

G. Allen, October 4, 2012

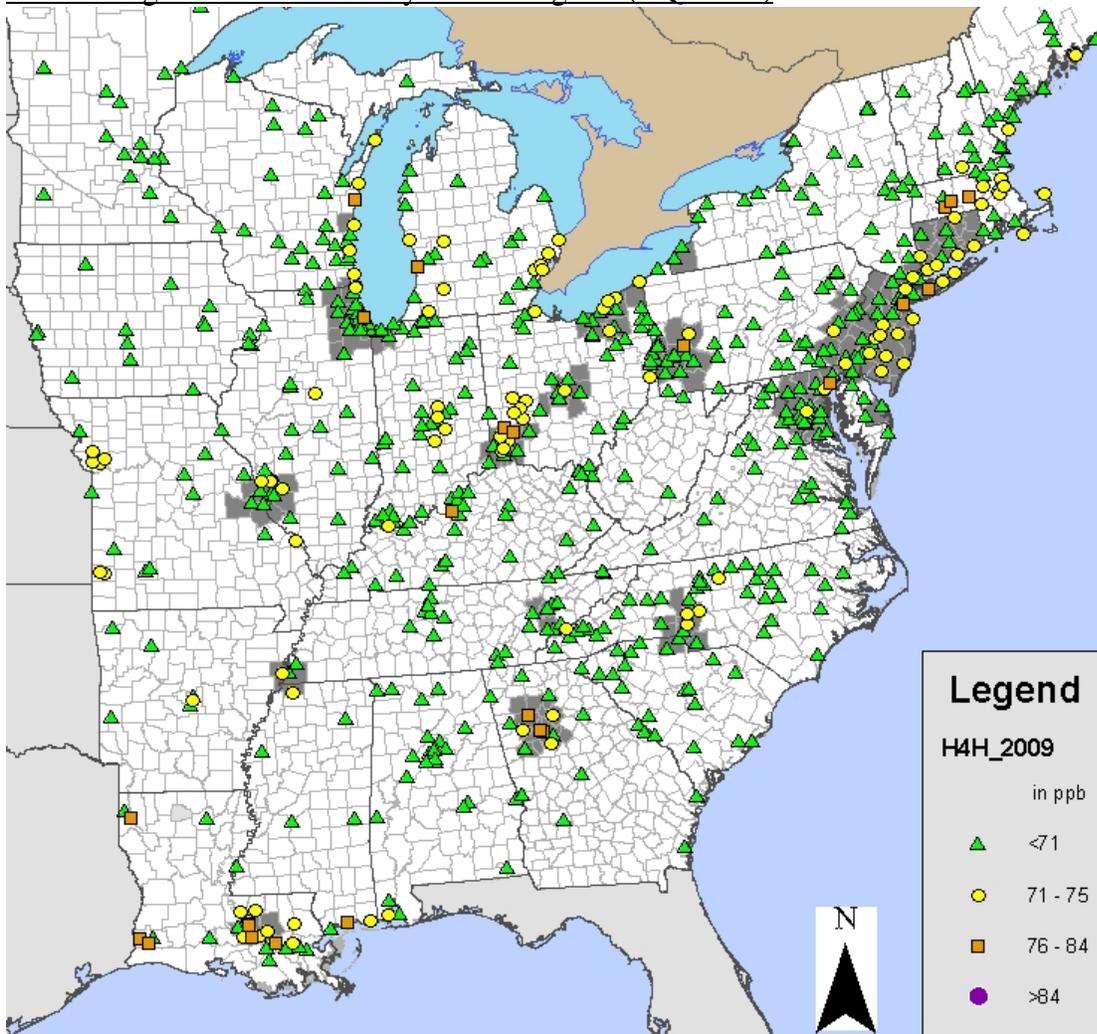
Revised Responses to Charge Questions for Health REA, Chapter 4: Air Quality Considerations

**5. To what extent does the Panel consider the years of air quality data to be appropriate for use in the exposure and risk assessment?**

