

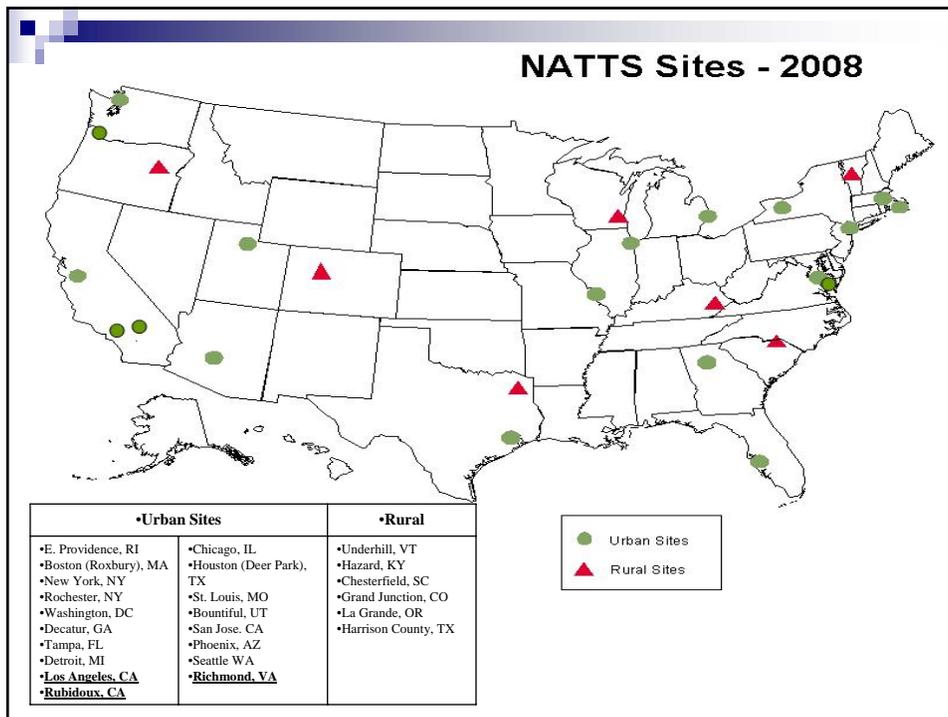
NATTS Quality Assurance Multi-Year Assessment QA Conference 2009

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Outline

- The NATTS Program QA Indicators
 - Evolution of the NATTS Program and Compounds
 - Data Quality Objectives
 - Measurement Quality Objectives
- Meeting our Stated Objectives
 - Precision
 - Completeness
 - Detectability
 - Bias
- What's New?
- Summary/Recommendations



NATTS QA Objective

Data Quality Objectives (DQOs) are tied to the GPRA goal of reduction of Air Toxics by 75% (1993 levels) by 2010:

“To be able to detect a 15% difference (trend) between two successive 3-year annual mean concentrations within acceptable levels of decision error.”

To meet these DQOs we need:

- 1-in-6 day sampling frequency with at least an 85% quarterly completeness;
- precision controlled to a Coefficient of Variance (CV) of no more than 15%;
- detectability based on 2001 Pilot Study Minimum Detection Limits (MDLs);
- bias for the data set of less than 25%.

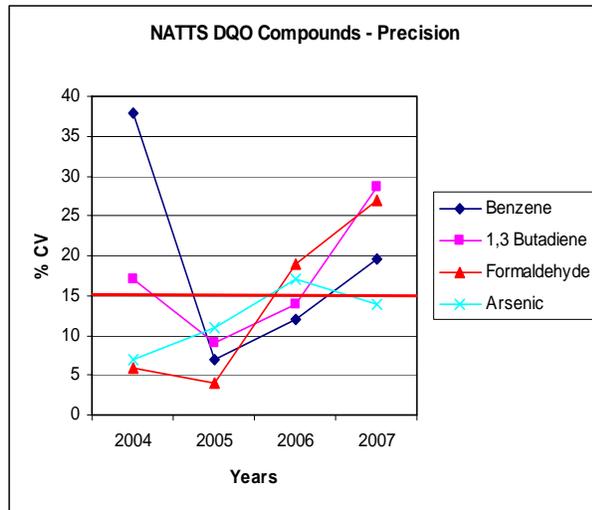
These are our Measurement Quality Objectives (MQOs)!

