

**National Air Toxics Trends Stations
(NATTS)
Proficiency Testing Program**

**200501 Data Report
(1st Quarter)**

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For

**U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research triangle Park, North Carolina 27711**

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Forward

This report is being submitted in compliance with the requirements of Work Assignment 3.01 of Contract 68-D-03-006 and summarizes the data compiled during the Proficiency Tests conducted during the first quarter of 2005. This data should be used by individuals outside of this program only after verifying its applicability.

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Acronym List

EPA	U.S. Environmental Protection Agency
DNPH	Dinitrophenylhydrazine
ERG	Eastern Research Group
NATTS	National Air Toxics Trends Stations
OAQPS	Office of Air Quality Planning and Standards
PE	Performance Evaluation
PT	Proficiency Test
RTP	Research Triangle Park, North Carolina
VOC	Volatile Organic Compound(s)

Executive Summary

The Environmental Protection Agency has established a long-term goal of eliminating unacceptable health risks associated with exposure to the emission of air toxics and to substantially reduce or eliminate the adverse effects of air toxics on the environment.

As an aid in attaining this goal, EPA has established a National Air Toxics Trends Network in the contiguous 48 states. The network consists of 22 sampling stations operated by state and/or local agencies. In order to provide an estimate of the quality of data collected in NATTS, EPA has undertaken a Proficiency Testing Program for those laboratories that perform analyses on the collected samples.

Alion Science and Technology has been given the task of preparing and distributing the PT samples to the NATTS laboratories. Three separate types of PT Sample were prepared, namely Carbonyl, VOC and Metals.

A data system has been developed for use in tracking individual results and to simplify any correlation of PT data with the actual sampling data from the NATTS stations. Each sampling agency has been assigned a unique number the EPA Region in which the site is located and the agency operating it.

Lab Code	NATTS Site	Lab Code	NATTS Site
01-01	Providence, RI	05-03	Mayville, WI
01-02	Chittenden, VT	06-01	Houston & Harrison, TX
01-03	Roxbury, MA	07-01	St. Louis, MO
01-04*	EPA Region 1 Laboratory	08-01	Bountiful, UT
02-01	Rochester and Queens, NY	09-01	San Jose, CA
03-01	Washington, DC	09-02	Phoenix, AZ
04-01	Tampa, FL	10-01	Seattle, WA
04-02	Chesterfield, SC	10-02	La Grande, OR
04-03	Hazard, KY	11-01**	ERG-RTP, NC
04-04	Atlanta, GA		
05-01	Detroit, MI		
05-02	Chicago, IL		

- * **The Region 1 laboratory does not operate a NATTS Site**
- ** **ERG serves as the analytical laboratory for several agencies**

Since the various agencies may utilize a different laboratory to analyze each of the three types of PT samples, a dash and a letter was added to the end of the lab code to identify the analytical laboratory.

- C signifies a Carbonyl Study analytical laboratory
- V identifies a laboratory used to analyze VOC samples
- M is a Metals laboratory.

The carbonyl samples consist of one sampling cartridge, spiked with a known amount of formaldehyde, acetaldehyde and methyl isobutyl ketone. Participants in the study were asked to analyze this sample in their "normal" manner and report results as ug/cartridge.

Each participating laboratory supplied Alion with a cleaned VOC canister which was then filled with a mixture of target VOC compounds. It is assumed that any errors in the canister cleaning process will be laboratory specific and will show up as contamination in the overall laboratory results.

The Metals Samples consisted of Teflon filters impregnated with known amounts of the eight metals of interest. Since many of the NATTS laboratories do not use Teflon filters when sampling, participation in the Metals PT study remains low.

After analyzing the samples, participating laboratories sent their results to Alion and a PE Report was generated for each lab. The report shows the percent difference between the submitted results and the "True value". EPA established a "Warning Limit" of +/- 20% for all compounds/elements. The upper limit was set at +/- 25%.

