



*Office of Laboratory Licensure,
Certification & Training*

3443 N Central Avenue, Suite 810
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Technical Support Hot-Line 1-800-592-0374

Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

Information Update

**January 23, 1998
Update # 41**

1. EPA methods 420.1 and 420.2 for the analysis of total phenols were approved by the Director of the Arizona Department of Health Services (ADHS) on January 9, 1998 and the Arizona licensed laboratories can now use these methods for the compliance testing of total phenols in waste water. These methods had been inadvertently removed from the current Arizona Environmental Laboratory Licensure Rules dated July 11, 1997.
2. Arizona consensus method, C₆ - C₃₂ Hydrocarbons in Soil - 8015AZ, dated 01/05/98, Revision - 0, was approved by the Director of the ADHS on January 12, 1998 and the Arizona licensed laboratories can now apply for use of this method for the compliance testing of hydrocarbons in soil samples.

A copy of this method can soon be downloaded from the ADHS Lab Licensure [Technical Training](#) web page at www.azdhs.gov/lab/license/infoup.htm. A copy of the method can also be obtained by sending a request via fax to (602) 255-1070, to the attention of Training. Please include the following information in the fax; name of the person requesting a copy, laboratory name and the mailing address. If you have any questions on this method please call Prabha Acharya at (602) 255-3454.

NOTE: Section 8.7 in 8015AZ refers to a quotation # 144312 for the Retention Time Verification Standard if purchased from Supelco. That quotation number has since been changed to 20003375. Supelco will cross reference the two numbers.

8015AZ replaces 418.1AZ for compliance testing of hydrocarbons in soil in Arizona. Arizona Department of Environmental Quality (ADEQ) has assigned a transition period of up to March 31, 1998 for the implementation of this new method. During this transitional period, ADEQ will accept both 418.1AZ and 8015AZ methods for the compliance testing of hydrocarbons in soil. After March 31, 1998, ADEQ will no longer accept 418.1AZ for compliance testing of hydrocarbons in soil.

3. In order to get certified for 8015AZ by the Arizona Laboratory Licensure, the following steps must be followed:
 - a. Standard Operating Procedure (SOP) must be written.
 - b. Reporting Limit Verification Study must be completed (Section 12.14; 8015AZ, 01/05/98, Revision - 0).

- c. An initial blind third party Proficiency Evaluation (PE) Study must be completed. Custom soils for both 8015AZ C₆ - C₃₂ (Direct Inject) as well as 8015AZ gasoline (for Purge and Trap) are available. If PE sample for only gasoline is requested and is satisfactorily completed, the certification for only gasoline is issued. If the certification for both C₆ - C₃₂ (Direct Inject) and gasoline (Purge and Trap) is desired, both C₆ - C₃₂ and gasoline PE samples must be satisfactorily completed.

The protocol to complete a blind PE sample is as follows:

- i. Call Environmental Research Associates at (800) 372-0122.
- ii. Order blind PE sample(s):
Catalog Number 093AZ: Custom soils, Method 8015AZ, C₆ - C₃₂; Catalog Number 093AZ: Custom soils, Method 8015AZ, gasoline for P/T

ERA will be ready to ship the PE samples to the laboratory during the first week of February. In order to assist ERA in the preparation of the custom PE sample(s), we have enclosed a survey for you to complete and return to us by 1/30/98. You must order PE samples directly from ERA.

- iii. Analyze the sample(s) and send results to ERA by 3/11/98. **Results received after this date will be invalidated.**

For C₆ - C₃₂ sample, individual C₆ - C₁₀, C₁₀ - C₂₂, C₂₂ - C₃₂ and as well as the total C₆ - C₃₂ values must be reported.

Send results to ERA. Instructions will be included with the sample.

- iv. Licensure staff will inform you if your PE results were acceptable.
 - d. Enclose a check to the Office of Arizona Department of Health Services for \$69.00 along with a request for certification.
 - e. All the data must be available for the Consultant's review, if requested.
 - f. If you choose not to participate in the study at this time, you may choose to get certified at a later date. The PE samples might cost you more.
4. Arizona NELAC Summit meeting was held on January 22, 1998 at Casa Grande, Arizona. The agenda included History and Overview of NELAC, Understanding the NELAC Standards, The Impact of NELAC to Small Laboratories. It was held in conjunction with the quarterly Arizona Environmental Laboratory Advisory Committee (ELAC) Meeting. Both ELAC and NELAC meetings were open to the public. Arizona has to send in the application by January 31, 1998, to become an Accrediting Authority for NELAC if Arizona wishes to become a NELAC State at this time. In order to assist ADHS in the decision making if Arizona should become a NELAC state at this time or should wait for a future date, we have enclosed an opinion survey to be completed by you. Please take some time and complete the survey. If you would like to learn more about NELAC, it can be accessed on the Internet at the

following address: <http://134.67.104.12/html/nelac/nelac.htm#NL02>

5. We would like to thank those of you who recently attended our workshops on Data Evaluation and Analyst Training held on January 13 and 14 respectively at the Francisco Grande Resort in Casa Grande, AZ. The feed back that we have received so far from the participants indicates that the Data Evaluation seminar was good, but some believed it was possibly too basic. They had expected a more in depth training in that area. We are planning on having a more detailed workshop on that topic in the near future. The Analyst Training seminar was received more favorably, but again some comments were received that certain parts of the presentation were not applicable to the participants. In order to attract suitable participants to the future workshops, we will do in depth research in advance and provide the necessary recommendations as to the technical levels of the presentations. If you have any suggestions on what you would like to see included in the future workshops, please contact the Technical Resources and Training Section at (602) 255-3454 or fax us at (602) 255-1070.
6. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Arizona
Department of
Health Services