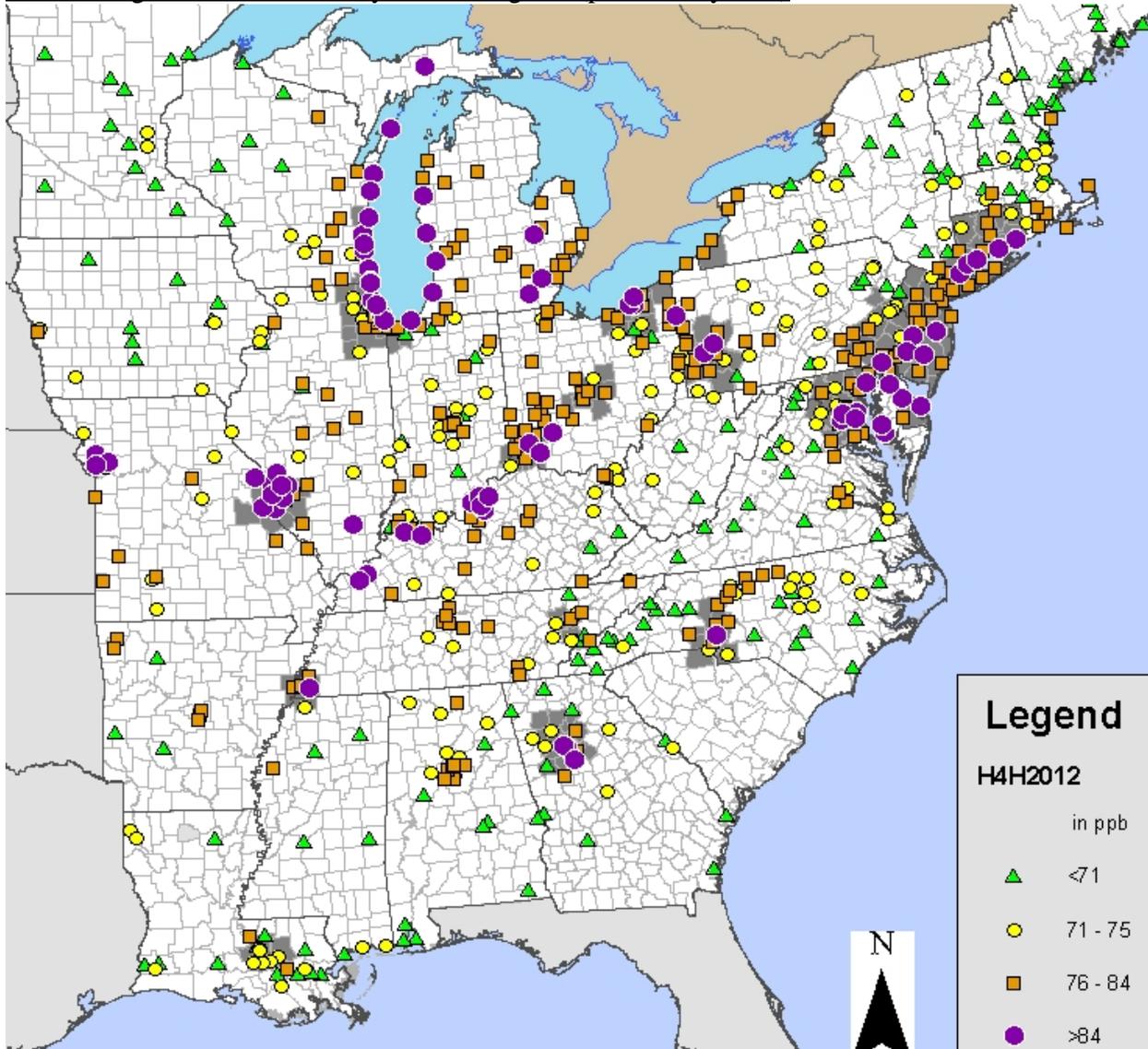
The two overlapping 3-year periods of 2006-2008 and 2008-2010 are appropriate. 2006-2008 is relevant in that it is the most recent 3-year period where GEOS-Chem model run data for background O<sub>3</sub> data are available - an important component of the REA process.

While it is desirable to use the most recent 3-year data period, 2009 and 2010 were relatively clean ozone summers in the eastern US, making 08-10 a period that may not represent current ozone trends. Ozone events during the summer of 2012 in the eastern and central US have dramatically reinforced that concept. Below are maps of data from ozone monitors in the eastern and central US that show the range of the 4<sup>th</sup> highest 8-h mean for the year, for both 2009 and 2012. 2009 data are from AQS, while 2012 preliminary data are from AIRNow tech. Maps were generated by Maine-DEP.

2009 4<sup>th</sup> highest 8-hour mean by monitoring site (AQS data)



2012 4<sup>th</sup> highest 8-hour mean by monitoring site (preliminary data)



**6. Regarding the methods for simulating just meeting the ozone standard:**

**a) To what extent does the Panel find that the quadratic rollback approach used in the first draft REA for simulating just meeting the current standard (including application of US background as a lower-bound on rollback) is a reasonable approach?**

With the lower-bound, the quad-rollback is a reasonable approach, but does have substantial limitations inherent in its simplicity and lack of any chemistry.

**b) To what extent does the Panel support using an air quality model based approach for simulating just meeting the standard in future drafts as a replacement for the current**

## **quadratic approach?**

There is potential for improvement in rollback estimations using air quality model-based approaches as noted in the Simon et al. memo; see c) below. I encourage EPA to continue to explore such alternatives.

### **c) What are the views of the Panel on the strengths and limitations of the proposed approach using the Higher-order Direct Decoupled Method?**

Air quality model-based rollback approaches such as HDDM have the potential to capture important features that are lost with a simpler rollback method. Another advantage of HDDM is that it does not need any external estimate of ozone background.

The Simon memo shows interesting examples from Atlanta where rollback concentrations at core urban sites are similar using both the quadratic and HDDM methods, but are substantially lower at non-core urban sites using HDDM. For Detroit, HDDM and quad rollbacks are similar for VOC reduction scenarios for both core and non-core sites, but HDDM rollbacks are lower for NO<sub>x</sub> reduction scenarios.

There was some discussion during the review of performing a Aclassic@ quadratic rollback for one urban area as a basis for comparison between the old and new rollback approaches. This would be useful to assess the difference between the old and new rollback approaches.