A graph was also generated which shows a laboratory's performance compared to the other laboratories, as well as to the "True value". These reports were emailed to personnel at the sampling agency, the analytical laboratory and to the appropriate EPA personnel. The Work Assignment Manager was also given a report showing graphically how the laboratories' results compared to the Study Mean. Copies of these reports can be found in the appendices.

Originally, the studies were designed to include NIST analysis of two samples from each individual study. However, appropriate arrangements could not be made in time and the decision was made to conduct the 200501 studies without NIST participation.

Carbonyl Study Results

(200501-C)

The Carbonyl Study was conducted during the month of February. The cartridges used during this study were spiked with formaldehyde, acetaldehyde and methyl isobutyl ketone. One cartridge was shipped via FedEx Air to each of the participating laboratories. Seventeen laboratories returned results, but only three reported finding any methyl isobutyl ketone.

The following tables show the results submitted for the three spiked compounds.

Formaldehyde

Lab Code	Reported	% Difference	Evaluation
01-01-C	2.5	0.0	
01-02-C	2.582	3.3	
01-03-C	2.36	-5.6	
01-04-C	2.93	17.2	
02-01-C	1.85	-26.0	> +/- 25%
03-01-C	2.55	2.0	
04-02-C	3.39	35.6	> +/- 25%
04-03-C	2.67	6.8	
04-04-C	2.63	5.2	
05-01-C	2.77	10.8	
05-02-C	2.55	2.0	
05-03-C	2.5	0.0	
06-01-C	2.6	4.0	
09-02-C	2.697	7.9	
10-01-C	2.67	6.8	
10-02-C	2.59	3.6	
11-02-C	2.26	-9.6	

Assigned Value = 2.50 ug/cartridge

Acetaldehyde

Lab Code	Reported	% Difference	Evaluation
01-01-C	1.9	-5.0	
01-02-C	1.994	-0.3	
01-03-C	1.85	-7.5	
01-04-C	1.96	-2.0	
02-01-C	1.45	-27.5	> +/- 25%
03-01-C	1.90	-5.0	
04-02-C	2.49	24.5	> +/- 25%
04-03-C	1.91	-4.5	
04-04-C	1.68	-16.0	
05-01-C	2.01	0.5	
05-02-C	1.78	-11.0	
05-03-C	2.0	0.0	
06-01-C	2.0	0.0	
09-02-C	2.01	0.5	
10-01-C	2.04	2.0	
10-02-C	2.01	0.5	
11-02-C	1.79	-10.5	

Assigned Value = 2.00 ug/cartridge

Methyl Isobutyl Ketone

Lab Code	Reported	% Difference	Evaluation
01-01-C			
01-02-C			
01-03-C			
01-04-C			
02-01-C	0.05	-96.9	> +/- 25%
03-01-C	1.27	-15.3	
04-02-C			
04-03-C			
04-04-C			
05-01-C			
05-02-C			
05-03-C			
06-01-C			
09-02-C	0.12	-92.0	> +/- 25%
10-01-C			
10-02-C			
11-02-C			

Assigned Value = 1.50 ug/cartridge

Metals Study Results

(200501-M)

The samples were shipped to Metals participants in January, with a closing date of February 8. Participation continues to be a problem with only ten out of a possible seventeen laboratories returning results. (ERG used a second filter – sent to them by a client - to check a subcontractor. This lab was assigned the number 11-02-M for this study)

The samples were prepared by exposing Teflon filters to an air stream containing aerosolized salts of the target compounds. The resulting concentrations were verified by an independent contractor.

The fact that these samples were prepared using Teflon filters caused some laboratories to modify their procedures and probably continues to be the major cause of the low participation. Two separate sample lots were used in this study.

The following tables show the results submitted by the ten laboratories.