Information Update

**February 9, 1998
Update # 42**

1. This is to clarify the reasons for the reapproval of EPA methods 420.1 and 420.2 for the analysis of total phenols (Information update #41) for the compliance testing of total phenols in waste water. Some laboratories were not happy that these methods were added back to the Laboratory Licensure Rules because they are of the opinion that these above methods are prone to contamination resulting in higher bias. NPDES methods are mandated by EPA and Region IX and the state does not have the authority to implement alternate test methods for NPDES compliance testing, even if they are known to yield inaccurate results.
2. We have received frantic calls from a couple of laboratories that they are encountering difficulties in the chromatographic separation of DRO and ORO ranges for the Arizona consensus method, C₆ - C₃₂ Hydrocarbons in Soil - 8015AZ, dated 01/05/98, Revision - 0 (Information Update #41). Overlapping of peaks are expected between the two ranges. The diagram in the method (Section 11.1, page 11) is a hypothetical diagram for illustration purposes only. We contacted Supelco Technical Service for a recommendation. They made a reference to an article in J. of A.O.A.C, Vol. 79, No.2, 1996, pgs.508-519, "Determination of Diesel Fuel and Motor Oil in Water and Wastes by a Modified Diesel-Range Organics Total Petroleum Hydrocarbon Method". The recommended column and oven conditions in this article are follows;

30 m x 0.32 mm ID, 0.25 um film SPB-5 (or equivalent), Injector: 300⁰ C, Detector: 300⁰ C, Oven: 35⁰ C- hold for 3 minutes, ramp at 10⁰ C/min to 310⁰ C and hold until all the motor oil elutes. The author(s) found the on-column injection gave better quantitative results (especially for the motor oil). On-column injection eliminates problems with splitter discrimination which often occurs with samples consisting of a wide range of molecular weights.

The acceptance limits for the blind PE samples will be determined based on the 2 standard deviations calculated from all the results received.

3. We have received a few inquiries from the laboratories if they need to get certification for 8021AZ (Information Update #40). 8021AZ is not a modification to the method criteria but it is a shortened target analyte list for 8021A or B. The laboratories have an option to report the shortened list to their clients if prior agreement has been made. The labs don't need to get certified for 8021AZ, but they need certification for 8021A or 8021B (when Update III is promulgated by Arizona). If not all the

compounds are being reported, the labs can report (if client is agreeable) a short 8021AZ list. The referenced method would still be 8021A or (B).

4. The following HACH methods were approved by the Director of the Arizona Department of Health Services (ADHS) on January 30, 1998. They can now be requested for certification to be used for compliance monitoring.

WASTEWATER

	PARAMETER	APPROVED METHOD
1.	Acidity, CaCO ₃	8010
2.	Ammonia, (as N)	8038
3.	Arsenic - Total	8013
4.	Biochemical Oxygen Demand	8043
5.	Calcium-Total	8222
6.	Chemical Oxygen Demand	8230
7.	Chloride	8224, 8225
8.	Chlorine-Total residual	8167, 8168, 10014
9.	Chromium	8023
10.	Fluoride-Total	8029
11.	Hardness-Total	8226
12.	Hydrogen Ion (pH)	8156
13.	Lead-Total	8033
14.	Nickel-Total	8037
15.	Orthophosphate (as P)	8048
16.	Oxygen, Dissolved	8157, 8229
17.	Phenols	8047
18.	Phosphorous-Total	8190
19.	Residue-Nonfilterable (TSS)	8158
20.	Specific Conductance	8160
21.	Sulfate (as SO ₄)	8051
22.	Sulfide (as S)	8131
23.	Sulfite (as SO ₃)	8071

DRINKING WATER

	PARAMETER	APPROVED METHOD
1.	Conductivity	8160
2.	Fluoride	8029
3.	pH	8156
4.	Free Chlorine	8021
5.	Total Chlorine	8167, 8168, 8370
6.	Total and Fecal Coliform	8001

5. Due to continued audit findings and inquiries, please be aware of the following requirements for the multi-component analysis:

At a minimum, all PCB and multi-component analyses must include the following:

A. Multi-component analytes by EPA Method 8081:

- i. Initial Calibration: For PCB's, a minimum of five calibration levels of a mixture of Aroclors 1016 and 1260 is required. Additionally, a midpoint calibration standard of all Aroclors must be included with the initial calibration. For technical chlordane and toxaphene, a midpoint calibration standard of each is required (SW846 Method 8081, Section 7.4.1.1).
- ii. Continuing Calibration Verification: For PCB's, a mid level standard of the Aroclors 1016 and 1260 mix is required, although an Aroclor which may be specific to the project can be substituted here. For technical chlordane and toxaphene, a midpoint calibration standard of each is required (SW846 Method 8081, Section 7.4.1.2).
- iii. QC Check Sample: If the method is being used for Aroclors, Chlordane or Toxaphene only, then a QC check sample containing the most representative multi-component analyte at 50 mg/L needs to be extracted at a frequency of one per 20 samples, or one per batch (SW846 Method 8081, Section 8.2.1).

B. Multi-component analytes by EPA Method 608: Since this method does not specifically address the analysis of multi-component analytes, other than grouping them with all other target analytes, our office has set the minimum QC criteria for these analytes by this method. Our recent issue of the Information Update, June 10, 1997, #37, provides all Arizona Licensed Laboratories with the following minimum requirements:

- i. Initial Calibration: Initially, only one Aroclor is required to have a full multilevel calibration, however, all other multi-component analytes must be run at the laboratory reporting level. Additionally, if any of the multi-component analytes is detected in the sample, then a full calibration curve must be generated for quantitation of that analyte.
- ii. Continuing Calibration Verification: The Aroclor which was used for full calibration must

be run at a mid-point concentration and meet CCV requirements. Toxaphene and chlordane must be run at any level for pattern recognition purposes.

- iii. QC Check and/or Matrix Spike: Any one of the multi-component analytes that can be quantitated must be spiked at any level.

C. PCB Screening by EPA Method 508: This method is used for identification and detection, but not quantitation, of PCB's. Therefore, a calibration curve that is verified daily for each Aroclor is not necessary for compliance monitoring. However, some measures must be taken in order to verify the Aroclor detection limits or pattern recognition levels (PRL's) regularly, and that Aroclors are being recovered from the samples. Our Information Update, #12, June 9, 1995, attempted to set forth the following as minimum QC that would be required in order to provide these necessary verifications:

- i. Verification of the MDL, or PRL: 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).
- ii. Verification of Matrix Spike Recovery: This is achieved using the matrix spike frequency specified in Method 508, which is a minimum of 10% or one per batch (EPA Method 508, Section 10.8.1).

