



***Division of Public Health Services***

*Office of the Assistant Director  
Public Health Preparedness Services  
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JANET NAPOLITANO, GOVERNOR  
CATHERINE R. EDEN, DIRECTOR

**FAX TRANSMITTAL SHEET**

**DATE:** March 9, 2005

**TO:** Laboratory Director and QA Manager

**FROM:** Steven D. Baker, Office Chief  
Lab Licensure, Certification and Training  
State Laboratory Services

**Subject:** Information Update #86

**PAGES:** 7 (including cover)

**NOTE:** If any of the pages are missing, please call 1-800-952-0374, (602) 364-0734 or (602) 364-0733.

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***THIS MESSAGE AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST, BY CONTACTING:  
Prabha Acharya AT (602) 364-0734.***

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CATHERINE R. EDEN, DIRECTOR

## Information Update

March 9, 2005  
Update #86

1. The following methods have been Director Approved for compliance testing in Arizona:

Hach Method 8021 for Free Available Chlorine in Wastewater;

EPA Method 1604 for Total Coliform and E. Coli in drinking water, source water and ambient water.

2. Please include the AZ number (Laboratory license number issued by Arizona Laboratory Licensure) in all the correspondence submitted to our Office. This will assist us in proper tracking of the correspondence when multiple labs are licensed under the same name, ownership and/or mailing address.
3. Kathryn Wangsness is now the DMRQA Coordinator for the State of Arizona. Please direct all future correspondence or questions regarding DMRQA to Kathryn. Following is her contact information:

Office of Laboratory Licensure, Certification and Training

250 N. 17<sup>th</sup> Avenue, Phoenix, AZ 85007-3231

[wangsnk@azdhs.gov](mailto:wangsnk@azdhs.gov)

Tel: (602) 364-0724 Fax: (602) 364-0759

4. The following information was obtained from Mr. Dale Rushneck, an Consultant for EPA, regarding the preservation requirements of acrolein and acrylonitrile when EPA Method 624 is used:

### Requirements in Method 624

*Section 1.2 of Method 624 states: "The method may be extended to screen samples for acrolein ... and acrylonitrile ... , however, the preferred method for these two compounds is Method 603." This*

statement implies that Method 624 may not be suitable for determination of these two compounds. However, in principle, Method 624 should produce results as reliable, if not more reliable, as Method 603.

Disparity in preservation requirements between Method 624 and Method 603.

A problem with use of Method 624 vs Method 603 is the disparity in sample preservation and holding time requirements. Both methods require dechlorination, and refrigeration of the sample from the time of collection until analysis. Method 624 does not require pH adjustment if the sample is analyzed within 7 days, but requires preservation of a separate sample to pH 2 if the aromatic volatiles (benzene, toluene, ethyl benzene) are to be determined and the holding time is to be extended from 7 to 14 days. For acrolein, Method 603 requires preservation to pH 4 - 5 as determined with narrow-range pH paper if the holding time is to be extended from 3 to 14 days.

Options for determination of acrolein by Method 624

1. Analyze the sample within 3 days of collection. Preservation (other than refrigeration) is not required.
2. Collect a sample separate sample, preserve to pH 4-5 using narrow-range pH paper, refrigerate, and analyze within 14 days.

What would not be allowed for determination of acrolein by Method 624

The pH of the sample for non-aromatic volatiles in Method 624 may not be adjusted to pH 4 - 5 to extend the holding time for acrolein to 14 days because the effect of this pH adjustment on the non-aromatic volatiles is not known.

A sample preserved to pH 2 to extend the holding time for aromatic volatiles to 14 days may not be used for determination of acrolein because the effect of this pH adjustment on acrolein is not known.

Options for determination of Acrylonitrile by Method 624

Acrylonitrile may be determined directly using the sample for non-aromatic volatiles in Method 624 or, if a separate sample is collected for acrolein, may be determined in that separate sample using Method 624.

5. After consulting with EPA Region IX, it has been confirmed that laboratories must use the approved wastewater methods listed in 40 CFR, Sec. 136.3, Identification of test procedures, for the analytes in that Section.

If the ADEQ's permit language allows, for those analytes that are not included in the 40 CFR, Part 136, the laboratories may use any currently approved method by ADHS meeting the required reporting limits (that includes the non-wastewater method also).

