

Proposed Changes to Data Handling and NAAQS Interpretation

Ozone Update

AQS Conference
Colorado Springs
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Overview

- Proposed primary and secondary NAAQS forms and ranges
- Proposed changes to Appendix P – data handling
- Secondary NAAQS (W126) in more detail

Proposed Revisions to Ozone NAAQS

- On January 6, 2010, EPA proposed revisions to the National Ambient Air Quality Standards for ground-level ozone
- The proposed revisions would affect two types of ozone standards:
 - *Primary standard* to protect public health, including the health of at-risk populations such as children, people with asthma, and older adults
 - *Secondary standard* to protect public welfare and the environment, including sensitive vegetation and ecosystems

Proposed Forms and Ranges

- Specifically, EPA is:
 - Proposing to revise the level of the primary 8-hour ozone standard to a level within the range of 0.060-0.070 parts per million (ppm)
 - Proposing to establish a separate cumulative secondary standard within a range of 7-15 ppm-hours
- EPA is also proposing to update the Air Quality Index (AQI) for ozone
- EPA plans to issue final standards by August 31, 2010
- For more information go to <http://www.epa.gov/ozonepollution>

Data Handling Revisions (Appendix P)

V. Revision of Appendix P—Interpretation of the NAAQS for O₃ and Proposed Revisions to the Exceptional Events Rule

A. Background

B. Interpretation of the Secondary O₃ Standard

C. Clarifications Related to the Primary Standard

D. Revisions to Exceptions From Standard Data Completeness Requirements for the Primary Standard

E. Elimination of the Requirement for 90 Percent Completeness of Daily Data Across Three Years

F. Administrator Discretion To Use Incomplete Data

G. Truncation Versus Rounding

H. Data Selection

I. Exceptional Events Information Submission Schedule

Source: Federal Register / Vol. 75, No. 11 / Tuesday, January 19, 2010
/ Proposed Rules, pp. 3027-3033

Available at: <http://www.epa.gov/air/ozonepollution/fr/20100119.pdf>

E. Elimination of the Requirement for 90 Percent Completeness of Daily Data Across Three Years

- App P currently requires 75 percent of days in each of 3 years AND the average of the percent completeness from those years must be at least 90 percent.
- Proposes to eliminate the 90 percent requirement.

G. Truncation Versus Rounding

- Current Appendix P:
 - When computing the 8-hour average, truncate result to 3 decimal places
 - When computing the 3-year average of the fourth-highest daily maximum 8-hour concentration, truncate to 3 decimals
- New Appendix P proposes:
 - When computing the 8-hour average, retain all digits to the right of the decimal place
 - When computing the 3-year average of the fourth-highest daily maximum 8-hour concentration, round to 3 decimals



Why do I need to know W126?

- Sudoku is "out", W126 is "in"
- Impress your Facebook friends

Facebook - Windows Internet Explorer provided by EPA

It's important for plants

It's really simple — really

Chris Bonser: What is half my clocks in this house say, 11:34, and the other half say 11:35. ???
Sat at 9:35pm · Comment · Like

View all 4 comments

Glen Hedrick: I wonder if I will get credit for losing an hour in the hotel we are staying at tonight.....
Sat at 9:40pm

Chris Bonser: I am sure you will, next year, you will have to rent from me.
Sat at 9:44pm

Write a comment...

Matthew Harrenstein and Matthew Groom are now friends.
Sat at 7:46pm · Comment · Like · Add as Friend

Lisa Karickhoff Huskey commented on Jill Damron Lenox's status.
Sat at 7:15pm

Samuel Roy Shaver

W126 David just calculated the W126 statistic!
Sat at 6:58pm via MindJolt Games · Comment · Like · Play Bricks Breaking

David G. Knox commented on Karl Laundry's status.
Sat at 6:45pm

Minh Le Posting for family. House in Pine Valley (great deal IMBO :)
http://wrar.rapmls.com/scripts/mgrqispl.dll?APPNAME=wilmington&PRGNAME=MLSLogin&ARGUMENT=RIG5733x5y0GnjJHTxCh736cDGTQv53NolI7izGA5o%3D&KeyRid=1&Include_Search_Criteria=

(1 item remaining) Downloading picture http://profile.ak.fbcdn.net/v228/S28/41/q152077807_9800.jpg...

Internet 100%



How is it calculated?

- Transform
- Add 3 times
- Average

Start with hourly values...