6. Steven Pia of Las Vegas, EMSL informed us that it is alright to filter DW samples for radchem analysis (900.0 and 00-02 methods), if the samples contained sediment, before acidification. Normally the DW samples should not contain sediment especially if it is sampled from a faucet. There is a reference for filtration in the DW manual, 4th edition, Page V1-9, Table V1-2, Sample handling, Preservation, and Instrumentation, under preservative column. This recommendation was not there in the 3rd edition. Jeff Stuck of ADEQ/DW, told us that they did not have any objections to filtering the samples before acidification. ADHS Laboratory Licensure requires the final report to be footnoted if the samples were filtered before analysis.
7. Mr. Juan Mulero of Orange Coast Analytical, Phoenix, Arizona, brought to our attention that the primary and secondary quantitation ions (151 and 153) for trichlorofluoromethane were incorrect in EPA methods 8260A and B. We contacted EPA'S MICE (Methods Information Communication and Exchange) regarding this issue. They agreed that they were typographical errors and the correct quantitation ions are 101 and 103. They will correct them in future revisions. Good Job Juan!
8. We received a total of 25 responses to our Survey on NELAC (Information Update #41). We received 19 responses for "Would like to join NELAC later" and six for "Would like to join NELAC now". Arizona has postponed joining NELAC.
9. Barbara J. Erickson, Ph.D., Bureau of State Laboratory Chief has accepted a request to serve as the Arizona representative in the capacity of a voting delegate on the National Methods and Data Comparability Board (MDCB). The MDCB is an Intergovernmental Task Force on Monitoring Water Quality, formed to respond to the United States' Office of Management and Budget's (OMB) mandate to review and evaluate national water quality monitoring activities and develop recommendations for improvement. The MDCB was charged to develop a voluntary integrated, nationwide monitoring

strategy and establish the framework and the forum for comparing, evaluating and promoting monitoring approaches.

The MDCB consists of 15 voting delegates, up to 15 alternates, and an undetermined number of non-voting technical workgroup members representing all of the geographic areas of the United States. The MDCB will have equal representation among Federal, State, and Tribal governmental agencies as well as others interested in monitoring issues. This Board enjoys the full support of the United States Environmental Protection and the United States Geological Survey agencies.

To assist Dr. Erickson in representing the issues of environmental laboratories accurately, it would be highly beneficial if you respond to the following survey.

10. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: February 18, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #43
IMPORTANT: This update contains dated information regarding the implementation of SW-846 Update III.
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. SW846 Update III has been promulgated by the Arizona Laboratory Licensure. All the licensed laboratories will be given a transitional period until May 1, 1998 to bring the new methods on line in their laboratories. During this transitional period both the new as well as current SW846 methods are acceptable for compliance testing. After May 1, 1998, only the "current promulgated method" listed in the May 1997 SW-846 Method Status Table found in Update III will be acceptable for compliance testing of solid waste samples.
 - a. If the methods that are being requested for certification are new methods in Update III, enclose a check for \$69.00 per each GC method, \$91.00 per each GC/MS method and \$20.00 each for other methods, to the Arizona Department of Health Services along with requests for certification.
 - b. If the methods that are being requested for certification are different revisions of the methods your lab is already certified for, just send in a request for certification of revised methods. There are no additional fees for the certification of revised methods.
2. We have received requests for setting up a "Round Table Discussion" to clarify the criteria of 8000B in SW846. Are there any other topics of discussion you are interested in? Fax your requests to Training @ (602) 255-1070 or (602) 255-3462.
3. Sixty six radionuclide methods for drinking water testing, promulgated by EPA on March 5, 1997, have been promulgated by the Arizona Laboratory Licensure. Labs can send in their requests for certification.
4. Method 380-75WE for fluoride testing in drinking water has been promulgated by the Arizona Laboratory Licensure. Labs can send in their requests for certification.
5. Jane DeRose-Bamman of Arizona Department of Environmental Quality (ADEQ), Water Permits

Section, Mining Unit, requested that we include the following information in the Update. Aquifer Water Quality Standards (AWQS) are maximum contaminant levels which must be met in aquifers (ground waters) of the State of Arizona to protect public health and the environment. The Arizona Aquifer Water Quality Standard (AWQS) for thallium is 0.002 mg/L. Analytical results from various laboratories recently submitted to ADEQ, Water Permits Section (WPS), show that the detection limit achieved for thallium was 0.005 mg/L. The WPS would like information about laboratories which are able to routinely measure thallium at or below 0.002 mg/L. Remember, under Arizona Laboratory Licensure Rules, a standard must be included in the calibration curve at a level corresponding to the reporting level. Laboratories which can report 0.002 mg/L or lower for thallium should e-mail this information to derose-bamma.jane@ev.state.az.us.

6. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: March 16, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #44
IMPORTANT: This update contains dated information regarding the upcoming ELAC meeting and a round table discussion of Method 8000B from SW-846 Update III.
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. The training office is organizing a round table discussion on EPA method 8000B "Determinative Chromatographic Separations" on March 27th between 1 - 4 pm. This method was recently promulgated as part of SW-846 Update III. This is being held at the Arizona State Hospital (ASH) premises, 2500 E. Van Buren, at the Training & Education building, Rooms 4 & 5 (tel. 220-6049). Enter ASH at Van Buren and go north through the guard gate and at the intersection make a left. The Training & Education building is to the right on "C" street between 1st and 3rd streets. The building has a sign which reads "Speciality Clinic, Class Rooms, Medical Library". There is plenty of parking available. Please call Cristy Finan @ (602) 255-3454 for registration.

