

## New & Revised QA Tools for the PM<sub>2.5</sub> Monitoring Network Performance Evaluation Program (PEP)

2009 Conference on  
Managing Environmental Quality Systems  
Ambient Air Session  
May 12, 2008

Dennis Crumpler, *US EPA OAQPS, AQAD, RTP, NC*  
Jennifer Lloyd, *RTI International, RTP, NC*  
Greg Noah, *US EPA Region 4, SESD, Athens, GA*

### PEP Method

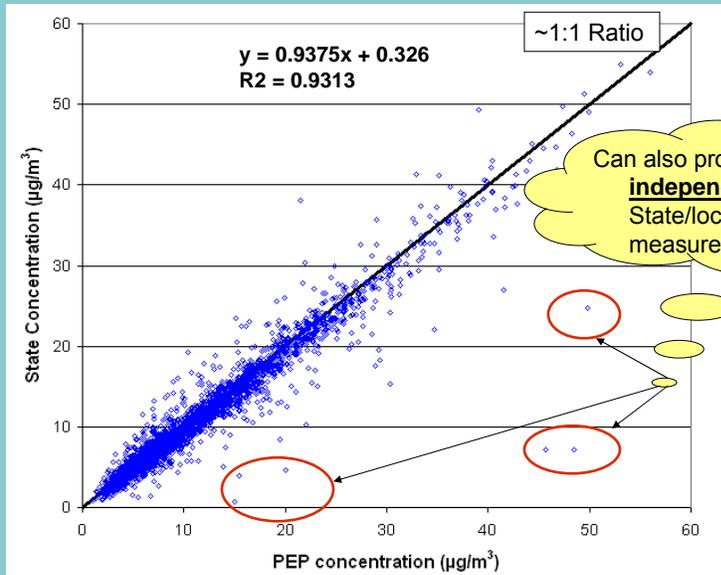
- **Collocates** audit samplers **beside** **FRM/FEM** samplers



- Provides **independent assessment** of **network sampler bias**

## PEP vs. State Concentration

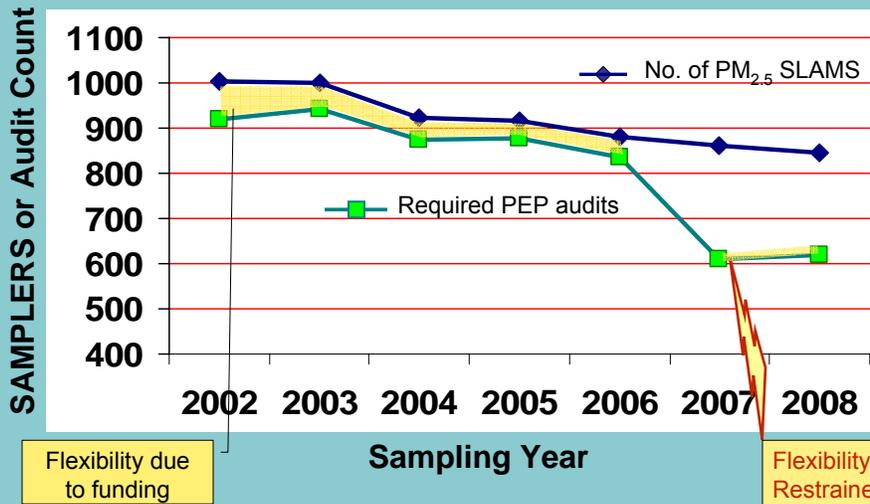
2004 – 2007 data



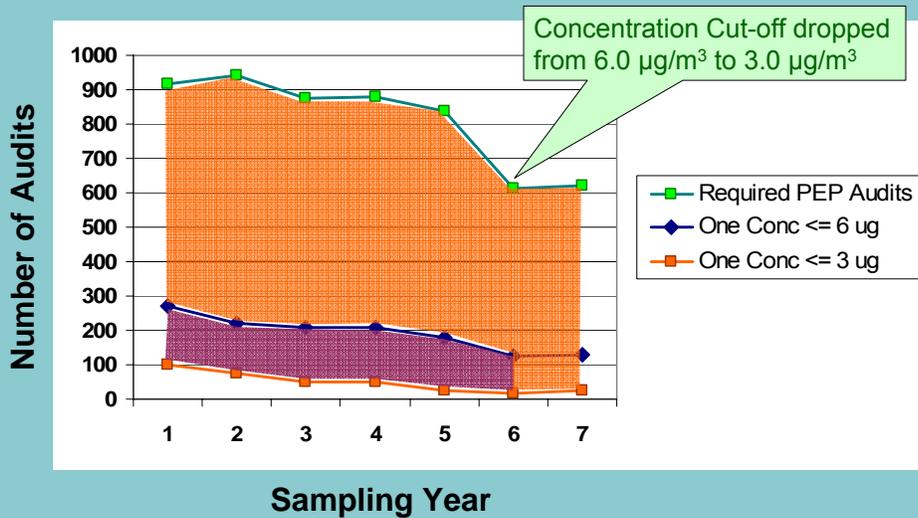
## 40 CFR App A PEP Requirements a/o January 2007