NATTS QA Program

Measurement Quality Objectives (MQOs)

Compound	Precision (CV)	Bias (Lab)	Detectability	Completeness
Arsenic	< 15%	< 25%	0.046 ng/m3	> 85%
Benzene	< 15%	< 25%	0.044 ug/m3	> 85%
1,3-Butadiene	< 15%	< 25%	0.020 ug/m3	> 85%
Formaldehyde	< 15%	< 25%	0.014 ug/m3	> 85%

Meeting Objectives: Precision Results 2004 - 2007

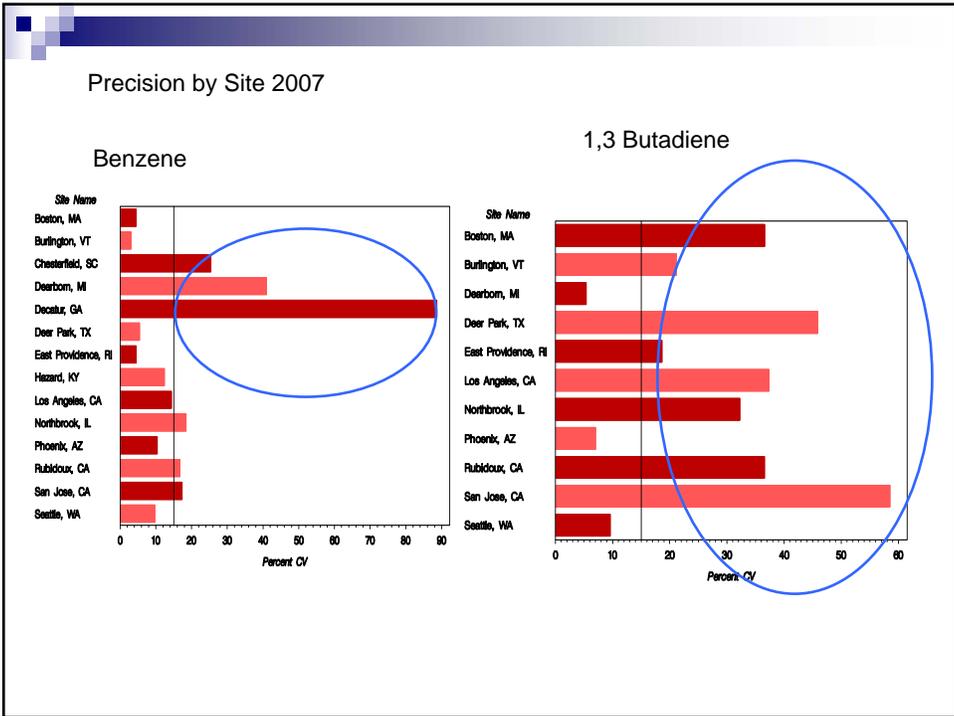
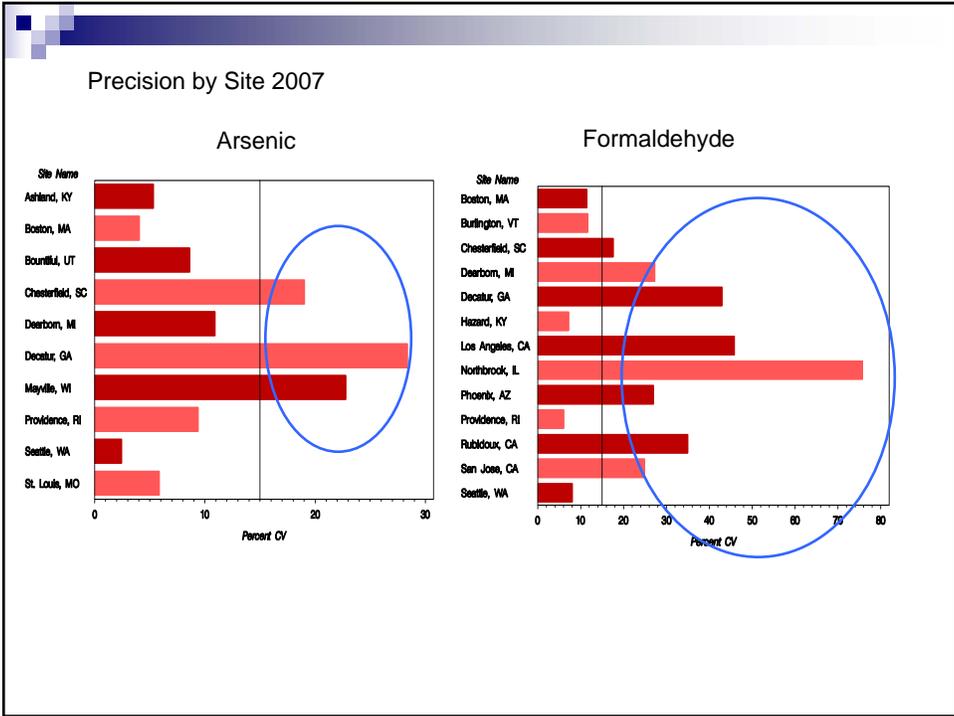