2. **Correction to Update #41, item #2 on 8015AZ:**

Arizona Department of Environmental Quality (ADEQ) will accept only 418.1AZ through March 31, 1998 for the compliance testing of petroleum hydrocarbons in soil. After March 31, 1998, beginning April 01, 1998, ADEQ will accept only 8015AZ for compliance testing of petroleum hydrocarbons in soil.

3. **Microbiology collection bottles sterility failure:**

Manual for the Certification of Laboratories Analyzing Drinking Water, fourth edition, chapter V, section 4.2.2, details a procedure to perform a random sterility check on micro sample containers. The Arizona Laboratory Licensure accepts the sterility certifications from the vendors and does not require this sterility check to be performed by the laboratories.

Some laboratories play it safe and choose to perform this sterility test procedure on collection bottles. The data collected from these laboratories who perform random sterility checks, the following lot numbers of Corning sterile 4 oz collection bottles, showed growth in 25 ml sterile non-selective broth

upon incubation at 35 ± 0.50 C.

Lot #s: CO-081796, 090796, 051797.

Be aware of this problem if you use sample containers with these lot numbers.

4. **The requirements for the evaluation of interelement spectral interferences.** (We would like to thank Mr. Ted Martin, EPA Cincinnati, for his assistance.)

The interference effects must be evaluated for each individual instrument whether configured as a sequential or simultaneous instrument. This must be repeated whenever instrument conditions change such as in the torch, nebulizer, injector or plasma. Spectral overlaps may be avoided by using an alternate wavelength which is free of spectral interference or can be compensated for by equations that correct for interelement contributions. When interelement corrections are applied, there is a need to verify their accuracy by analyzing individual Spectral Interference Check (SIC) solutions, daily or weekly. Following is an outline for the ICP spectral interference check routine. Please refer to individual methods for more details.

EPA 200.7, Rev. 4.4, May 1994.

- a. Preparation of single element SIC solutions of interfering elements to determine if the spectral overlaps exist.
 - i. Prepare single analyte solutions of each interfering element at 100 mg/L or upper LDR. The interfering element should be spiked at a high enough level to cover the interferences for the whole range of matrices normally analyzed.
 - ii. Table 2, shows interfering elements normally seen at the wavelengths suggested in Table 1.
- b. Analyze the individual SIC solutions prepared above and determine the presence of the possible interferences.
 - i. A presence of positive or negative concentration of the analyte of interest that is outside the upper or lower control limits of the calibration blank is considered an interelement spectral interference (10.4). The upper and lower control limits are determined by running 10 consecutive calibration blanks on a single day (this can be repeated over several days) then calculating 3 Standard Deviation (SD) using data from all the days' runs. The upper limit is the laboratorys' IDL.
- c. If no interferences are found for all the analytes of interest, this interference check study needs to be performed annually.
- d. If only finished drinking waters are analyzed and if they are known not to contain interfering elements ≥ 10 mg/L, this interference check study need only be done annually.
- e. If positive or negative interferences are found, the frequency of the verification of the correction factors is determined as follows:

- i. If multiplying the correction factor by 10, yields a number that is outside of the upper or lower control limits of the calibration blank (as calculated in section b.i.), then the correction factors for those interfering elements need to be checked daily. For iron and aluminum multiply the correction factors by 100.
- f. Protocol for the verification of the correction factors.
 - i. Run applicable individual SIC solutions at concentrations listed in section 7.13.1 if the wavelengths from Table 1 are used. For alternate wavelengths, consult vendors or appropriate references (section 16.0).
 - ii. Multiply 50 (or the appropriate concentration of the individual SIC solution) by the correction factor and divide by 10, to yield a value "x". Run individual 50 mg/L (or appropriate concentration) SIC solution to determine the apparent concentration of the element of interest and subtract the calibration blank value. If the resulting number you get is outside of (+ "x") and (- "x"), then a shift of more than 10% of the correction factor has occurred. Determine the cause for the shift and update the correction factor.
 - iii. If on 5 consecutive days, the correction factors do not change by more than 10% (as calculate per section f.ii), then the correction factors need only be checked weekly.
 - iv. If your instrument does not read negative numbers, fortify 1 mg/L of the analyte of interest (which had a reading of zero) to 50 mg/L of interfering element. Determine if the resulting concentration is below 0.95 mg/L (5%) and if so, update the correction factor.
- g. For instruments with no correction routine or if you do not want to use the correction factors, do the following: If the interfering elements are present at ³10 mg/L in the sample, run individual applicable SIC solutions at the concentrations determined in the sample matrix (7.14). If the resulting interference is ³10% of the concentration of analyte of interest, the analyte must be tested using either an alternate wavelength free of interferences or by another approved method.
- h. If your instrument manufacturer claims their technology is not subject to spectral interferences and they claim that the spectral interference check is not required to be performed, contact the EPA for written verification and written approval.

EPA 6010B

- a. All the criteria for 200.7 are applicable to this method with the following exceptions:
 - i. Interelement corrections need to be verified semiannually (section 3.1.9).
 - ii. Sections f.ii; f.iv & g, can be within 20% (3.1.9).
 - iii. 6010B requires that sequential instruments be verified of the absence of spectral interference by scanning over a range of 0.5 nm centered on the wavelength of interest for several samples (3.1.7).

Calculation of correction factors

This is for your information only. Most of the ICP instruments will do the correction routine automatically, if the applicable values are entered.