However, the laboratories should be qualifying the final report to state that the parameter was analyzed by a method that is not currently approved by ADHS for wastewater samples.

6. EPA method 508 and 508.1:

Quality Control criteria for multi-component pesticides:  
Measures must be taken in order to verify the multi-component detection limits or pattern recognition levels (PRL's) regularly. One of the multi-component analytes is to be run at the PRL daily. Each day of analysis, a different multi-component analyte is to be run in order to verify the detection level of each of these analytes routinely ("Manual for the Certification of Laboratories Analyzing Drinking Water", March 1997, EPA-815-B-97-001, Chapter IV, Section 7.2.4). Additionally, if any of the multicomponent analytes is detected in the sample, then a full calibration curve must be generated for quantitation of that analyte.

The above required criteria is one of the DIRECTOR APPROVED METHOD MODIFICATIONS, dated 8/29/2001, available on the ADHS website, <http://www.azdhs.gov/lab/license/tech/methmod.pdf>

It was decided to repeat the above information because some of the labs are not following proper QC procedures for multi-component analytes.

7. The laboratories must record the temperature of the pH buffers and samples, and report the temperature with the pH of the samples (EPA Method 150.1, Section 4.4 & SM 4500-H B1b, SW-846 9040B, 7.4). Even though the pH meter may have a temperature compensator, this only accounts for one of the temperature effects for pH determinations.

8. 8015AZ, clarification:

C6 - C10 hydrocarbons (GRO) in soil, is not a compliance range in Arizona but is often a requested range for suspected gasoline contamination investigation, the reason for inclusion in the Method. When clients request for GRO by 8015AZ, they must be made aware that the reported results are for information purposes only. If a client insists that the GRO is for compliance, then it can be run by 8015B.

C10 - C32 hydrocarbons, the sum of DRO and ORO, is for compliance and the approved method is 8015AZ.

8015AZ is for testing soil samples and cannot be modified to test water samples.

9. As per R9-14-617, Laboratory Records and Reports, a licensee shall maintain records and reports of compliance testing and the ability to reproduce all electronic data for at least five years from the date of compliance testing. A licensee shall maintain records and reports for the most current two years on-site at the laboratory and may store the remaining records and reports in a secure storage facility.

Laboratories are allowed to maintain their original hardcopy data as a scanned document. However, the labs must be able to convert the scanned document to a hardcopy format with the original data during the on-site surveys.

10. The Training Program is planning to have a workshop titled "Basics of Analytical Instrument Calibration", in Phoenix, on April 19, 2005. It is a two-hour presentation on calibration and a two-hour session on question/answer. It is scheduled to be held at the ADHS State Lab Conference Room, at 250 N. 17<sup>th</sup> Avenue, Phoenix 85007-3231, from 9:00 AM to 1:00 PM. The registration starts at 8:30 AM. The registration fee is \$50.00 per person. Please complete the attached registration form and fax it to (602) 364-0758 before April 01, 2005, if you are interested in attending the workshop. Please make the check payable to ADHS and mail it to the Lab Licensure, at the above address, to the attention of Maria Valenzuela,

A tentative outline of the presentation on Calibration would be (9:00 AM - 11:00 AM):

Definition of calibration;

Fundamental analytical measurement models

Response vs. concentration

Standard deviation vs. concentration

Relative standard deviation vs. concentration;

Response and Calibration factors;

Effect of error on calibration;

Calibration models

Single point

Straight line through origin

Linearity tests

Least squares

RSD of calibration factor

Straight line not through origin

Linearity tests

Curved line through origin

Best-fit model

Curved line not through origin

Best-fit model;

Analytes and calibration

Classical/conventional  
Metals  
Organics  
Microbiological  
Radiological;

EPA requirements for calibration;

Relationship between calibration and detection and quantitation limits.

The question/answer session (11:00 AM - 1:00 PM) will be on analytical methods and EPA wastewater regulations. If attendees provide the questions in advance, Mr. Rushneck will prepare a presentation of answers or attendees at the workshop may ask questions during the session, or both. Please e-mail the questions to [acharyp@azdhs.gov](mailto:acharyp@azdhs.gov).