Arsenic

(Lot 1) Assigned Value = 12.5 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	14.60	16.6	
04-04-M	8.05	-35.7	> +/- 25%
05-01-M	13.79	10.1	
08-02-M	4.92	-60.7	> +/- 25%

(Lot 2) Assigned Value = 0.36 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	NR		
04-03-M	0.31	-13.3	
05-03-M	0.30	-16.7	
06-01-M	0.36	-0.3	
11-01-M	0.34	-5.6	
11-02-M	0.30	-16.7	

Beryllium

(Lot 1) Assigned Value = 8.57 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	0.05	-99.4	> +/- 25%
04-04-M	8.58	0.1	
05-01-M	0.01	-99.9	> +/- 25%
08-02-M	3.49	-59.3	> +/- 25%

(Lot 2) Assigned Value = 0.27 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	0.26	-3.7	
04-03-M	0.22	-19.3	
05-03-M	0.25	-7.4	
06-01-M	NR		
11-01-M	0.25	-7.4	
11-02-M	0.20	-25.9	> +/- 25%

Cadmium

(Lot 1) Assigned Value = 5.27 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	4.52	-14.2	
04-04-M	10.40	97.3	> +/- 25%
05-01-M	3.98	-24.5	Warning
08-02-M	4.14	-21.4	Warning

(Lot 2) Assigned Value = 0.30 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	0.34	13.3	
04-03-M	0.23	-24.7	Warning
05-03-M	0.28	-6.7	
06-01-M	NR		
11-01-M	0.24	-20.0	
11-02-M	0.21	-30.0	> +/- 25%

Chromium

(Lot 1) Assigned Value = 6.14 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	5.38	-12.4	
04-04-M	16.40	167.1	> +/- 25%
05-01-M	5.13	-16.4	
08-02-M	5.78	-5.9	

(Lot 2) Assigned Value = 0.32 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	0.30	-7.8	
04-03-M	0.37	15.6	
05-03-M	0.30	-6.3	
06-01-M	0.53	65.3	> +/- 25%
11-01-M	0.40	25.0	Warning
11-02-M	0.36	12.5	

Lead

(Lot 1) Assigned Value = 5.23 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	5.49	5.0	
04-04-M	15.10	188.7	> +/- 25%
05-01-M	4.66	-10.9	
08-02-M	4.98	-4.8	

(Lot 2) Assigned Value = 0.41 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	NR		
04-03-M	0.27	-33.7	> +/- 25%
05-03-M	0.45	10.7	
06-01-M	NR		
11-01-M	0.30	-26.8	> +/- 25%
11-02-M	0.26	-36.6	> +/- 25%

Manganese

(Lot 1) Assigned Value = 5.77 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	5.69	-1.4	
04-04-M	13.80	139.2	> +/- 25%
05-01-M	5.04	-12.7	
08-02-M	5.70	-1.2	

(Lot 2) Assigned Value = 0.36 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	0.35	-4.2	
04-03-M	0.30	-17.8	
05-03-M	0.33	-8.3	
06-01-M	NR		
11-01-M	0.31	-13.9	
11-02-M	0.29	-19.4	

Nickel

(Lot 1) Assigned Value = 5.44 ug/filter

Lab Code	Reported	% Difference	Evaluation
02-01-M	5.15	-5.3	
04-04-M	12.70	133.5	> +/- 25%
05-01-M	4.71	-13.4	
08-02-M	7.30	34.2	> +/- 25%

(Lot 2) Assigned Value = 1.17 ug/filter

Lab Code	Reported	% Difference	Evaluation
04-01-M	NR		
04-03-M	0.28	-76.1	> +/- 25%
05-03-M	1.00	-14.5	
06-01-M	NR		
11-01-M	0.30	-74.4	> +/- 25%
11-02-M	0.26	-77.8	> +/- 25%

VOC Study Results

(200501-V)

Scheduling conflicts in the VOC Laboratory, coupled with late arriving canisters, caused the 200501 study to close on April 28, instead of during March as originally scheduled. Fifteen laboratories supplied Alion with a cleaned Summa canister and returned results for this study.

As with the Metals samples, the VOC canisters were filled with two different levels of VOC compounds. The canisters were humidified by Alion as they were filled and then shipped back to the laboratories via FedEx.