- i. The correction factor applied to the samples is the concentration of the apparent trace analyte divided by the interfering element concentration (of the single analyte solution).
 - ii. The Correction Routine, applied on each sample, requires that the correction factor be multiplied by the concentration of the interfering element and the adjustments be made to the concentration of analyte of concern (see 6010B, section 3.1.4 for an example).
 - iii. Therefore, in order to apply a correction factor, the instrument requires that interfering elements be determined along with the trace analytes for each sample.
5. The next quarterly ELAC (Environmental Laboratory Advisory Committee) meeting will be held in Casa Grande on April 23, 1998. ELAC is an advisory committee to the Director of the Arizona Department of Health Services. It consists of members representing a variety of environmental disciplines and the members are selected by the Director. The ELAC committee advises the Director regarding the adoption of the Laboratory Licensure Rules and other issues affecting environmental testing laboratories. The quarterly meetings are free and are open to the public. If you are interested in attending, please call Lorraine Burrige @ (602) 255-3454 for registration.
6. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: April 2, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #45
IMPORTANT: This update contains information regarding the transition of 418.1AZ to 8015AZ. This is different from the ones published in the earlier Updates due to the new resolution made amongst ADEQ staff. This clarification should be the final interpretation from ADEQ regarding the transition of 8015AZ.
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. Please see attached the statistical data of 8015AZ blind PE study conducted in conjunction with ERA in January and February of 1998. 18 results were acceptable for gasoline (purge and trap) and 18 were acceptable for C₆-C₃₂. Letters of certification status have been faxed to those labs who participated in this study. A successful completion of all the criteria specified in Information Update #41 dated January 23, 1998 is a requirement for certification.

Arizona Laboratory Licensure is working with ERA to set up custom blind samples for both gasoline purge and trap and C₆-C₃₂. These blind samples will be ready in about 3 weeks. They can be ordered from ERA anytime and there is no deadline to comply with. Please call Michael Blades of ERA @ 1-800-372-0122 to order these blind samples. An initial acceptable completion of blind sample(s) is(are) required for certification of 8015AZ in addition to the completion of the criteria specified in Information Update #41 dated January 23, 1998.

2. The next quarterly ELAC (Environmental Laboratory Advisory Committee) meeting date has been changed to April 30, 1998 from April 23, 1998 (See information Update #44, item #5 for details).
3. Arizona Laboratory Licensure has received a written clarification from the Arizona Department of Environmental Quality (ADEQ) for the applicability of 418.1AZ and 8015AZ methods for compliance testing in Arizona. Please see the following memo dated April 1, 1998, received from Michele Robertson of ADEQ.

"On January 12, 1998, method 8015AZ became an ADHS-approved analytical method. A transition

period through the end of March allowed an opportunity for environmental laboratories to obtain certification for this new method. Method 418.1AZ was used during the transition period for purposes of determining compliance with the soil remediation standards. Now that method 8015AZ is widely available, ADEQ is clarifying the appropriate use of the two analytical methods because they are not interchangeable and the results are not comparable.

Effective April 1, 1998, method 8015AZ is the laboratory analytical method required by ADEQ to determine compliance with the Soil Remediation Standards Rule (A.A.C. R18-7-201 et seq.). The Soil Remediation Standards Rule became effective on December 4, 1997 and lists "hydrocarbons C10 - C32" soil remediation levels (SRLs) in Appendix A to the rule. Method 8015AZ is necessary to quantitate the listed range of hydrocarbons. (Note: There is no SRL representing the range of hydrocarbons between C6 - C9. Individual SRLs for BTEX or PAHs also apply if those contaminants are present).

Prior to December 4, 1997, the Interim Soil Remediation Standards Rule (Interim Rule) was in effect and some soil remediation activities may be continuing under the Interim Rule. The Health-Based Guidance Levels (HBGLs) apply to those soil remediations under the Interim Rule. To ensure consistency between site characterization and remediation activities conducted under the Interim Rule, laboratory analytical method 418.1AZ should be used to verify compliance with the Total Petroleum Hydrocarbon (TPH) HBGLs. Please refer any questions to Michele Robertson (207-4415) or Don Richey (207-4129)."

4. Recently the Office of Laboratory Licensure received an inquiry regarding our policy on the use and certification frequency of eppendorf pipets. We checked with different offices within the EPA for guidance on this issue. We received various answers regarding the acceptability of using eppendorf pipets and their calibration. We were unable to find definitive criteria in any of the EPA documents we reviewed with the exception of SW-846, 7000A. Therefore the Office of Laboratory Licensure has established the following criteria:
 - a. When eppendorf pipets are used for the preparation of either the primary or secondary standards and class A pipets are used for the preparation of the other set of standards then the following calibration criteria must be used:
 - i. The eppendorf pipets must be calibrated at least quarterly.
 - ii. The eppendorfs pipets must be calibrated to within $\pm 2\%$ of the set value.
 - iii. Eppendorfs used over a range of settings must be calibrated at the highest and lowest settings used.
 - b. When eppendorf pipets are used for the preparation of both the primary and secondary standards the following calibration criteria must be used:
 - i. The eppendorf pipets must be calibrated on the day the standards are prepared.
 - ii. The eppendorfs pipets must be calibrated to within $\pm 2\%$ of the set value.
 - iii. Eppendorfs used over a range of settings must be calibrated at the highest and lowest

settings used.

- c. When using SW-846 Atomic Absorption methods the following criteria must be followed:
- i. "The accuracy of automatic pipets must be verified daily." {see 7000A (rev.1), section 4.6}
 - ii. The Eppendorfs pipets must be calibrated to within $\pm 2\%$ of the set value.
 - iii. Eppendorfs used over a range of settings must be calibrated at the highest and lowest settings used.

For results of the 8015AZ BLIND PE STUDY from March 1998, please contact the Office of Laboratory Licensure.

5. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Technical Support Hot-Line 1-800-592-0374

Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: May 1, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #46
IMPORTANT: This update contains a reminder regarding the implementation of SW-846 Update III.
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. This is to remind all the Arizona Licensed Laboratories that as of today, May 1, 1998, SW846 Update III has been adopted by Arizona Laboratory Licensure. As of today only the methods listed in the "current promulgated method" column of the May 1997 SW-846 Method Status Table found in Update III and any methods which have received Director approval (e.g. 8015AZ) will be acceptable for compliance testing of solid waste samples in Arizona.

Please make sure you have sent in a request for certification to Arizona's Office of Laboratory Licensure and have performed all the initial method validation before testing samples for compliance by these methods (for payment of fees please see "a" and "b" below).

The existing application form has not been revised to include the Update III methods so please write in the methods which you are requesting.

