

National Air Toxics Trends Stations QA System and Assessments

April 24, 2005

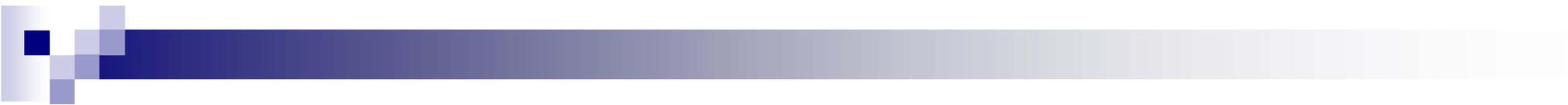
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Outline

- Planning and Design
- NATTS QA Program
- NATTS Proficiency Testing
 - Preparation of Samples
 - Initial Results
- Issues, Future Plans, etc.



Planning and Design

- Clean Air Act 1990 - 188 HAPs
- Urban Air Toxics Strategy (UATS) -1999
 - Attain substantial reduction of Non-cancer HAPs
 - Address “Hot Spots”
 - Attain 75% reduction of cancer drivers from 1993 levels
- Air Toxics Monitoring ‘Concept Paper’ – 2000
- National Air Toxics Assessment (NATA) - 2001

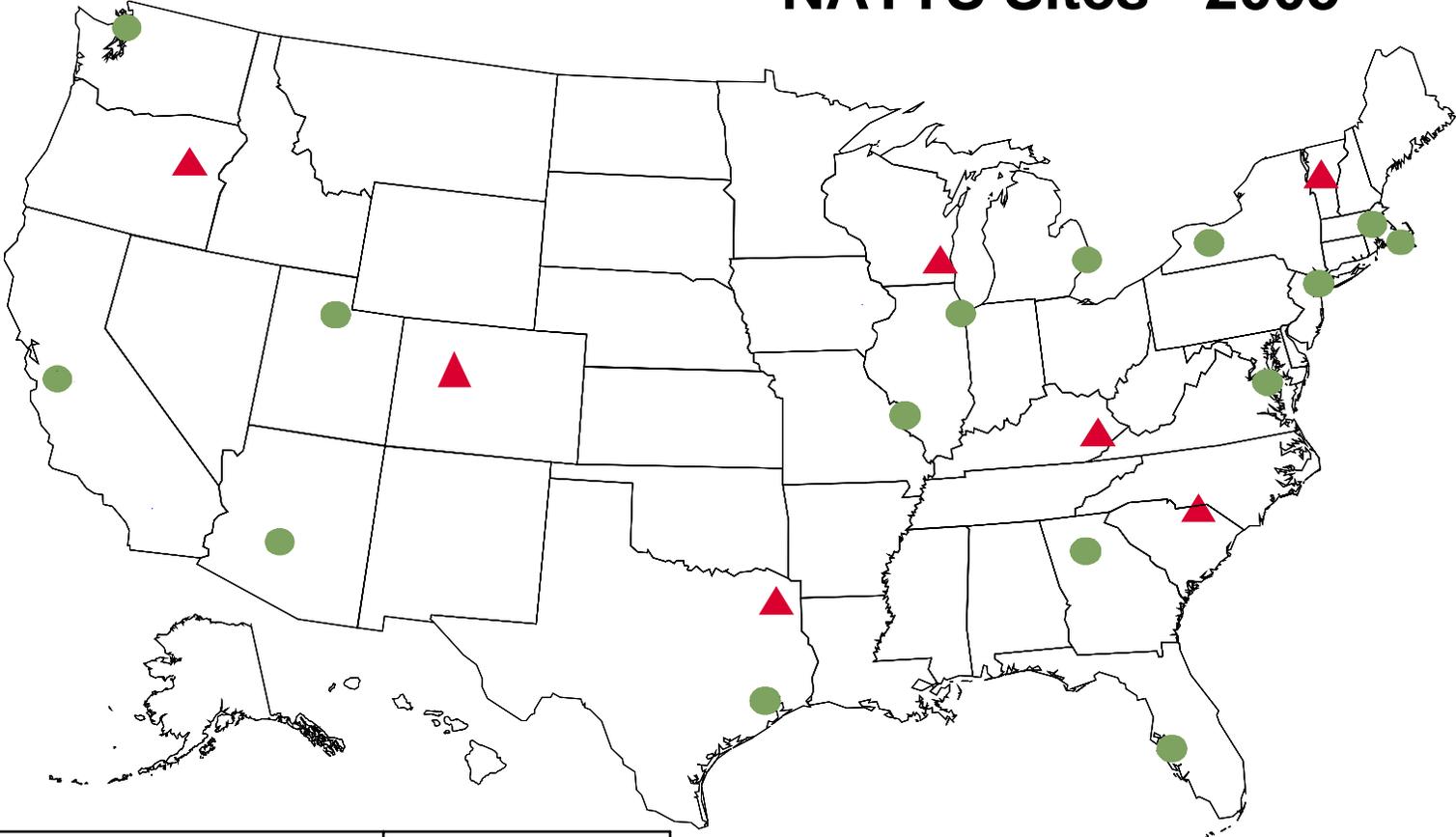


Planning and Design

- **Air Toxics Pilot Program – '01/02**
- **Creation of a new Trends Network - '02/03**
- **Focus on 6 NATA risk drivers**
 - Benzene, acrolein, formaldehyde, chromium*, 1-3 butadiene and arsenic.
- **Initiated Network – Jan. 1, 2004**
- **Develop the national QA program**
 - Funding - Section 103 STAG Grants

* **Focus on Hexavalent Chrome**