Four Year Average:

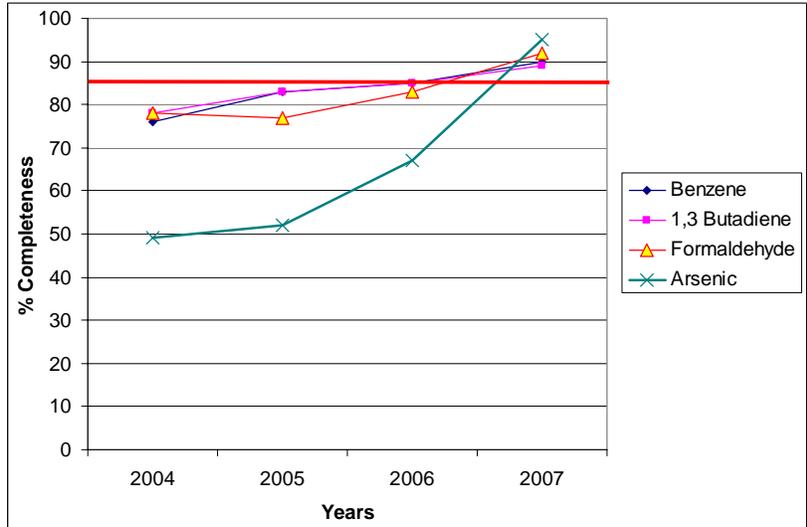
Benzene: 19%
1,3 Butadiene 17%
Formaldehyde: 14%
Arsenic: 12%

No. of collocated sites

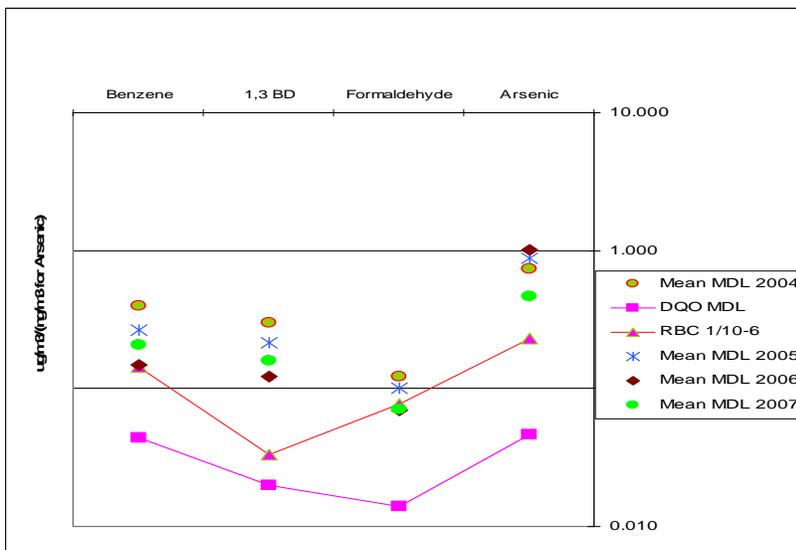
	'04	'05	'06	'07
vocs	7	4	14	14
aldehydes	5	5	13	13
metals	1	2	8	10