- a. If the methods that are being requested for certification are new methods in Update III, enclose a check for \$69.00 per each GC method, \$91.00 per each GC/MS method and \$20.00 each for other methods, to the Arizona Department of Health Services along with requests for certification.
 - b. If the methods that are being requested for certification are different revisions of the methods your lab is already certified for, just send in a request for certification of revised methods. There are no additional fees for the certification of revised methods.
2. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources

and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: June 4, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #47
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. On March 27, 1998 Arizona's Office of Laboratory Licensure and Training held a round table discussion with representatives from the environmental laboratories on Method 8000B. During the meeting several issues came up which needed further clarification. We contacted the Methods Information Communication Exchange (MICE) line to help clarify these issues. Their answers (A) are given below.

Q. Section 7.8.2, line 7 states "when employing external standard calibration, it is necessary that a calibration verification ... bracket the sample analyses." What if you are running internal standard calibration?

A. The end of shift calibration verification is not necessary when using an internal standard, since the responses for the internal standard themselves can be examined and evaluated.

Q. Section 7.10.4.1 states "If one result is significantly higher (e.g. >40%), ..." Is 40% meant to be the level at which the reporting criteria in 7.10.4.2 is triggered?

A. The 40% criteria is the cutoff. The intent of this specification was that if the difference is >40%, and no chromatographic problems were found, then the laboratory would report the higher number.

Q. The last paragraph of Section 7.7, states "If the calibration does not meet the 15% limit...check the instrument operating conditions ... restore them to the original settings" What is allowed in restoring the original settings before a new calibration curve would have to be generated?

A. Restoring the settings means resetting the temperature program, flow rates, elution

gradient, etc., to the original settings used for the initial calibration. Some changes can occur to flow rates, etc., that will affect the calibration. This section does NOT mean that the lab can replace a GC column, clean the source, etc., without recalibration. It simply means that the analyst should recheck the settings and make reasonable adjustments to return them to "normal" without the need to recalibrate completely. There is some guidance on when the initial calibration must be repeated in Sec. 8.2.5.2. The items in that section should NOT be reset without recalibration. Sec. 8.2.5.1 provides examples (and only examples) of things that do not require recalibration automatically. Taking the instrument apart does NOT qualify, as a rule.

Q. Section 7.7.6, 3rd paragraph, line 6 states "... if the standard analyzed after a group of samples exhibits a response for an analyte that is above the acceptance limit, i.e., > 15%, and the analyte was not detected in any of the previous samples during the analytical shift, then the sample extracts do not need to be reanalyzed..." Is this the only situation where the verification standard can be outside the acceptance criteria and the previous samples do not need to be reanalyzed?

A. The short answer is "no." There are probably other instances in which it would not be necessary to rerun a group of samples. Another example would be when the samples are all above the upper limit of the calibration range, thus requiring dilution before useful data can be obtained. They might be "rerun" at a dilution, but it would not make sense to rerun the original extracts without dilution just because the calibration verification standard was a bit off.

2. We've noticed that the 600 and 8000 series methods only make recommendations regarding the running of trip blanks (EPA refers to this as field reagent blanks). The Arizona Office of Laboratory Licensure has adopted the requirements found in the Technical Notes on Drinking Water Methods, October 1994. These requirements are:

"If a water sample is contaminated with an analyte, verify that it is not a sampling error by analyzing a field reagent blank. The results of these analyses will help define contamination resulting from field sampling, storage and transportation activities. If the field reagent blank shows unacceptable contamination, the analyst should identify and eliminate the contamination."

3. The laboratories are uncertain about the steps to be taken to add a method not listed in the Licensure Rules or to add a specific analyte not listed in the reference method, to their license. A detailed narrative can be found in the Environmental Laboratory Licensure Rules, Section R9-14-608, B, Approved Methods and References. Address the petition to Steve Baker, Program Manager, Environmental Laboratory Licensing.
4. Per Jim O'Dell of USEPA, Cincinnati, there is a typographical error in the 40 CFR, Part 136.3, List of Approved Inorganic Test Procedures, Table 1B for Waste Water parameters.

#31. Kjeldahl Nitrogen-Total (as N), mg/L: Digestion and distillation followed by:.....351.3 or SM 4500-NH₃ B or C.

The SM method should read as 4500 N_{ORG} B or C.

5. For Methods 8260B and 8270C, all parameters of interest must be included in the 12 hour calibration verification standard. Since these methods only have acceptance criteria for CCCs and SPCCs the following Arizona Environmental Laboratory Rule applies for all other compounds and will be enforced.

Section R9-14-613, B9 states " If a laboratory tests for a parameter for which quality control acceptance criteria is not specified, the laboratory must statistically develop limits from historical data. The mean and standard deviation for a minimum of twenty points, excluding statistical outliers, must be determined. The limits shall be no more than 3 standard deviations from the mean and shall be in the detectable range".