Mr. Dale Rushneck's Bio:

Dale Rushneck received an A.B. in physics and mathematics from Thiel College and completed graduate level course work in physics, chromatography, chemistry, and business. He has more than 35 years' experience in analytical chemistry.

Mr. Rushneck supervised design, development, construction, and operation of the Viking gas chromatograph/mass spectrometers (GCMS), major instruments on NASA's Viking Mars Landers. He played a key role in the development, application, and acceptance of isotope dilution GCMS for determination of volatile and semi-volatile organic pollutants in environmental samples. Mr. Rushneck has consulted to 20 U.S. and foreign companies in the startup and operation of environmental testing laboratories.

Mr. Rushneck is currently with Interface Inc., and has been a consultant to EPA for the past 25 years providing expertise in the development and application of analytical methods and environmental regulations. In this capacity, Mr. Rushneck has supported the development of quality assurance/quality control (QA/QC) procedures, QA management and project plans, analytical plans and techniques, sample handling and management policies, and computerized systems. He is also involved in data evaluation and laboratory auditing.

11. Please contact Joe Harmon at (602) 364-0673 or [harmonj@azdhs.gov](mailto:harmonj@azdhs.gov) for workshop related questions and contact Prabha Acharya @ (602) 364-0734 or [acharyp@azdhs.gov](mailto:acharyp@azdhs.gov) for technical questions.

**REGISTRATION FORM**

APRIL 19, 2005, 9 AM -1 PM

**BASICS OF ANALYTICAL CALIBRATION**

(Please Type or Print)

(Dr., Mr., Mrs., \_\_\_\_\_  
Ms., Miss) (First) (M.I.) (Last)

Employer's Name: \_\_\_\_\_ Position Title: \_\_\_\_\_

Employer's Address: \_\_\_\_\_  
\_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Employer's Phone Number: (\_\_\_\_) \_\_\_\_\_

Employer's Fax Number: (\_\_\_\_) \_\_\_\_\_

Check enclosed \_\_\_\_\_ check to be mailed \_\_\_\_\_

Please fax the completed registration form to;

Maria Valenzuela  
Fax: (602) 364-0758

Registration fee is \$50.00. Please enclose a copy of the completed registration form with payment and mail to:

Maria Valenzuela

Office of Laboratory Licensure, Certification and Training

250 N. 17<sup>th</sup> Avenue, Phoenix, AZ 85007-3231

Telephone: (602) 364-0746



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JANET NAPOLITANO, GOVERNOR  
SUSAN GERARD, DIRECTOR

**FAX TRANSMITTAL SHEET**

**DATE:** July 7, 2005

**TO:** Laboratory Director and QA Manager

**FROM:** Steven D. Baker, Office Chief  
Lab Licensure, Certification and Training  
State Laboratory Services

**Subject:** Information Update #87

**PAGES:** 7 (including cover)

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JANET NAPOLITANO, GOVERNOR  
SUSAN GERARD, DIRECTOR

## Information Update

July 7, 2005  
Update #87

### 1. ADHS Director Approvals:

A. The approval of "Alternate Default Limits for the QC Parameters for which Acceptance Limits are not Specified in the Referenced Methods" was signed by the Director on 6/29/2005. As an alternative to developing statistically derived limits, ADHS proposes the use of default limits that the laboratories could adopt for any applicable method without sacrificing the quality of the data generated. The Arizona licensed laboratories may begin to use these default limits for Arizona compliance samples. Please see the attached partial document (2 out of 5 pages) for details. The complete document can be found at the following ADHS website:

<http://www.azdhs.gov/lab/documents/license/resources/resources/control-limits.pdf>

If you have any questions on the above item, please contact either Prabha Acharya or Barbara Escobar at (602) 364-0720.

B. The approval of 10 additional parameters (acetophenone, alpha-terpineol, aniline, carbazole, o-cresol, n-decane, 2,3-dichloroaniline, n-octadecane, pyridine, p-cresol) to be analyzed by EPA Method 625 for Centralized Waste Treatment was signed on 6/23/05. The laboratories with method 625 on their license may begin reporting the added compounds from the approval date without a flag; there is no need to request the additional analytes to be added to their 625 license.