NATTS Sites - 2005



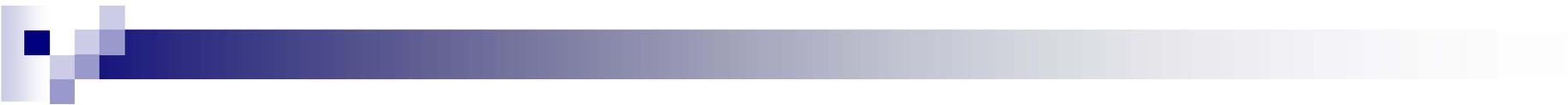
•Urban Sites		•Rural
•E. Providence, RI	•Chicago, IL	•Underhill, VT
•Boston (Roxbury), MA	•Houston (Deer Park), TX	•Hazard, KY
•New York, NY	•St. Louis, MO	•Chesterfield, SC
•Rochester, NY	•Bountiful, UT	•Mayville, WI
•Washington, DC	•San Jose, CA	•Grand Junction, CO
•Decatur, GA	•Phoenix, AZ	•La Grande, OR
•Tampa, FL	•Seattle WA	•Harrison County, TX
•Detroit, MI		

●	Urban Sites
▲	Rural Sites



NATTS QA Program

- **Two Assessment Programs**
 - **Technical Systems Audits – Battelle**
 - **Proficiency Testing – Alion (formally Mantech)**
- **Quality Assurance Annual Reports**



NATTS Proficiency Testing

- Proficiency Testing (PT) – What is it?
 - Spiking into Canisters, cartridges and 47mm Teflon filters
 - Providing PT samples for the “Core 18” from Concept Paper
 - Use NIST traceable materials
 - Delivered to NATTS supporting labs - Quarterly
 - Data reported via Email
 - Reports and Graphs sent to NATTS Agencies/Regions
 - The First National Air Toxics Lab Assessments Ever!!!