One Alion canister was filled with each of the two groups of samples. These canisters were analyzed initially and then after a period of two weeks. The following tables show the results of these analyses as well as the percent difference between them.

VOC (Lot 1)

Compound	Initial Analysis	Second Analysis	% Difference
Vinyl Chloride	2.59	2.62	1.16
1,3-Butadiene	2.32	2.04	-12.10
Dichloromethane	2.19	2.03	-7.53
1,2-Dichloroethane	2.31	2.17	-6.07
Benzene	2.15	2.22	3.02
Carbon Tetrachloride	2.06	2.16	4.61
1,2-Dichloropropane	2.28	2.35	3.30
Trichloroethene	2.26	2.39	5.99
Cis-1,3-Dichloropropene	2.09	2.18	4.31
Trans-1,3-Dichloropropene	1.64	1.70	3.66
1,2-dibromoethane	2.14	2.06	-3.74
Tetrachloroethene	2.33	2.39	2.80
1,1,2,2-Tetrachloroethane	2.24	2.23	-0.45

VOC (Lot 2)

Compound	Initial Analysis	Second Analysis	% Difference
Vinyl Chloride	3.35	3.31	-1.34
1,3-Butadiene	2.84	2.66	-6.17
Dichloromethane	2.85	2.89	1.23
1,2-Dichloroethane	2.86	2.81	-1.75
Benzene	2.82	2.79	-0.89
Carbon Tetrachloride	2.90	2.62	-9.66
1,2-Dichloropropane	2.83	2.91	2.83
Trichloroethene	2.93	2.94	0.34
Cis-1,3-Dichloropropene	2.72	2.88	6.08
Trans-1,3-Dichloropropene	2.26	2.44	8.20
1,2-dibromoethane	2.79	2.78	-0.18
Tetrachloroethene	2.85	2.96	3.68
1,1,2,2-Tetrachloroethane	2.84	2.92	2.64

The following tables contain the participants' results for each compound.

Benzene

Lot 1 assigned value = 2.15 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.41	12.1	
03-01-V	2.15	0.0	
04-04-V	2.08	-3.3	
05-01-V	2.52	17.2	
05-03-V	2.13	-0.9	
09-02-V	2.24	4.0	
10-02-V	1.84	-14.4	
11-01-V	2.52	17.2	

Lot 2 assigned value = 2.82 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.04	7.8	
02-01-V	2.61	-7.4	
04-01-V	3.34	18.4	
04-02-V	2.41	-14.5	
04-03-V	3.12	10.6	
06-01-V	2.91	3.2	
10-01-V	2.51	-11.0	

1,3 Butadiene

Lot 1 assigned value = 2.32 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.34	0.9	
03-01-V	2.10	-9.5	
04-04-V	2.13	-8.2	
05-01-V	2.41	3.9	
05-03-V	2.67	15.1	
09-02-V	2.07	-11.0	
10-02-V	1.85	-20.3	Warning
11-01-V	2.16	-6.9	

Lot 2 assigned value = 2.84 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	2.97	4.6	
02-01-V	2.42	-14.8	
04-01-V	3.26	14.8	
04-02-V	3.46	21.8	Warning
04-03-V	2.40	-15.5	
06-01-V	2.94	3.5	
10-01-V	2.34	-17.6	

Carbon Tetrachloride

Lot 1 assigned value = 2.06 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.28	10.7	
03-01-V	2.15	4.4	
04-04-V	2.16	4.9	
05-01-V	2.51	21.8	Warning
05-03-V	2.22	7.8	
09-02-V	2.36	14.5	
10-02-V	1.66	-19.4	
11-01-V	2.54	23.3	Warning

Lot 2 assigned value = 2.90 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.14	8.3	
02-01-V	2.58	-11.0	
04-01-V	3.65	25.9	> +/- 25%
04-02-V	2.75	-5.2	
04-03-V	3.09	6.6	
06-01-V	3.18	9.7	
10-01-V	3.04	4.8	

