	0
Florida	0.2	0.4	2	3.3	4.6	2	1.2	0.5	0.6	0.8	0.3	0.1
Georgia	0	0	0.7	3.4	9.4	14.1	16.9	11.7	4.4	0.6	0	0
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-
Idaho												
Illinois	0	0	0	0.3	1.2	7.8	8.6	3.8	1.6	0	0	0
Indiana	0	0	0	0.7	2.3	5.5	5.7	3.1	0.9	0.1	0	0
Iowa												
Kansas	0	0	0	0.3	0.6	2.5	4.2	1.9	0.3	0	0	0
Kentucky	0	0	0.1	1.6	4.7	9.7	11.2	10.2	1.6	0.1	0	0
Louisiana	0	0	0.7	3.4	7	7.8	4.4	3.4	1.2	0.5	0	0
Maine												
Maryland	0	0	0	1.4	4	7.8	12.6	8.7	1.4	0	0	0
Massachusetts	0	0	0	1.2	1.3	5.1	5.9	3.5	0.4	0	0	0
Michigan	0	0	0	0.1	0.8	4.9	5.8	2.6	0.5	0	0	0
Minnesota	0	0	0	0.2	0.2	1.2	3.8	0.2	0	0	0	0
Mississippi	0	0	0.2	0.6	0.7	0.9	0.3	0.2	0.2	0.1	0	0
Missouri	0	0	0.1	0.9	3.1	11.4	14.8	9.4	3.3	0.2	0	0
Montana												
Nebraska	0	0	0	0.1	0.4	2	3.5	0.5	0.3	0	0	0
Nevada												
New Hampshire												
New Jersey												
New Mexico												
New York	0	0	0.1	1.4	3.4	10.9	13.2	9.6	2.1	0.1	0	0
North Carolina	0	0	0	1.5	4.2	7	9.7	5.7	1.6	0	0	0
North Dakota												
Ohio	0	0	0	0.7	3.3	8.2	9.8	7.2	0.9	0	0	0
Oklahoma	0	0	0.1	0.7	1.9	4.4	7.9	6.6	1.5	0.1	0	0
Oregon	0	0	0	0	0.2	0.3	0.8	0.1	0	0	0	0
Pennsylvania	0	0	0.1	1.3	4.4	8.9	13.6	9.6	1.8	0.1	0	0
Rhode Island	0	0	0	0.3	1.3	6	6	4.5	0.4	0	0	0
South Carolina	0	0	0.6	3.4	4.8	3.9	3.7	1.1	0.7	0.1	0	0
South Dakota												
Tennessee	0	0	1	3.7	9.4	13.8	15.3	11.7	5	0.4	0	0
Texas	0.1	0.2	1.4	5.4	8.2	9.9	6	6.1	4.5	2.1	0.4	0.1
Utah	0	0	0	0	0.5	3.1	6.1	1.5	0.1	0	0	0
Vermont												
Virginia	0	0	0	1.4	2.4	4	5.4	3.7	0.9	0.1	0	0
Washington	0	0	0	0	0.5	0.9	1.7	0.2	0	0	0	0
West Virginia	0	0	0	1.2	3.1	6.4	7.8	7.6	0.7	0	0	0
Wisconsin	0	0	0	0.3	0.4	4.7	6.7	2.8	1.4	0	0	0
Wyoming												
American Samoa	-	-	-	-	-	-	-	-	-	-	-	-
Guam	-	-	-	-	-	-	-	-	-	-	-	-
Puerto Rico												
Virgin Islands	-	-	-	-	-	-	-	-	-	-	-	-

* Season modifications decided b
Blue highlight means no currently available merged met data
Bold season change means that it is different, regular means that it is the same
Orange highlight in the predicted 75 column means any non-zero out of season exceedence number