PT Sample Preparation



PT Sample Preparation



PT Sample Preparation

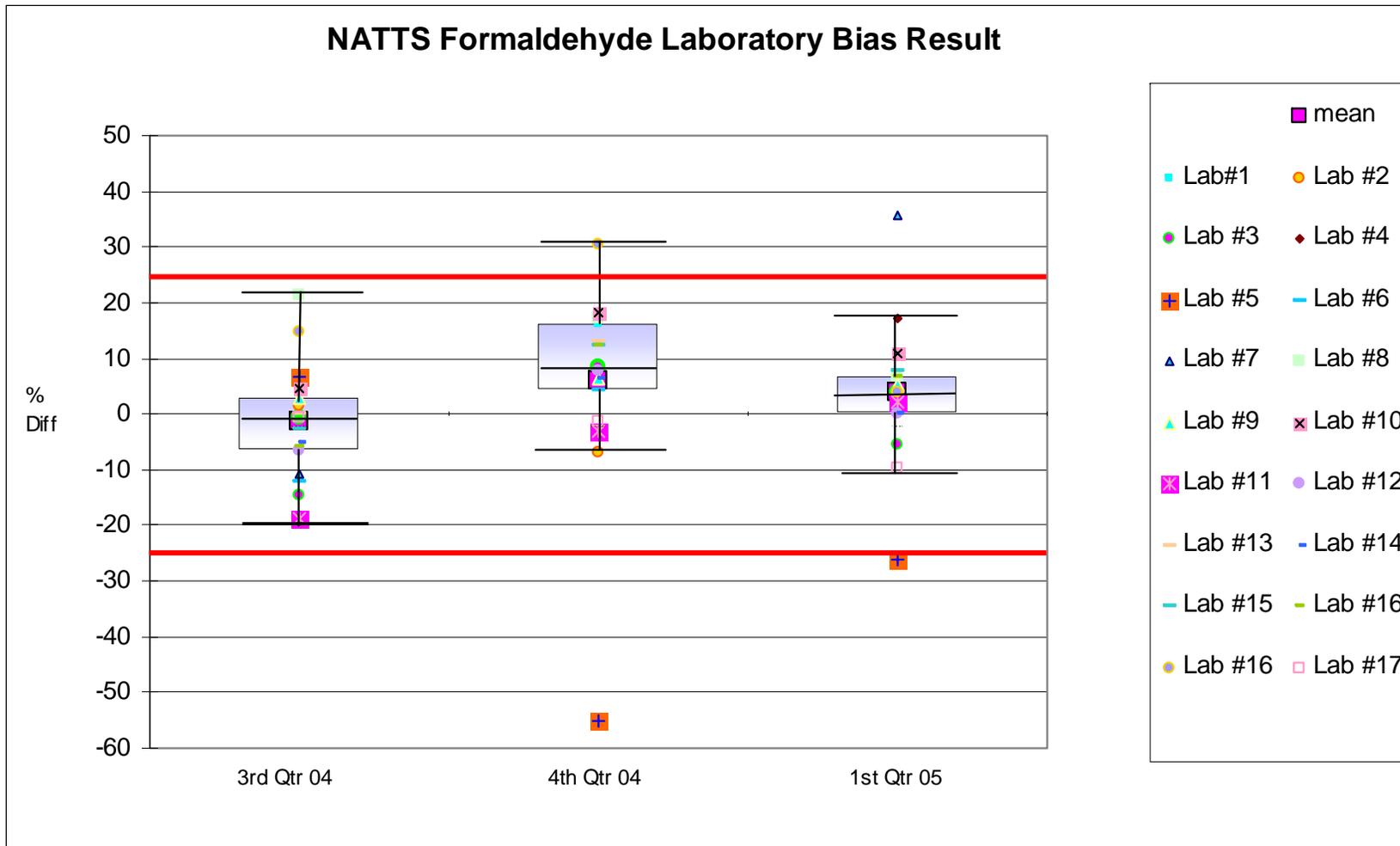




Initial Results of the PT

- PT program – 2.5 Qtrs complete
- 3 sets of VOCs, 3 sets of Carbonyls
- 2 set of Metals
- Formaldehyde and Acetaldehyde - Results look great!
- Acrolein - we have issues!
- VOCs, Metals – we have mixed results