Chloroform

Lot 1 assigned value = 2.28 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.18	-4.4	
03-01-V	2.09	-8.3	
04-04-V	2.17	-4.8	
05-01-V	2.43	6.6	
05-03-V	2.19	-3.9	
09-02-V	2.36	3.6	
10-02-V	1.84	-19.3	
11-01-V	2.45	7.5	

Lot 2 assigned value = 2.82 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.08	9.2	
02-01-V	2.56	-9.2	
04-01-V	3.65	29.4	> +/- 25%
04-02-V	2.49	-11.7	
04-03-V	3.14	11.3	
06-01-V	2.72	-3.5	
10-01-V	2.89	2.5	

1,2 dibromoethane

Lot 1 assigned value = 2.14 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.31	7.9	
03-01-V	2.14	0.0	
04-04-V	2.18	1.9	
05-01-V	2.56	19.6	
05-03-V	NR		
09-02-V	2.40	12.1	
10-02-V	1.92	-10.3	
11-01-V	2.43	13.6	

Lot 2 assigned value = 2.79 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.16	13.3	
02-01-V	2.79	0.0	
04-01-V	3.65	30.8	> +/- 25%
04-02-V	2.89	3.6	
04-03-V	3.04	9.0	
06-01-V	2.15	-22.9	Warning
10-01-V	2.91	4.3	

1,2 dichloropropane

Lot 1 assigned value = 2.28 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.37	3.9	
03-01-V	2.10	-7.9	
04-04-V	2.10	-7.9	
05-01-V	2.57	12.7	
05-03-V	2.19	-3.9	
09-02-V	2.35	3.2	
10-02-V	1.82	-20.2	Warning
11-01-V	2.51	10.1	

Lot 2 assigned value = 2.83 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.00	6.0	
02-01-V	2.65	-6.4	
04-01-V	3.69	30.4	> +/- 25%
04-02-V	2.65	-6.4	
04-03-V	2.80	-1.1	
06-01-V	2.17	-23.3	Warning
10-01-V	2.99	5.7	

1,2 dichloroethane

Lot 1 assigned value = 2.31 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.23	-3.5	
03-01-V	2.11	-8.7	
04-04-V	2.16	-6.5	
05-01-V	2.56	10.8	
05-03-V	2.19	-5.2	
09-02-V	2.19	-5.1	
10-02-V	1.81	-21.6	Warning
11-01-V	2.39	3.5	

Lot 2 assigned value = 2.86 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.12	9.1	
02-01-V	2.59	-9.4	
04-01-V	3.80	32.9	> +/- 25%
04-02-V	2.38	-16.8	
04-03-V	3.21	12.2	
06-01-V	2.53	-11.5	
10-01-V	3.33	16.4	

Dichloromethane

Lot 1 assigned value = 2.19 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.40	9.6	
03-01-V	2.12	-3.2	
04-04-V	2.16	-1.4	
05-01-V	1.83	-16.4	
05-03-V	1.50	-31.5	> +/- 25%
09-02-V	2.40	9.5	
10-02-V	1.94	-11.4	
11-01-V	2.31	5.5	

Lot 2 assigned value = 2.85 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.08	8.1	
02-01-V	2.68	-6.0	
04-01-V	3.02	6.0	
04-02-V	2.40	-15.8	
04-03-V	3.41	19.6	
06-01-V	2.52	-11.6	
10-01-V	3.90	36.8	> +/- 25%

1,1,2,2 tetrachloroethane

Lot 1 assigned value = 2.24 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.21	-1.3	
03-01-V	2.00	-10.7	
04-04-V	2.05	-8.5	
05-01-V	2.56	14.3	
05-03-V	1.97	-12.1	
09-02-V	2.28	1.9	
10-02-V	2.14	-4.5	
11-01-V	2.31	3.1	

Lot 2 assigned value = 2.84 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	2.96	4.2	
02-01-V	2.73	-3.9	
04-01-V	3.82	34.5	> +/- 25%
04-02-V	3.50	23.2	Warning
04-03-V	2.76	-2.8	
06-01-V	2.74	-3.5	
10-01-V	2.99	5.3	