6. We have received several questions regarding the quantitation requirements for N-Nitrosodiphenylamine by 8270C. ADHS has consulted with the MICE hotline. The CCC (Calibration Check Compounds) for N-Nitrosodiphenylamine was changed to Diphenylamine because of the degradation problem. The Office of Solid Waste expects N-Nitrosodiphenylamine to be monitored as Diphenylamine. It is not necessary to have a separate Diphenylamine standard for calibration and verification. For reporting purposes, it can either be reported as N-Nitrosodiphenylamine or as a pair of N-Nitrosodiphenylamine/Diphenylamine.
7. On the following page we are requesting information and input from the laboratories who participated in the 8015AZ Blind Study or involved in the method development. The information obtained will be utilized in the revision of Method 8015AZ. Check off all that apply. Please fax the completed survey to (602) 255-1070 ASAP.
8. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: July 10, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #48
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. The Office of the Laboratory Licensure requires a laboratory to include a standard at the reporting level for multi-level calibrations. When the method specifically allows a calibration, such as in 200.7, with a blank and one standard, the laboratory should run the Reporting Level standard as a check. If the method does not specify that the reporting limit check is needed, then the laboratory must establish control limits for determining the acceptance criteria of this check. The "Manual for the Certification of Laboratories Analyzing Drinking Water", March 1997, IV-7, Section 7.2.12, and SW-846, 8000B, Rev. 2, 12/96, Section 7.4.1.2, states the reporting limit calibration standard requirement.
2. According to information we received from Cincinnati, it is acceptable to use the "Hot Block" digestion system for metal sample digestion for methods 200.7, 200.9, 6010A, 7000 series, 3113B and for mercury sample digestion using EPA methods 245.1 and 7470A. It is permissible to use the Block Digester with reduced volume for the digestion of metals, as long as the chemistry has not changed and the lab can meet the method IDC. Sample size reduction is allowed as long as the labs have enough sample digestate to complete all the required quality control.
3. There appears to be some concern in the Arizona environmental lab community as to the holding time of trip blanks. Some opinions are that the holding time for trip blanks should begin when the trip blanks are prepared in the lab rather than when field samples are taken. According to Ed Glick of EPA, Cincinnati, a trip blank has the same "life" as a sample with which they are sent. Trip blanks are of the same age as the sample set and are used to determine if the sample MAY have been contaminated in transit.
4. The easiest way to check the microbiology sample temperature upon receipt to the laboratory is to have a temperature control sample that is collected at the same time and place as the true sample and is shipped under similar conditions. Upon reaching the laboratory, this temperature control sample can be measured and the result extrapolated to the true sample. This protocol would also work for volatiles.

5. PRESENCE-ABSENCE (P-A) COLIFORM TEST FOR DRINKING WATER:

According to the "Manual for the Certification of Laboratories Analyzing Drinking Water", fourth edition, section 5.4.5, all samples which produce a non-yellow turbid culture in P-A medium must be invalidated. The laboratory must collect, or request that the system collect, another sample from the same location as the original invalidated sample. Before invalidation, the laboratory may perform a confirmed test on the total coliform negative culture and/or a fecal coliform/E.Coli test. If the confirmed test is total coliform-positive, the sample must be reported as such. If the confirmed test is negative, the sample must be invalidated.

6. Clarification for the participation in the 8015AZ PE Study for licensure: Multiple licensed labs under the same ownership may choose either of the following 2 options:

- a. Each lab can purchase a separate PE sample(s), analyze and report the results individually.
- b. One PE sample can be purchased and split among the multiple labs. Results from one lab can be reported. Each lab must analyze the PE sample individually and retain all the documentation for review during a future onsite audit. If any of the multiple labs do not pass the PE sample, licensure for that lab will not be issued until the PE study is satisfactorily completed.

7. Arizona Environmental Laboratory Licensure Rules require that a licensed lab maintain complete and current Standard Operating Procedures (SOPs) for all licensed methods. The SOPs should ensure that various people at various times perform methods in the same way. The SOPs should be user friendly, easy to follow and at a minimum consist of the following information:

- o meet all the requirements of the reference method
- o reflect all the procedures followed in the laboratory
- o list of the actual concentrations of calibration standards, check standards and spikes
- o instrumental conditions and set up
- o calculations for the quantitation of the final concentration of samples with the actual sample dilution factors which reflect the routine followed
- o requirements in R9-14-613 of the Arizona Environmental Laboratory Licensure Rules (if not included in the Quality Assurance Plan) should be included in the individual SOPs
- o preventative maintenance

8. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: August 7, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #49
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. We are planning on a series of 3 workshops over two days on September 21 and 22, 1998. These workshops will be held in Phoenix, Arizona. The September 21, 1998 workshop will be "Basic Techniques for Technicians and Entry Level Analysts". On September 22, 1998 there will be two concurrent sessions. Session 1 will be "Preparing Your Laboratory for an External Audit". Session 2 will be on "Performing Internal Audits and Surveillances Within Your Laboratory". In order to finalize this workshop, we need to find out if there is enough interest to make it financially feasible. **Please fax the attached form to us before August 14, 1998 so we can make our final plans. Since registration will be on a first come first served basis you must fax this form to us in order to be registered.** The proposed schedule for the workshop is:

Sep. 21, 1998:

Basic Techniques for Technicians and Entry Level Analysts

Audience: Technicians and Entry Level Analysts (limited to 60 people)

Cost: \$50.00 including lunch

8:30- 9:30am - Introduction: Documentation and Liability

9:30- 9:45am - Break

9:45-11:15am - Basics Techniques

11:15-12:45pm - Lunch

12:45- 2:15pm - Basics Techniques (continued)

2:15- 2:30pm - Break

2:30- 4:00pm - Peer Review

Sep. 22, 1998:

Concurrent session 1: Preparing Your Laboratory for an External Audit

Audience: Experienced analyst and first level supervisors (limited to 60 people)

Cost: \$80.00 including lunch

8:30- 9:30am - Introduction: Documentation and Liability
9:30- 9:45am - Break
9:45-11:15am - Preparing for an External Audit
11:15-12:45pm - Lunch
12:45- 2:15pm - Self Audits and Corrective Actions
2:15- 2:30pm - Break
2:30- 4:00pm - Self Audits and Corrective Actions (continued)

Concurrent session 2: Performing Internal Audits and Surveillances Within Your Laboratory

Audience: Quality Assurance Officers and Laboratory Managers (limited to 15 people)

Cost: \$150.00

8:30- 9:30am - Introduction: Documentation and Liability
9:30- 9:45am - Break
9:45-11:15am - Internal Quality Assurance Audits and Surveillances
11:15-12:45pm - Lunch
12:45- 2:15pm - Internal Quality Assurance Audits and Surveillances (continued)
2:15- 2:30pm - Break
2:30- 4:00pm - Internal Quality Assurance Audits and Surveillances (continued)

Session descriptions:

Documentation and Liability

Differences between civil and criminal trial actions; Personal and corporate liability; Negligence; Protection from liability: the Business Record Hearsay Exemption; Protection from liability: the concept of Respondeat Superior

Basic Laboratory Techniques

Significant figures and rounding; Calculations, including standard concentrations and dilution factors; Use of volumetric flasks and pipettes; Use and calibration of balances, micropipettes; Weighing on a balance; Documentation and labeling; Good laboratory practices; Representative subsampling