PT Results - Carbonyls



+/- 25% Pass/Fail Criteria

PT Results - Carbonyls

3rd Qtr '04

formaldehyde

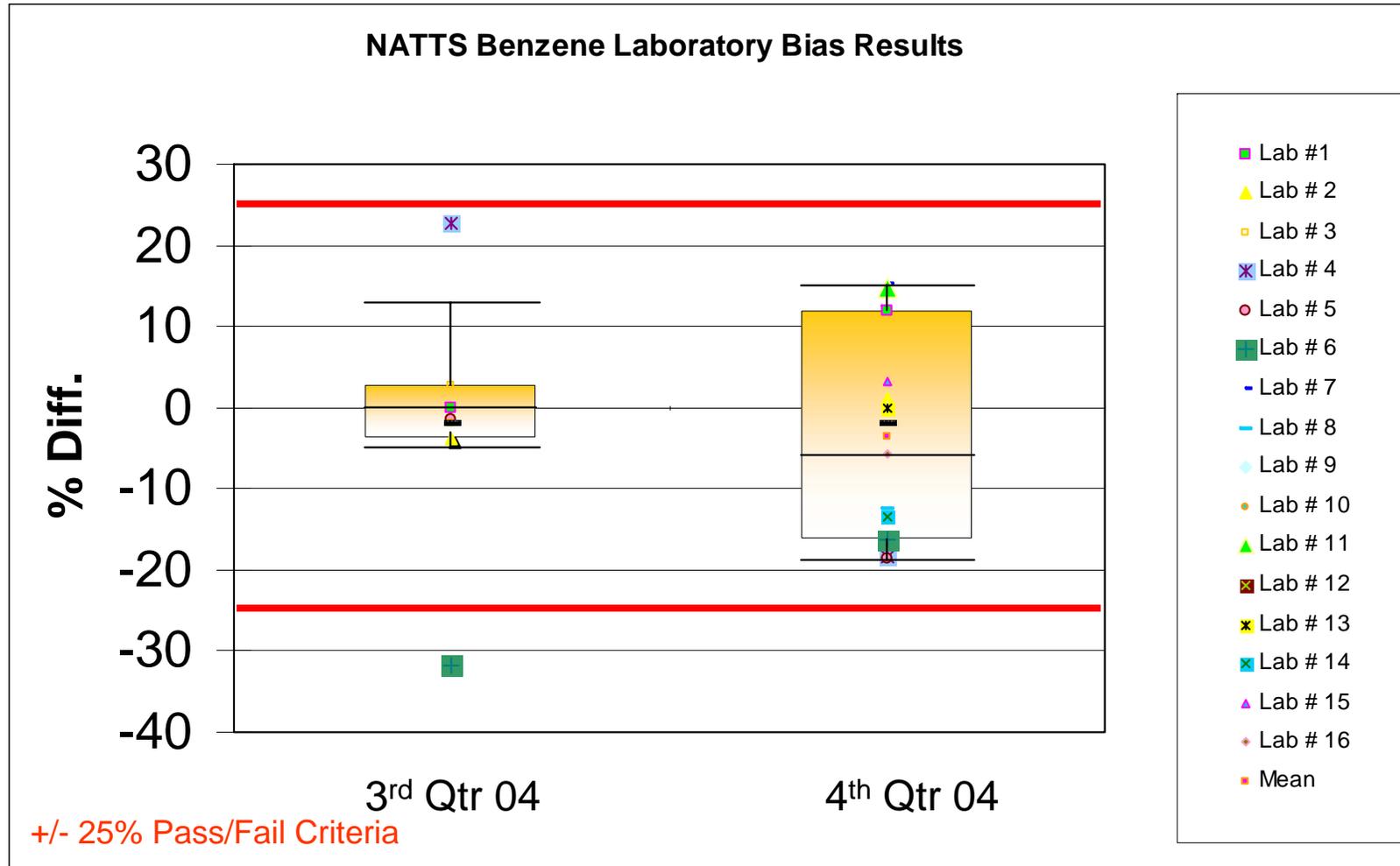
Lab Code	Result	T	% Diff
01-01-C	1.52	1.5	1.0
01-02-C	1.52	1.5	1.0
01-03-C	1.28	1.5	-15.0
02-01-C	1.80	1.5	8.5
03-01-C	1.32	1.5	-12.0
04-02-C	1.34	1.5	-11.0
04-03-C	1.82	1.5	21.0
04-04-C	1.54	1.5	2.5
05-01-C	1.57	1.5	4.5
05-02-C	1.22	1.5	-19.0
05-03-C	1.40	1.5	-7.0
08-01-C	1.50	1.5	0.0
09-01-C	1.42	1.5	-5.5
10-01-C	1.41	1.5	-8.0
10-02-C	1.72	1.5	14.5
11-01-C	1.49	1.5	-1.0