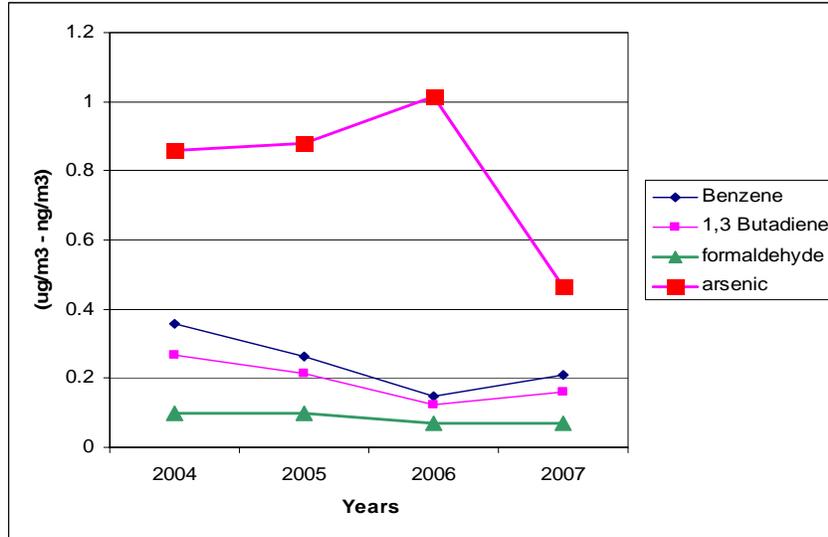
Meeting Objectives: Data Completeness 2004 – 2007



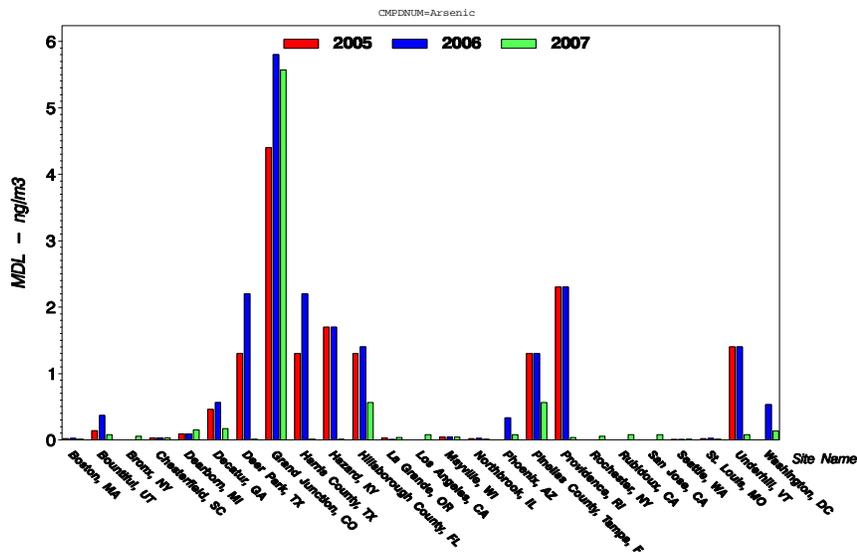
Meeting Objectives: Mean MDLs 2004 - 2007