2. In an effort to standardize the reporting of HAA5 and TTHMs, ADEQ has developed a new reporting protocol for those analytes. Please see the attached ADEQ memo dated 06/08/2005, for details.

### 3. REMINDER:

A.R.S. 36-495.03(F) "A regular license expires one year after the date of issuance and shall be renewed on submission of a renewal application and payment of the renewal application fee prescribed in 36-495.06, at least thirty days before expiration of the license, unless the director determines pursuant to 36-495.09 that grounds exist to deny the application."

A.A.C. R9-14-604 Regular License Renewal Process

In-state applications must be received 30 days prior to license expiration date and out-of-state applications must be received 60 days prior to license expiration date.

An application is not complete without payment of the appropriate application fee or fees and payment of the amount billed under A.A.C. R9-14-608(C).

4. CLARIFICATION:

The following are examples of chemical parameters that do not require an MDL Study since matrix spikes are not performed on the samples:

pH, Temperature, Conductivity, All residue (solids) analyses, Color, Odor, Turbidity, BOD, COD, Paint Filter, Corrosivity, Ignitability, Reactivity, Moisture Content.

Other chemical parameters that do not require MDL studies, for other reasons:

8015AZ (an RLV study is required instead)  
Metals in Soil (per ADHS Director Approved Method Modifications)

5. Chris Varga from ADEQ AZPDES permit section has confirmed that they are accepting E.Coli results as either CFU or MPN. They see the two units as equivalent.
6. A clarification from EPA-Cincinnati: While Method 524.2 does not address background subtraction in relation to BFB, it has always been our intention that appropriate background subtraction should be performed. An example of appropriate subtraction would be one scan immediately prior to and one scan immediately after the BFB chromatographic peak."
7. Please note that the 5<sup>th</sup> Edition of the EPA Manual for the Certification of Laboratories Analyzing Drinking Water, has been approved by EPA, "<http://www.epa.gov/safewater/labcert/labindex.html>" ADHS Rules still specify the 4<sup>th</sup> Edition of the EPA Manual, however laboratories should consider including the following items in their

current operation, since ADHS will adopt the 5<sup>th</sup> edition in the next rule revision:

- A. Chapter IV, Section 7.2.11. "Sample preparation and analyses for the MDL calculation should be made over a period of at least three days to include day-to-day variation as an additional source of error."
- B. Chapter IV, Section 7.2.12. "Laboratories should run a LFB at their MRL every analysis day and should not report contaminants at levels less than the level at which they routinely analyze their lowest standard."
- C. Chapter V, Section 3.1.5. "Record pH meter slope monthly, after calibration." See Section 3.1.5.1 and 3.1.5.2 for more details.

8. Methods' Update from EPA:

Freon, regardless of source or date manufactured, cannot be used for the uses specified at 40 CFR 82.13, appendix G, including determination of oil and grease, and TPH, in wastewater. In the April 6, 2004 method update, EPA proposed to withdraw Freon-based methods. That rule is scheduled to go final some time this summer. After the rule is published, there will be no approved Freon-based methods at part 136.

The laboratories must switch over to 1664A from the Freon based methods.

- 9. The next ELAC meeting has been rescheduled for Wednesday, 9/21/2005, due to non-availability of the meeting room on 9/22/2005. It was previously scheduled for 9/22/2005. Please make a note of the new meeting date.
- 10. Please contact Joe Harmon at (602) 364-0673 or [harmonj@azdhs.gov](mailto:harmonj@azdhs.gov). for workshop related questions. Website: <http://www.azdhs.gov/lab/license/training/index.htm> and contact Prabha Acharya @ (602) 364-0734 or [acharyp@azdhs.gov](mailto:acharyp@azdhs.gov) for technical questions. Website: <http://www.azdhs.gov/lab/license/tech/infoup.htm>.