3rd Qtr '04

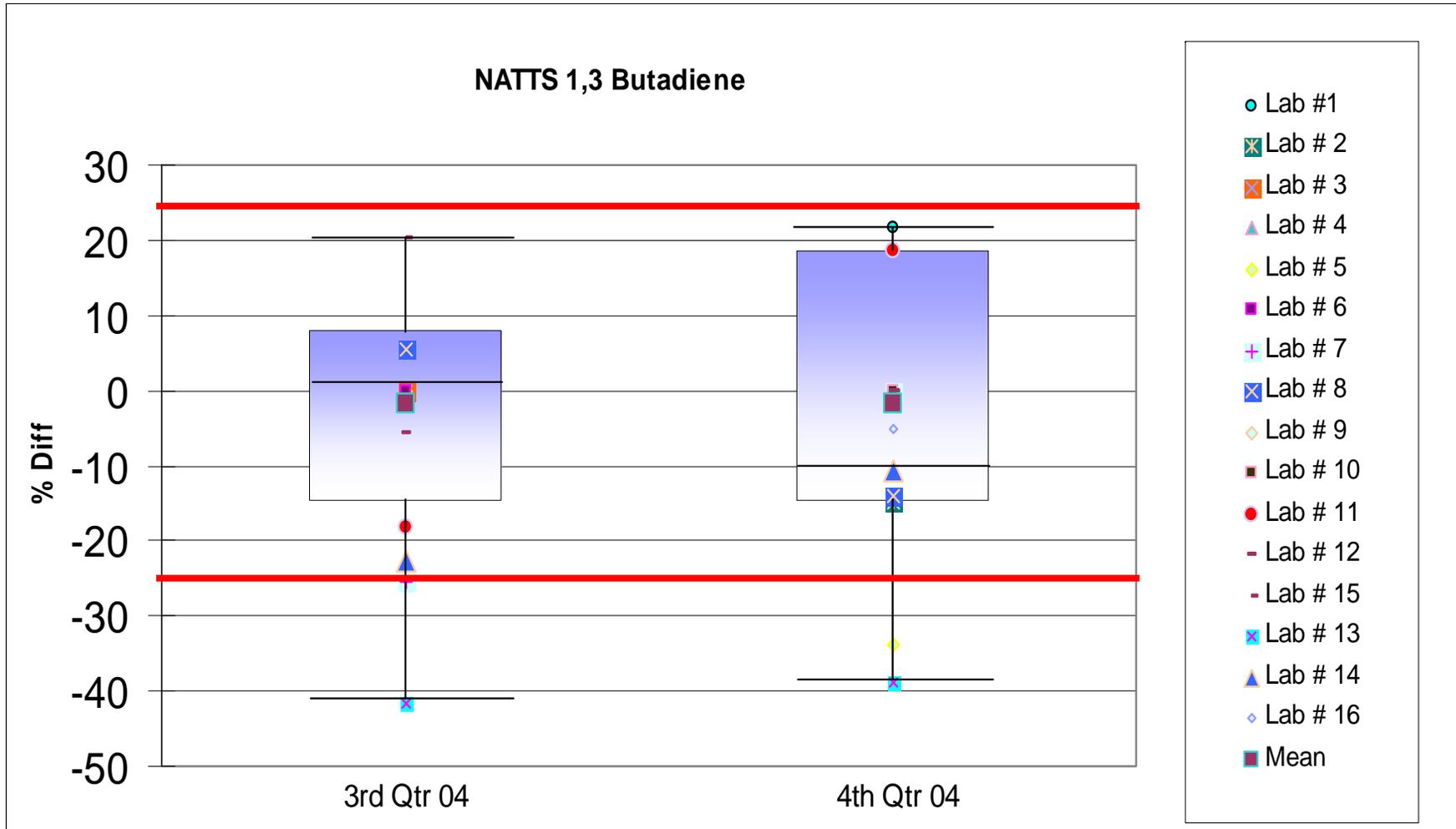
acrolein

Lab Code	Result	T	% Diff
01-03-C	0.03	1.5	-98.0
03-01-C	1.18	1.5	-21.5
04-04-C	0.20	1.5	-87.0
05-02-C	0.15	1.5	-90.0
06-01-C	1.13	1.5	-25.0