	Table 5 - Predicted Exceedances of 0.060 ppm (revised Moderate AQI breakpoint)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Alabama	0.3	0.8	4.5	9.7	12.5	17.5	19.4	16.6	12.1	3.9	0.7	0.3
Alaska												
Arizona												
Arizona*	0	0.3	2.5	6.3	4.2	5.6	10.2	10.2	6.5	1.2	0.1	0
Arkansas	0.1	0.5	2	5.4	8.7	12.9	12.7	13.5	9.9	2.2	0.3	0.1
California												
California*	0.3	1.5	8.6	18.8	26.8	29.3	30.8	29.3	24.8	9.9	2	0.4
Colorado	0.1	0.6	3.6	7.2	15	18.5	22.4	13	5.8	0.7	0.1	0
Connecticut	0.3	1	1.1	4	5.5	11.9	14.4	10.5	3.3	0.2	0.2	0.4
Delaware												
DC	0	0.1	1.4	7.5	13	18.4	24	19.7	9	1.1	0	0
Florida	1.1	2.5	10.4	14.9	18.1	12.4	10.3	6.4	4.9	4.4	2.2	0.9
Georgia	0.4	1.3	6.5	13.4	19	21.7	25.6	21.9	14.5	4.6	0.9	0.4
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-
Idaho												
Illinois	0	0	0.3	4.1	7.9	18.3	21.6	12.9	8.2	0.8	0	0
Indiana	0.1	0.8	1.5	6.9	10.9	16.8	17.3	11.3	7.9	1.7	0.2	0
Iowa												
Kansas	0.1	0.3	1	4.8	7.3	14.1	16	10.1	7.2	1.2	0.1	0
Kentucky	0	0.2	1.3	8.2	15.2	22.7	22.3	19.3	10.3	1.8	0	0
Louisiana	0.5	0.9	7.8	16.5	21.7	22.8	21.4	19.4	12.3	7.5	1.4	0.3
Maine												
Maryland	0	0	0.8	6.6	11.7	18.1	23.6	18.9	7.7	0.5	0	0
Massachusetts	0.2	0.5	1.5	6.7	7	12.6	15.6	10.7	2.8	0.2	0	0.1
Michigan	0	0.3	0.4	2.5	4.8	11.7	15.5	8.9	4	0.4	0	0
Minnesota	0	0	0.1	3.2	3.1	9.5	14	3	1.4	0.1	0	0
Mississippi	1	1.4	3.8	6.6	7.1	8.5	5.5	5.1	4.5	2.3	0.6	0.8
Missouri	0.2	0.9	2.2	6.4	13.5	22.9	24.5	18.7	11	2.2	0.3	0
Montana												
Nebraska	0	0	0.1	2.2	5.9	12.6	15	5.8	5.8	0.5	0	0
Nevada												
New Hampshire												
New Jersey												
New Mexico												
New York	0.5	0.7	1.9	7.5	11.6	20.4	23.3	19.3	9.1	1.4	0.1	0.1
North Carolina	0.1	0.3	1.6	8.5	14.8	17	22.1	17.3	8.3	1.5	0.5	0.1
North Dakota												
Ohio	0.1	0.2	0.8	6.5	13.1	20.5	22.6	16.3	8.2	1.2	0	0
Oklahoma	0.3	1.1	3.2	7.5	11.4	17.1	21.8	17.3	12	3.1	0.4	0.2
Oregon	0.1	0.6	0.2	0.4	1.4	1.9	4.2	2.9	0.3	0	0	0.1
Pennsylvania	0.2	0.3	1.3	6.7	12.8	19	24.2	19.7	9.5	1.4	0	0
Rhode Island	0.1	0.2	1	3.5	6.1	13.2	16.2	11.6	2.7	0.2	0	0
South Carolina	0.3	1.2	6.4	13.7	16.6	14.5	16.2	9.4	7.4	2.3	1	0.3
South Dakota												
Tennessee	0.7	1.8	7.8	14.3	20.3	25.3	27	23.3	15.2	5	1.1	0.6
Texas	1.2	2.1	8	15.6	21.2	22.4	18.8	18.8	15.7	10.7	3.4	1.6
Utah	0	0	0.2	1.4	8.6	17.7	25.6	15.2	4.1	0.1	0	0
Vermont												
Virginia	0.2	0.6	1.6	7.5	11.3	14.8	18.7	14.2	6.4	1.4	0.3	0.1
Washington	0.7	0.8	1.5	1.4	2.2	3	5.6	3.7	0.8	0	0.1	0.3
West Virginia	0	0.1	1	7.9	13.1	17.8	20	16.6	6.7	0.7	0.1	0
Wisconsin	0.5	0.8	1	3.8	4	13.6	15.9	9.4	6.3	0.6	0.1	0.3
Wyoming												
American Samoa	-	-	-	-	-	-	-	-	-	-	-	-
Guam	-	-	-	-	-	-	-	-	-	-	-	-
Puerto Rico												
Virgin Islands	-	-	-	-	-	-	-	-	-	-	-	-

* Season modifications decided

Blue highlight means no currently available merged met data

Bold season change means that it is different, regular means that it is the same

Yellow highlight in the season change column means that this decision had less data and I based a decision upon the surrounding states

Yellow highlight in the predicted 60 column means any out of season exceedence number that is above 1