- **Consolidation of ROs into PQAOs**
- **15% of all sites audited per year**; all sites in 6 years
- If **5 sites or less**, then **5 audits per year**
- If **>5 sites**, then **8 audits per year**
- **At least one of each "Monitor Type" audited each year**

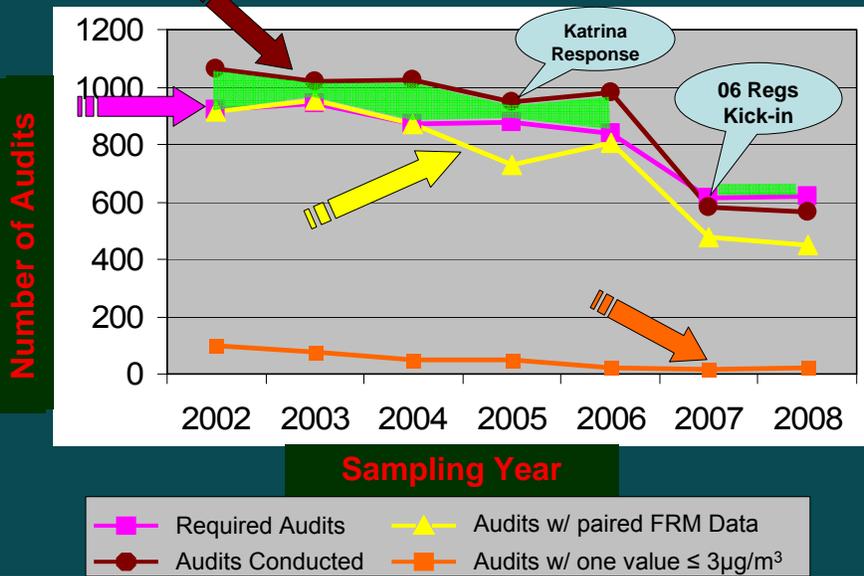
## 06 Part 58 App A Changes PQAO Metric Reduced PEP audits



## 06 Part 58 Appx A Changes



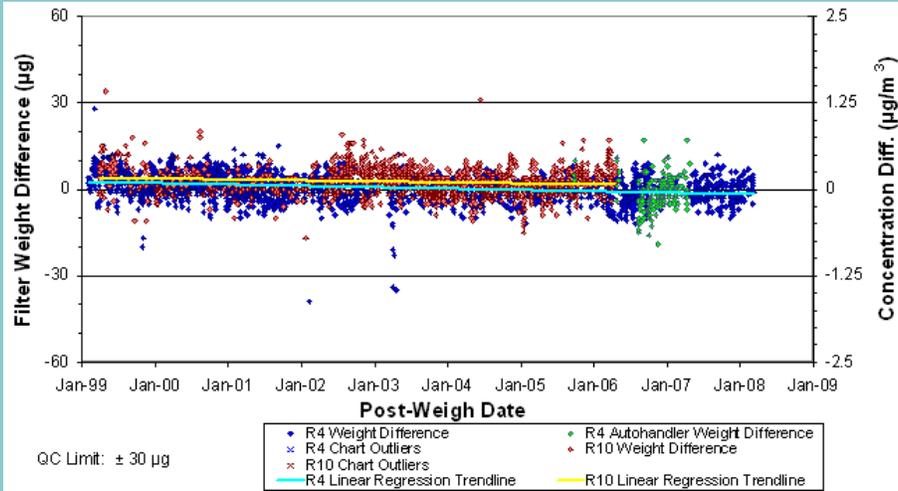
## But What About the Dark Side?