Date: 06/08/05

To: John Calkins; Donna Lucchese – Drinking Water Section

**From: Julie Hoskin – QA/QC Unit Supervisor**  
**Subject Standard for Reporting HAA5s and TTHMs**

:

**Haloacetic Acids and Trihalomethanes are disinfection byproducts that are required for the testing of Drinking Water. Both of these tests have individual analyte components that are analyzed and totaled. HAA5 is the sum of mass concentration of five haloacetic acid species and TTHMs are the sum of the four trihalomethanes: chloroform, bromodichloromethane, dibromochloromethane, and bromoform.**

**In an effort to standardize the reporting of HAA5 and TTHMs, ADEQ requests that in instances when all of the individual components are reported as Non-Detect (ND) or <Method Reporting Limit (MRL) that the sum be reported as < highest MRL of the individual components.**

**Example:**

<b>Chloroform</b>	<b>&lt;1.0</b>
<b>Bromodichloromethane</b>	<b>&lt;0.50</b>
<b>Dibromochloromethane</b>	<b>&lt;0.50</b>
<b>Bromoform</b>	<b>&lt;0.50</b>
<b>Total Trihalomethanes (TTHMs)</b>	<b>&lt;1.0</b>

**Also, if there is a detection for any of the individual components, that result should be reflected in the total, even if the result is < the highest MRL of the individual components.**

**Example:**

<b>Monochloroacetic Acid</b>	<b>&lt;0.50</b>
<b>Dichloroacetic Acid</b>	<b>&lt;0.50</b>
<b>Trichloroacetic Acid</b>	<b>0.66</b>
<b>Monobromoacetic Acid</b>	<b>&lt;1.0</b>
<b>Dibromoacetic Acid</b>	<b>&lt;0.50</b>
<b>HAA5</b>	<b>0.66</b>

**For questions, please contact Julie Hoskin at (602) 771-4866 or John Calkins at (602) 771-4617.**

**ADHS APPROVED ALTERNATE DEFAULT LIMITS  
FOR THE QC PARAMETERS FOR WHICH ACCEPTANCE LIMITS ARE NOT SPECIFIED IN THE  
REFERENCED METHODS**

Per ADHS Rules A.A.C. R9-14-615.C.8, *laboratories must statistically develop limits from historical data, if the laboratory tests for a parameter for which quality control acceptance criteria are not specified in the method or by EPA or ADEQ, by:*

- a. *Determining the mean and standard deviation for a minimum of 20 data points, excluding statistical outliers, and*
- b. *Setting the limits no more than 3 standard deviations from the mean and in the detectable range.\**

ADHS understands the extent of time and labor involved in the development of QC acceptance criteria and to update them at a specified frequency. The statistically derived limits have other problems in that if a laboratory's precision is very tight, it leads to impractical limits; on the other hand, poor precision leads to an excessively wide range.

As an alternative to developing statistically derived limits, ADHS proposes the use of default limits that the laboratories could adopt for any applicable method without sacrificing the quality of the data generated. The laboratories have an option of selecting either of the two processes for individual method/compounds and the one they select must be specified in their SOPs. The default limits proposed are derived from the individual reference methods from another QC parameter's acceptance limits, which represent similar or narrower limits.

For laboratories not choosing to use historical limits, the following default limits (or narrower) could be used for any method, where applicable:

<b>QC NOT SPECIFIED IN METHOD</b> →	<b>DEFAULT QC (METHOD SPECIFIED OR LABORATORY HISTORICAL IF NOT SPECIFIED)</b>
MS/LFM (processed or non-processed)	LCS/LFB
LCS/LFB (processed or non-processed)/ Second Source reference standard	CCV/continuing IPC
PQL/MRL (non-processed)	CCV/continuing IPC
PQL/MRL (processed)	LCS/LFB
QCS (non-processed)	ICV/continuing IPC/manufacture's limits
QCS (processed)	LCS/LFB/ manufacturer's limits
IDC limits	LFB/LCS
LFB/LCS/LFM/duplicate RPD	IDC limits/20%
Non-CCC compounds	CCC limits
ICV/CCV	10%

**For 8000 methods that do not specify the QC limits for MS/LCS, the default limit of  $\pm 30\%$  (8000B) could be used.**

**For 500, 600, 1600 and 8000 series methods that do not specify surrogates and or acceptance limits for surrogates, the default limits of 70-130% could be used.**

**Most methods do not list a precision measurement; the industry standard has always been 20% RPD (For example, See SM 20<sup>th</sup> ed. 1020B, Sections 1 and 3, Draft 7000B, Section 9.4).**

- \* The lower end of the detectable range should be at a minimum the PQL or the lowest standard value represented in the initial calibration. This should be explained in the lab's SOP.**

**6/16/2005**