PT Results – VOCs



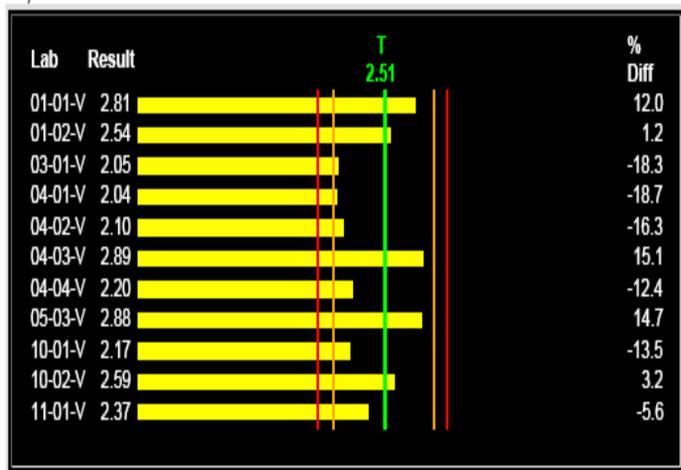
PT Results – VOCs



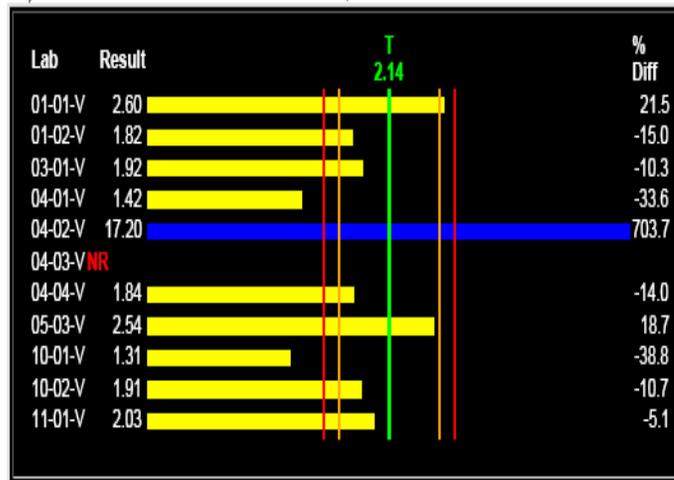
+/- 25% Pass/Fail Criteria

PT Results – VOCs

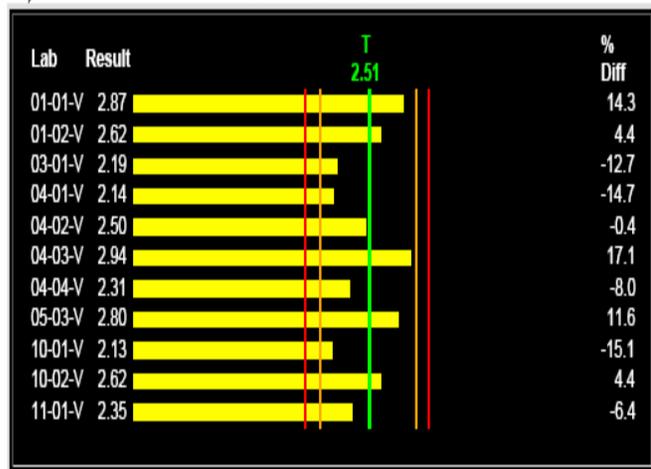
VOC-01 - Benzene



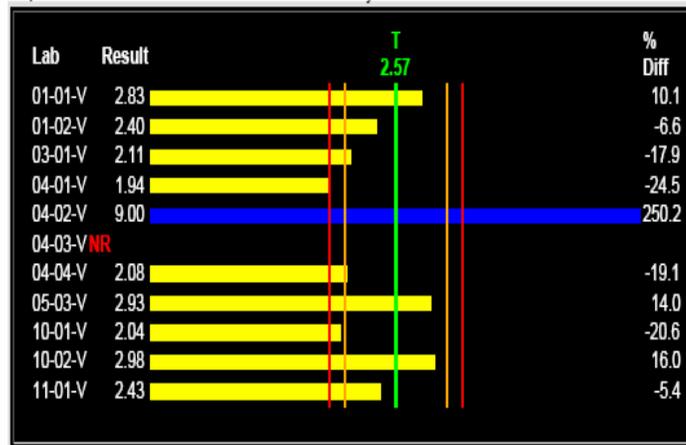
VOC-01 - 1,3 butadiene



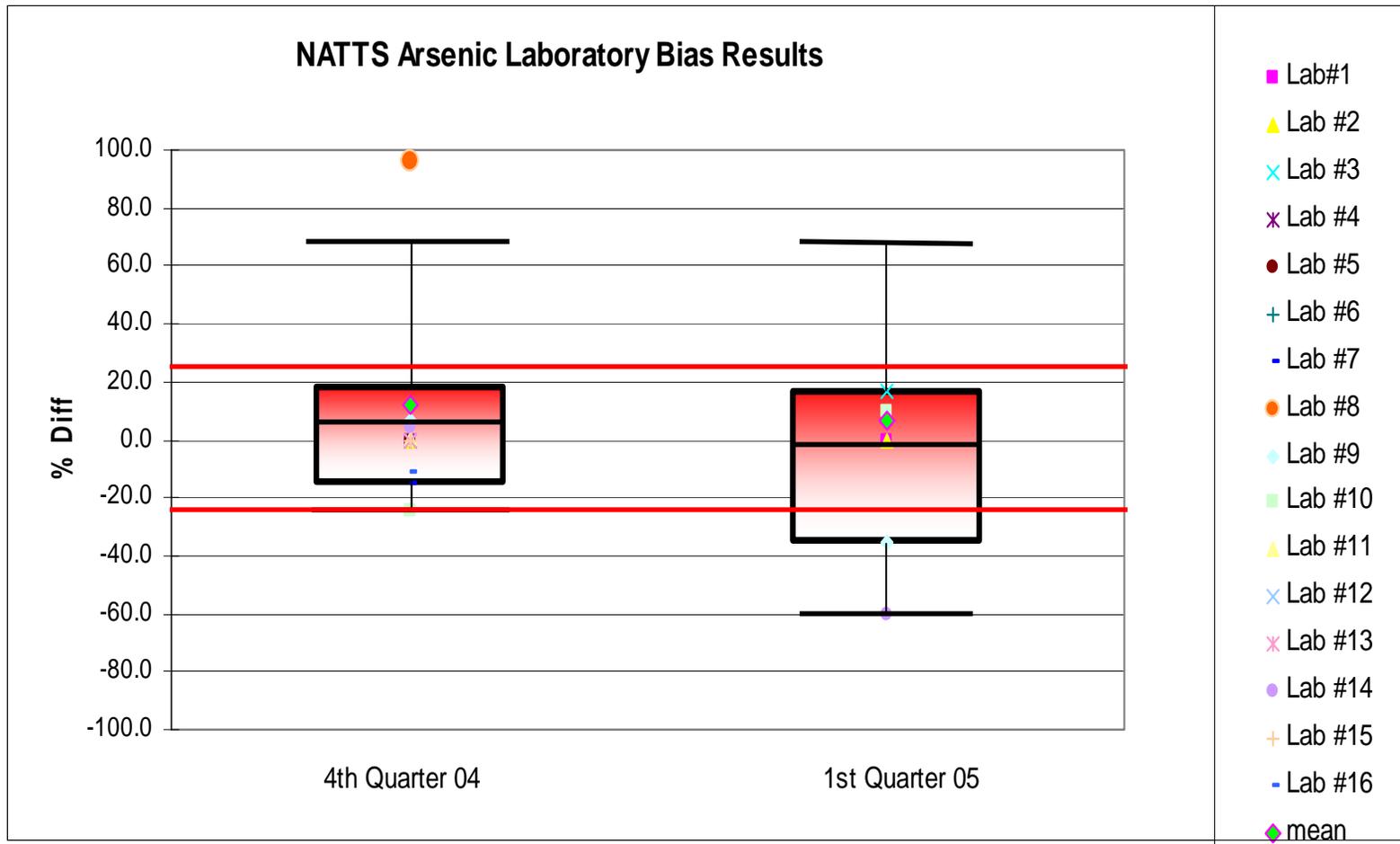
VOC-01 - Chloroform



VOC-01 - Vinyl Chloride



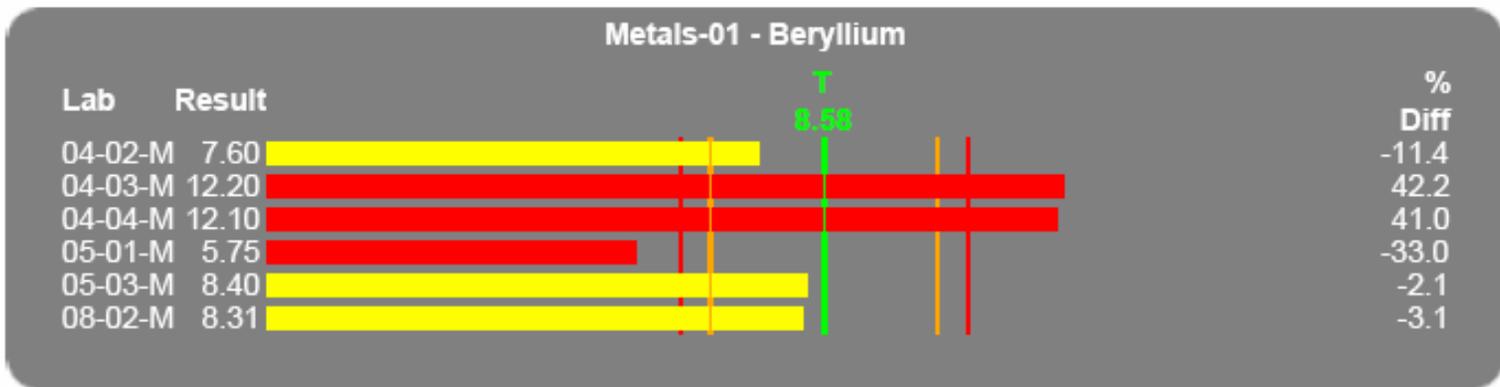
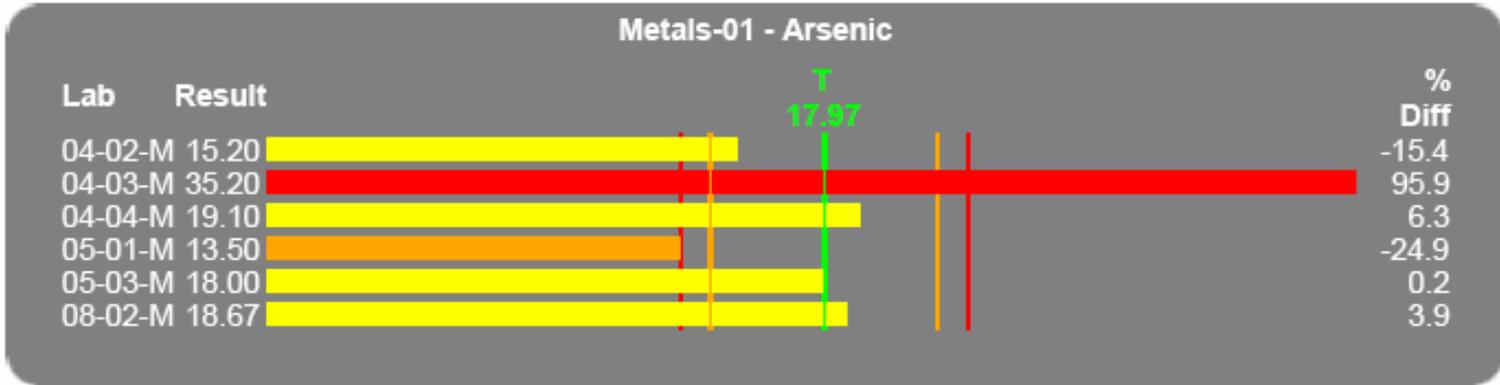
PT Results – Metals