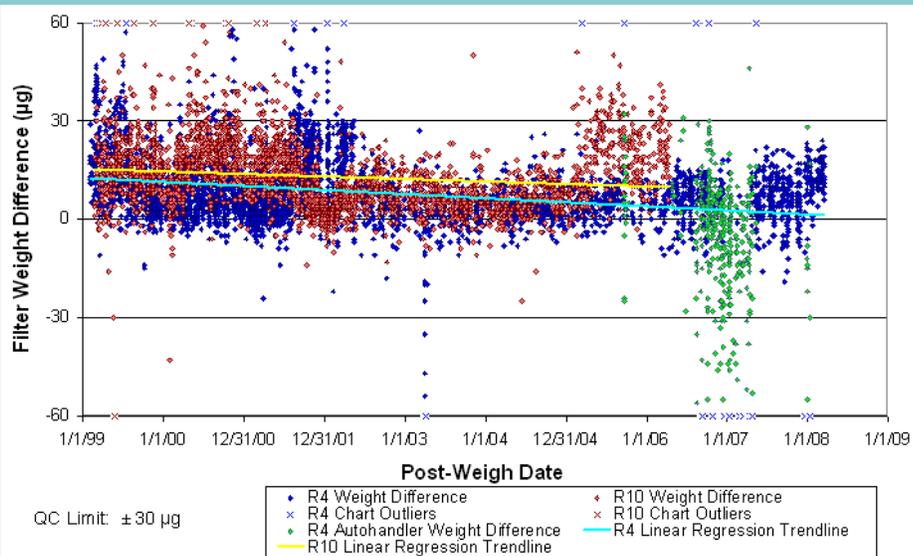
## How Have We Adjusted?

- **Closer control of internal QC measures**
  - Lab Blanks
  - Field Blanks
  - Trip Blanks
- **Closer tracking of completeness—data loss**
  - PEP audits that lose their paired SLT sampling event
  - PEP audits where the concentration is at or below  $3.0 \mu\text{g}/\text{m}^3$
- **Better Tracking PEP Sampler precision and performance**