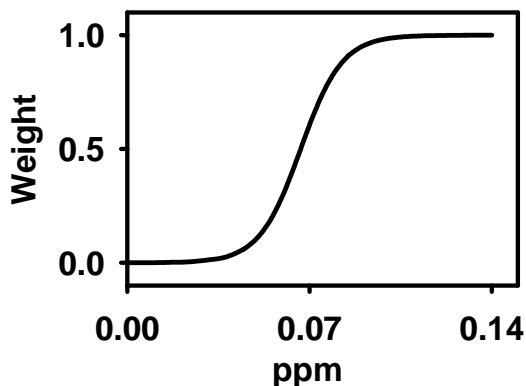
- 12-hour period 8am-8pm

AQS Start Hour (Local Standard Time)	1-hour Ozone Concentration (ppm)
8:00 AM	0.045
9:00 AM	0.06
10:00 AM	0.075
11:00 AM	0.08
12:00 PM	0.079
1:00 PM	0.082
2:00 PM	0.085
3:00 PM	0.088
4:00 PM	0.083
5:00 PM	0.081
6:00 PM	0.065
7:00 PM	0.056

Transform

- Transform the hourly values

$$O_{3i} * \left(\frac{1}{1 + (4403 * e^{-126 * O_{3i}})} \right)$$



AQS Start Hour (Local Standard Time)	1-hour Ozone Concentration (ppm)	Weighted Concentration (ppm)
8:00 AM	0.045	0.002781048
9:00 AM	0.06	0.018218179
10:00 AM	0.075	0.055701197
11:00 AM	0.08	0.067537497
12:00 PM	0.079	0.065326731
1:00 PM	0.082	0.071714507
2:00 PM	0.085	0.077393908
3:00 PM	0.088	0.082447735
4:00 PM	0.083	0.073683225
5:00 PM	0.081	0.069666519
6:00 PM	0.065	0.029260124
7:00 PM	0.056	0.011675533

Add

- Add the weighted hourly values for each day

AQS Start Hour (Local Standard Time)	1-hour Ozone Concentration (ppm)	Weighted Concentration (ppm)	
8:00 AM	0.045	0.002781048	
9:00 AM	0.06	0.018218179	
10:00 AM	0.075	0.055701197	
11:00 AM	0.08	0.067537497	
12:00 PM	0.079	0.065326731	
1:00 PM	0.082	0.071714507	
2:00 PM	0.085	0.077393908	
3:00 PM	0.088	0.082447735	
4:00 PM	0.083	0.073683225	
5:00 PM	0.081	0.069666519	
6:00 PM	0.065	0.029260124	
7:00 PM	0.056	0.011675533	
		<hr/>	
		0.625406204	→ Daily Value

Add

- Add the daily values for each month
- This example is just May

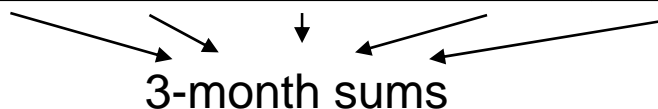
	Daily Value
5/1/2007	0.79
5/2/2007	0.657
5/3/2007	0.664
5/4/2007	0.703
5/5/2007	0.698
5/6/2007	0.596
5/7/2007	0.7
5/8/2007	0.822
5/9/2007	0.786
5/10/2007	0.82
5/11/2007	0.867
5/12/2007	0.854
5/13/2007	0.888
5/14/2007	0.841
5/15/2007	0.839
5/16/2007	0.783
5/17/2007	0.78
5/18/2007	0.776
5/19/2007	0.787
5/20/2007	0.751
5/21/2007	0.652
5/22/2007	0.671
5/23/2007	0.673
5/24/2007	0.717
5/25/2007	0.766
5/26/2007	0.789
5/27/2007	0.737
5/28/2007	0.678
5/29/2007	0.662
5/30/2007	0.845
5/31/2007	0.773
	<hr/>
	23.365 → Monthly Value



Add

- Add the monthly values for each 3-month period

	April	May	June	July	August	September	October
Monthly Value	4.442	9.124	12.983	16.153	13.555	4.364	1.302
3-Month sum			26.549	38.260	42.691	34.072	19.221



- In this example, there are five 3-month sums in the year

Average

- Average the highest 3-month sum from each of the three years

Year 2004	April	May	June	July	August	September	October
Monthly Value	4.442	9.124	12.983	16.153	13.555	4.364	1.302
3-Month sum	na	na	26.549	38.260	42.691	34.072	19.221

Year 2005	April	May	June	July	August	September	October
Monthly Value	3.114	7.214	8.214	8.111	7.455	7.331	5.115
3-Month sum	na	na	18.542	23.539	23.780	22.897	19.901

Year 2006	April	May	June	July	August	September	October
Monthly Value	4.574	5.978	6.786	8.214	5.579	4.331	2.115
3-Month sum	na	na	17.338	20.978	20.579	18.124	12.025

W126 value = $(42.691 + 23.780 + 20.978)/3 = 29.149666\dots$ rounds to **29 ppm-hours** → This is it!!!

Congratulations!

- Now you know how the W126 statistic is calculated!
- For additional information, including data summaries, see <http://www.epa.gov/ttn/analysis/w126.htm>

Contact Information

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