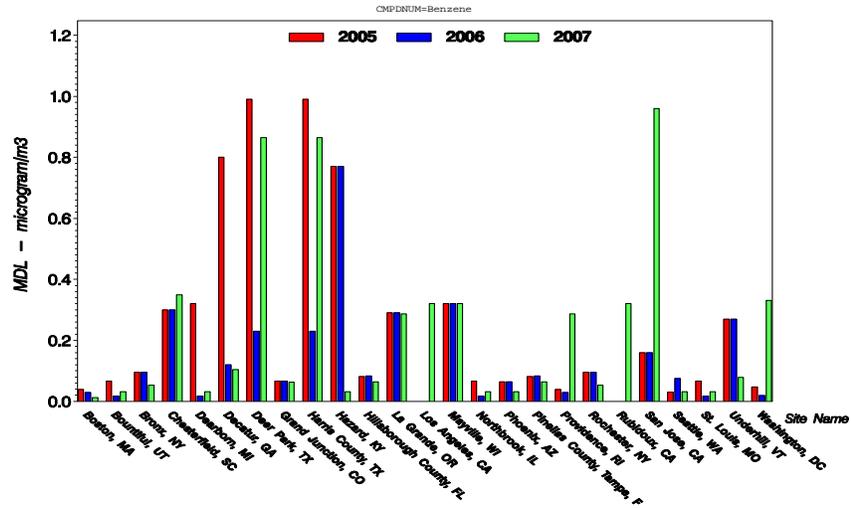
Identifying Problems: DQO compounds 2004 – 2007