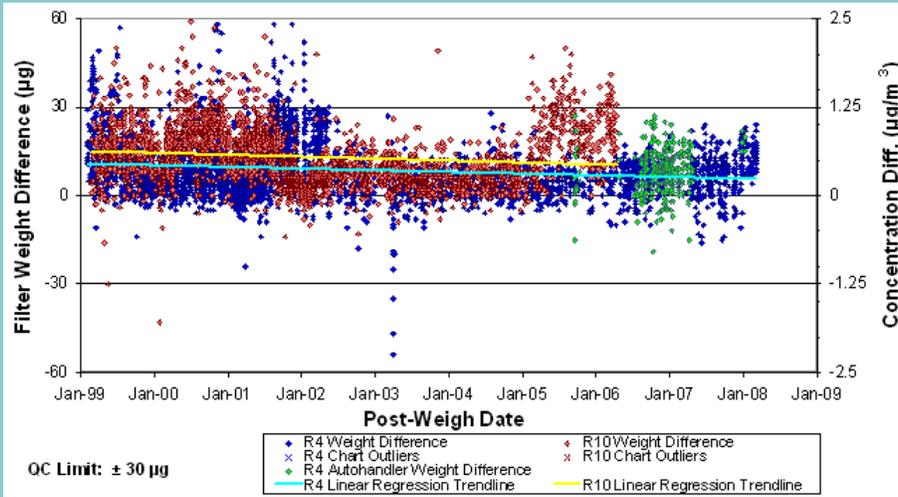
## Validated PEP Lab Blanks



## PEP Field Blanks - All Weighings

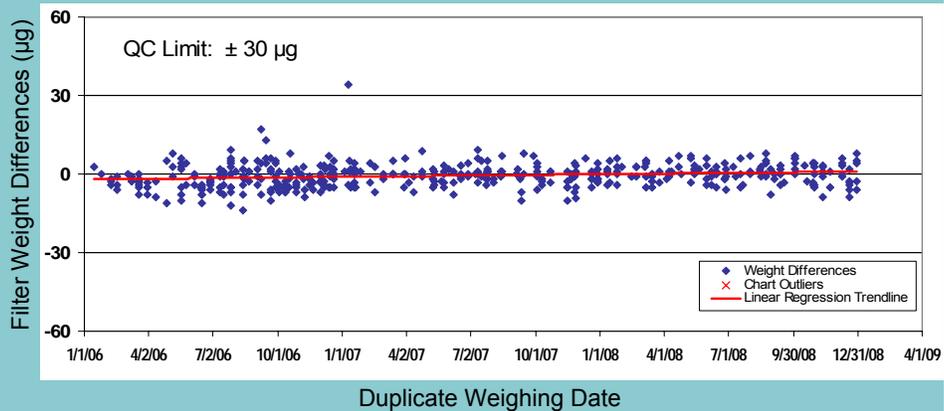


## Validated PEP Field Blanks

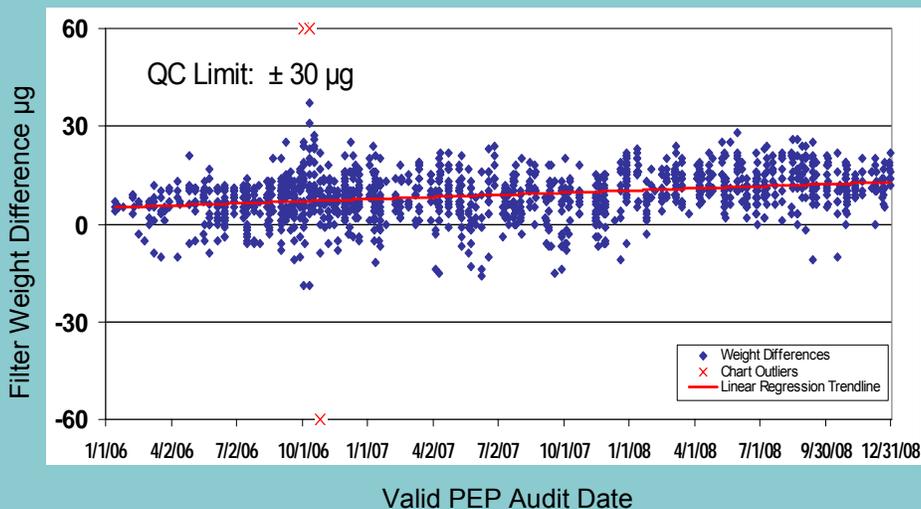


## A New Look at Lab Blanks

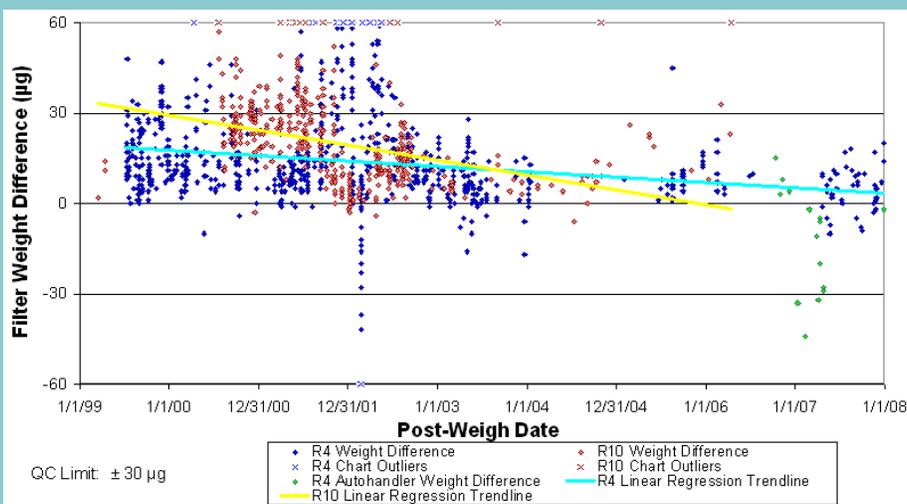
EPA Region 4 PEP LAB 2006-2008



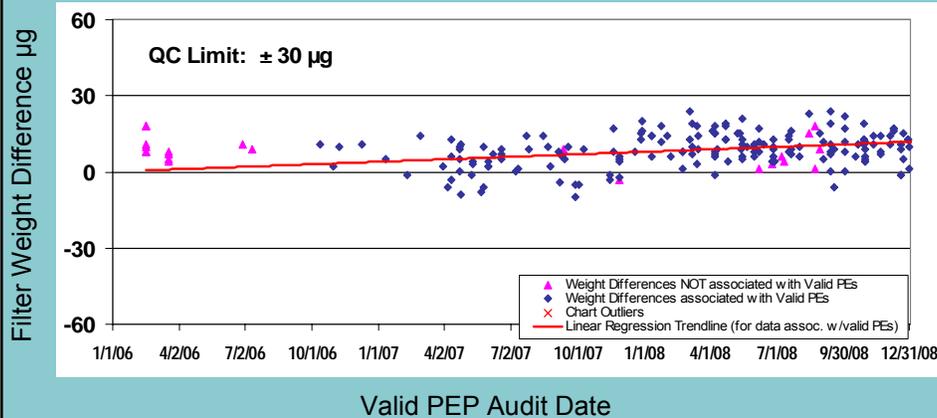
## A New Look at Field Blanks



## PEP Trip Blanks - All Weighings



## A New Look at Trip Blanks



## Wrap Up

- We have observed an unanticipated loss of our bias data based on the percentage of required PEP audits that have been unpaired with FRM results.
  - Katrina caused some issues in 05-06 but
  - More troubling results emerged in 07-08
- It is too early to assess the impact on uncertainty of the National Bias determination, but there is concern
- We will investigate the causes for losing FRM data matches
- Due to these findings, we have reexamined our QC and assessment tools that we presented last year
  - Lab QC continues to be exemplary
  - We have observed a potential increase in Field Blanks which is not critical, but must be monitored
  - Our emphasis on regimenting trip blanks has produced interesting results—a possible contribution to the field blanks