+/- 25% Pass/Fail Criteria

PT Results – Metals

■ Accepted
 ■ Warning
 ■ Outside
 ■ Outlier
 ■ NE Not Evaluated
 ■ NR Not Reported



PT Results – Metals

Metals-01 - Cadmium

Lab	Result	T	% Diff
04-02-M	11.00	11.06	-0.5
04-03-M	11.80	11.06	6.8
04-04-M	11.70	11.06	5.9
05-01-M	8.42	11.06	-23.8
05-03-M	11.00	11.06	-0.5
08-02-M	11.17	11.06	1.1

Metals-01 - Chromium

Lab	Result	T	% Diff
04-02-M	30.80	29.0	6.2
04-03-M	47.80	29.0	64.8
04-04-M	35.30	29.0	21.7
05-01-M	23.60	29.0	-18.6
05-03-M	35.00	29.0	20.7
08-02-M	30.89	29.0	6.5



Issues, Future Plans, etc.

- NATTS beginning its 2nd year
- Many challenges ahead!
 - Need more PT data to understand inter and intra-lab uncertainty!
 - Quicker data turnaround
 - Need more labs turn in PT results



Issues, Future Plans, etc.

- Work with the S/L agencies to:
 - PT data turnaround
 - Get data into AQS
 - Get collocated and duplicate data into AQS
- Create the QA Annual Report '04
- Continue research – Acrolein and Cr⁺⁶
- Create Cr⁺⁶ PT samples