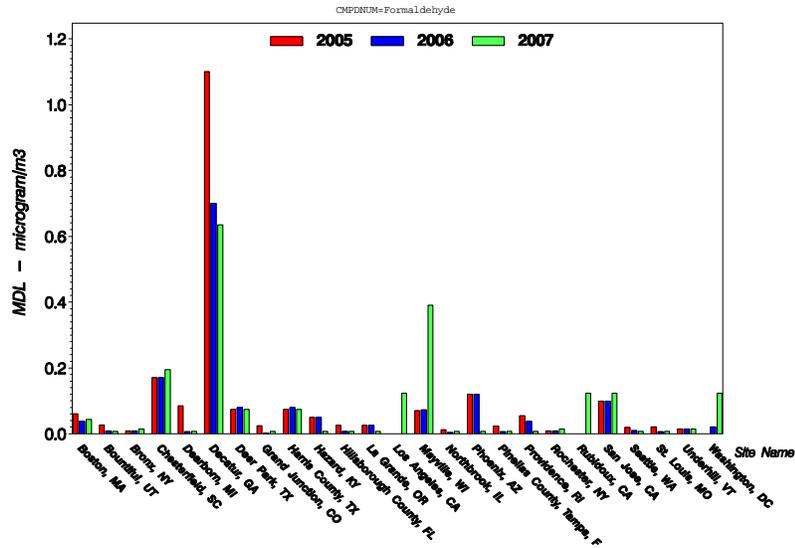
MDLs Reported - Arsenic

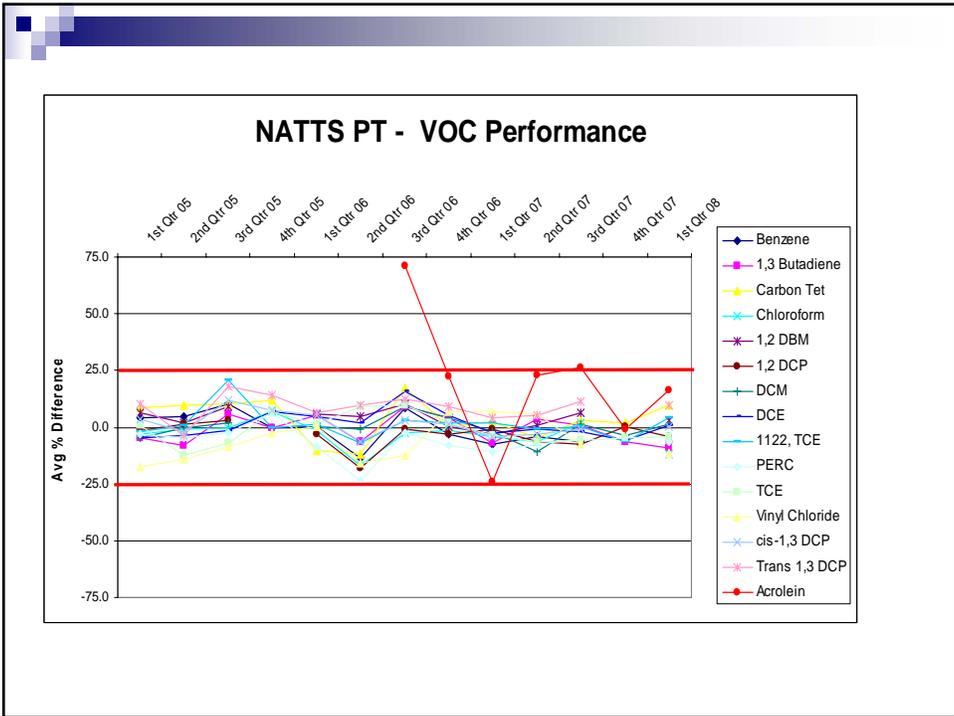
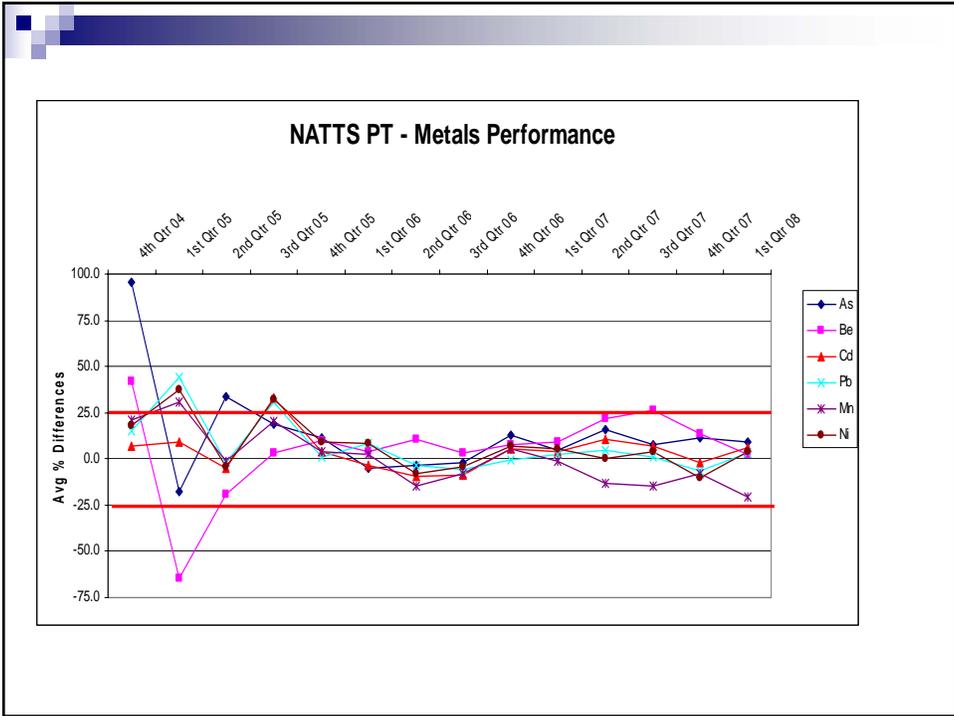