Tetrachloroethylene (PERC)

Lot 1 assigned value = 2.33 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.33	0.0	
03-01-V	2.18	-6.4	
04-04-V	2.17	-6.9	
05-01-V	2.44	4.7	
05-03-V	2.08	-10.7	
09-02-V	2.28	-2.1	
10-02-V	2.18	-6.4	
11-01-V	2.42	3.9	

Lot 2 assigned value = 2.85 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.09	8.4	
02-01-V	2.55	-10.5	
04-01-V	3.18	11.6	
04-02-V	2.49	-12.6	
04-03-V	2.81	-1.4	
06-01-V	2.39	-16.1	
10-01-V	2.34	-17.9	

Trichloroethylene

Lot 1 assigned value = 2.26 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.37	4.9	
03-01-V	2.17	-4.0	
04-04-V	2.11	-6.6	
05-01-V	2.57	13.7	
05-03-V	2.12	-6.2	
09-02-V	2.36	4.5	
10-02-V	1.88	-16.8	
11-01-V	2.63	16.4	

Lot 2 assigned value = 2.93 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.10	5.8	
02-01-V	2.63	-10.2	
04-01-V	3.13	6.8	
04-02-V	2.72	-7.2	
04-03-V	2.92	-0.3	
06-01-V	2.49	-15.0	
10-01-V	2.51	-14.3	

Vinyl Chloride

Lot 1 assigned value = 2.59 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.27	-12.4	
03-01-V	1.98	-23.6	Warning
04-04-V	1.99	-23.2	Warning
05-01-V	2.57	-0.8	
05-03-V	2.22	-14.3	
09-02-V	1.93	-25.4	> +/- 25%
10-02-V	1.87	-27.8	> +/- 25%
11-01-V	2.33	-10.0	

Lot 2 assigned value = 2.35 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.39	1.20	
02-01-V	2.46	-26.6	> +/- 25%
04-01-V	3.34	-0.3	
04-02-V	2.84	-15.2	
04-03-V	3.00	-10.4	
06-01-V	2.86	-14.6	
10-01-V	2.43	-27.5	> +/- 25%

Cis-1,3-Dichloropropene

Lot 1 assigned value = 2.09 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	2.18	4.3	
03-01-V	2.05	-1.9	
04-04-V	2.06	-1.4	
05-01-V	2.51	20.1	Warning
05-03-V	NR		
09-02-V	2.03	-3.0	
10-02-V	1.91	-8.6	
11-01-V	2.39	14.4	

Lot 2 assigned value = 2.72 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	3.17	16.5	
02-01-V	2.60	-4.4	
04-01-V	3.40	25.0	Warning
04-02-V	3.58	31.6	> +/- 25%
04-03-V	3.26	19.9	
06-01-V	2.57	-5.5	
10-01-V	2.96	8.8	

Trans-1,3-Dichloropropene

Lot 1 assigned value = 1.64 ppbv

Lab Code	Reported	% Difference	Evaluation
01-01-V	1.96	19.5	
03-01-V	1.66	1.2	
04-04-V	1.77	7.9	
05-01-V	2.08	26.8	> +/- 25%
05-03-V	NR		
09-02-V	1.70	3.9	
10-02-V	1.43	-12.8	
11-01-V	2.02	23.2	Warning

Lot 2 assigned value = 2.26 ppbv

Lab Code	Reported	% Difference	Evaluation
01-04-V	2.71	19.9	
02-01-V	2.39	5.8	
04-01-V	2.89	27.9	> +/- 25%
04-02-V	3.85	70.4	> +/- 25%
04-03-V	2.78	23.0	Warning
06-01-V	2.40	6.2	
10-01-V	2.73	20.8	Warning

Appendix A

200501-C

Individual Results and Summary Graphs

Appendix B

200501-M

Individual Results and Summary Graphs

Appendix C

200501-V

Individual Results and Summary Graphs