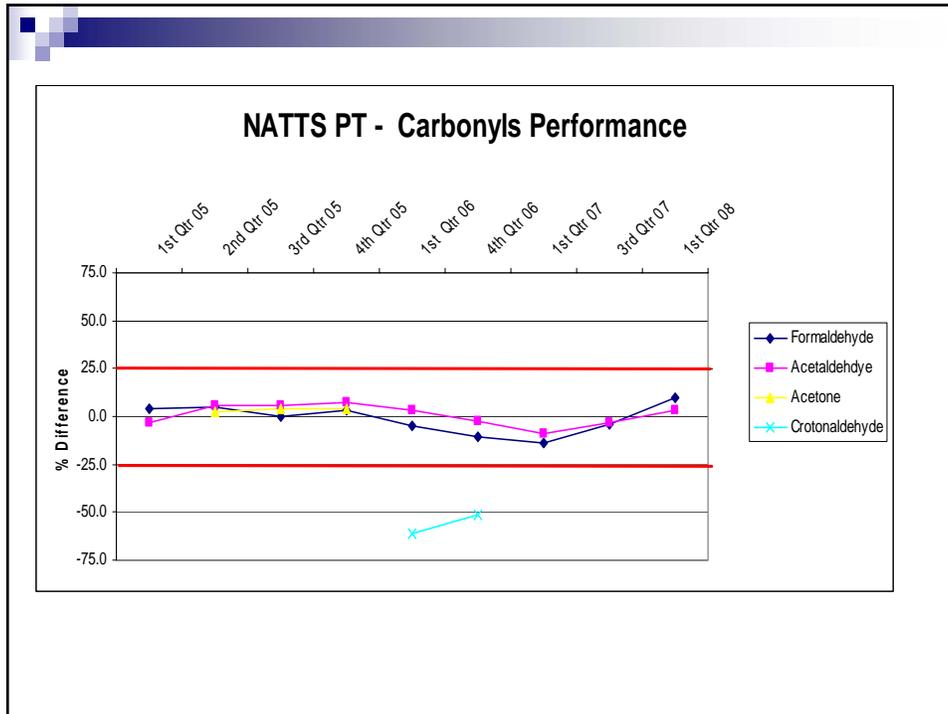
MDLs Reported - Benzene



MDLs Reported - Formaldehyde



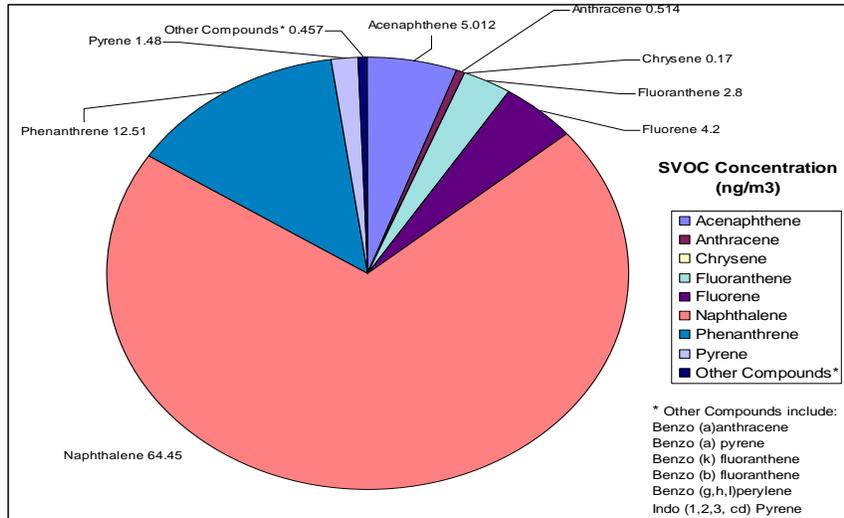




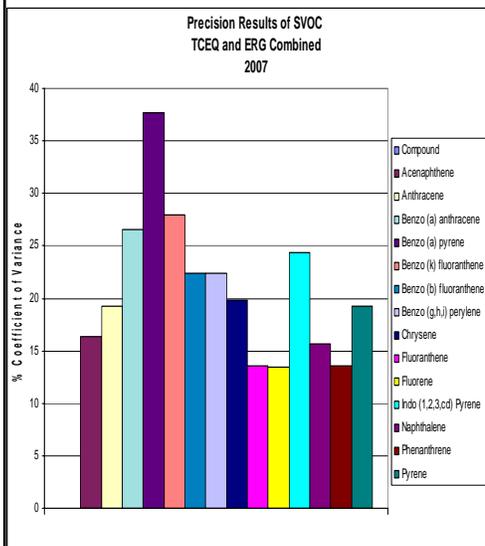
What's New

- Hexavalent Chromium (Cr+6)
 - Started in earnest in 2007
 - At this time, haven't pulled the collocated data
 - We have no PT samples yet
- Polycyclic Aromatic Hydrocarbons
 - Started collecting data in earnest in 2008
 - Created two PT samples so far
 - Most recent PT 1st Qtr 2009
 - Results look excellent

PAH compounds by Concentration

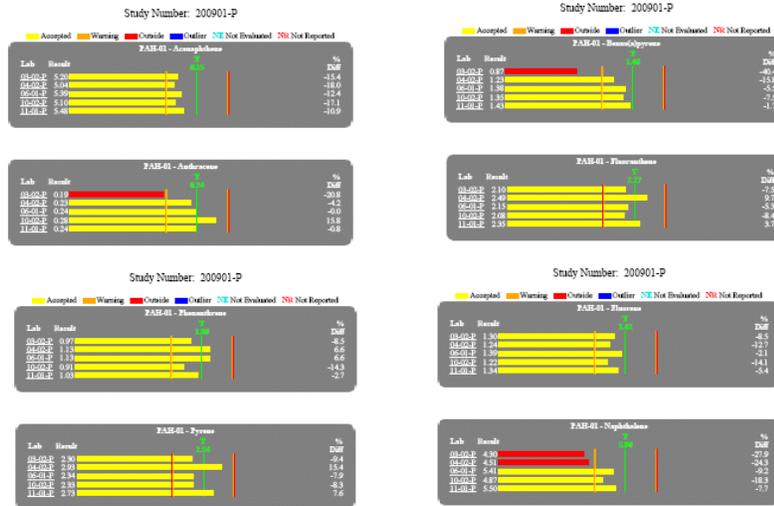


PAH Precision Data 2007



Compound	# of Pairs	Average Concentration (ng/m3)	Coefficient of Variance (%)
Acenaphthene	54	5.012	16.3%
Anthracene	45	0.514	19.2%
Chrysene	57	0.17	19.8%
Fluoranthene	57	2.8	13.6%
Fluorene	57	4.2	13.4%
Naphthalene	57	64.45	15.7%
Phenanthrene	57	12.51	13.6%
Pyrene	57	1.48	19.3%
Benzo (a) anthracene	50	0.069	26.5%
Benzo (a) pyrene	43	0.069	37.7%
Benzo (k) fluoranthene	47	0.094	28.0%
Benzo (b) fluoranthene	47	0.069	22.4%
Benzo (g,h,i) perylene	47	0.086	22.4%
Indo (1,2,3,cd) Pyrene	43	0.07	24.3%

PAH PT Study: 2009



Summary: Is the Program Able to Meet the DQOs?

✓ Yes and No

- ✓ The data completeness (2007) is above the required 85%. Good Job everyone!
- ✓ The detectability for the 4 DQO compounds does not meet the MDLs stated in the DQOs, it appears that this has leveled out. However, one to two labs drive up the MDLs.
- ✓ The CV data from the collocated/duplicate data illustrates that Overall, we are not meeting CV of less than 15% with the exception of Arsenic. Perhaps, 15% CV is too high, the program can meet 20%
- ✓ The laboratories are meeting the 25% Bias requirement.



Summary: What's Next?

- ✓ **We have added Hexavalent Chromium to the NATTS program - need to create PT samples and begin looking at the Precision**
- ✓ **We have added PAH compounds to the program and we know the P/B and things look good**
- ✓ **We are beginning to understand the realistic quality of HAPS data!**