Peer Review of Raw Data

Specific items to review; Consistency and sample identification; Transcription errors; Completeness; Manual input and calculations; Good laboratory practices, dating and initials; Batch Quality Control - Precision and accuracy, Frequency and acceptability; Instrument performance - stability, baseline shifts, chromatography; Reasonableness and judgement calls; Miscellaneous checks; Out of control documentation

Preparing for an Audit

The drivers behind audits; The client's concern: Credibility - Measured by job performance, Measured by the on-site audit; The most common deficiencies found in audits; The corrective action system; Documentation - Bringing the QA Plan, SOP's, training records, and MDL studies up to date, Good Laboratory Practices, Chain-of-custody and physical custody; Self audit checklists - Reviewing personnel, Reviewing the

laboratory facility, Reviewing documentation; Preparing staff for the audit - Demeanor, Responding to an auditor

Self - audits and Corrective Actions

Types of audits and documentation; Reviewing the laboratory's Standard Operating Procedure against the method; Documentation - MDLs, PQLs, and reporting limits, Precision and Accuracy, Good Laboratory Practices, SOPs and QA Plans, Training files; Self-auditing checklists - Example handout, Sources for obtaining other checklists; Monitoring Quality Assurance - Use of control charts for monitoring production quality, How to choose a control chart variable, Real-time monitoring, Outliers, Benchmarking; Exercises - Audit preparedness: Acronyms in use, locating information, Review of example documentation; Corrective Action System - Checking deficiencies and corrective actions from previous audits, Corrective action forms and tracking; Data gathering and documentation for decision making

Internal Quality Assurance Audits and Surveillances

Preliminary Decisions - Goal of the audit, Project audits, systems audits, and surveillances, Interactive/consultative/ reviews vs. nonparticipative/compliance reviews; Identifying contractual vs. program/ method specific requirements; Checklists; How to audit without causing major disruptions; Following the paper trail; Observations and using your eyes; Active listening; Asking the right questions and getting the right feedback; Documentation, reports, and corrective actions; Follow up; Practice audit

Workshop Presenters:

Lorraine L. Davis, Owner of Quality by Design (QBD)

With a Bachelor's degree, studies towards a Master's degree, and a Professional Certificate in Quality Management, Ms. Davis has 16 years experience in the environmental field. She is the founder and owner of QBD, where she is responsible for all operations of the company. She has directed the company's growth since 1993 from start up to its current compliment of six full time and part time contracted staff.

Thomas Davis, Principal with QBD

Mr. Davis has a twenty-two year interdisciplinary background that includes a Master's degree, plus environmental and medical laboratory experience. As a principle at QBD since November, 1994, he is responsible for marketing, training and auditing activities, and for the final technical review of projects.

2. Recently the Office of Laboratory Licensure, Certification and Training switched to a voice mail system. If you dial our main number, (602) 255-3454, wait for the system to answer your call and then dial in the extension for the individual you want to speak to. You may also press "0" to speak to an operator. Also, you may call a consultant directly at the phone numbers listed here.
3. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: August 21, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #50
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. Clarification to the item #2, in the [Information Update 48](#), regarding the approval of "Hot Block Digesters" for 200.7, 200.9, 6010A, 7000 series, 3113B, 245.1 and 7470A for Arizona compliance testing. Our Information Update did not intend to imply that EPA Cincinnati actually approved the "Hot Block Digester", as equipment approval is not the role of EPA Cincinnati.

Arizona has determined that this equipment would be a suitable alternative to the conventional equipment, once the user has demonstrated equivalency and the procedure required in the reference method is followed. Arizona's decision is based on compliance and technical input provided by several sources at EPA.

Additionally please note, to prove equivalency for the analysis of mercury in various media, the laboratory must address two concerns:

- a. The method blanks are clean and that the digestion containers haven't contributed to any contamination.
- b. There is a concern that methyl mercury could be lost if plastic containers are used for digestion. To prove equipment equivalency, as part of the initial demonstration of equivalency, the laboratories must demonstrate method required acceptable spike recoveries with methyl mercury.

We apologize if this has caused any confusion.

2. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: September 14, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #51
RE: Clarification to item #1, [Information Update #50](#); **WARNING: Dimethyl mercury is highly poisonous! Use methyl mercury chloride as a spiking compound.**
NOTE: If any problems occur with this web site, please call 1-800-952-0374 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.

1. In the [Information Update #50](#) (dated August 21, 1998), we specified a requirement of initial spiking with methyl mercury to prove equivalency for using "Hot Block Digestor" for the analysis of mercury in various media.

Please use **methyl mercury chloride** as a spiking material, Dimethyl mercury is not soluble in water. All mercuric compounds are highly toxic. Use appropriate safety precautions while handling.

EPA provided the following recommendation for the preparation of the spiking solution. Dissolve methyl mercury chloride in 5% nitric acid (1 gram mercury standard + some deionized water + 50 mls of nitric acid. Bring it to 1 liter in deionized water).

2. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: November 16, 1998

TO: Laboratory Director and QA Manager

FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief

SUBJECT: Information Update #52

RE: EPA 5035 implementation. A Table of Contents to all the Information Updates published to date is [now available](#).

NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You.
If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training, at the Laboratory Licensure numbers/address.

1. Please note that our 1-800-952-0074 number has been changed to **1-800-952-0374**. This number gets connected to our main switch board and the appropriate extension number has to be dialed in order to be able to reach one of us. Our extension numbers were published in the Information Update #49, dated August 07, 1998.
2. Our Office has been getting many calls about the future of PE studies in Arizona. At this time, our Office has not made definite plans. The EPA is supposed to publish the guidelines for both the WS and WP alternates in the Federal Register and NIST is in the process of certifying the PE providers. Sometime in the first quarter of 1999, this Office will notify all Arizona licensed laboratories about performing the next round of PEs with a certified third party PE provider.
3. All Arizona laboratory auditors will be presenting a form to the laboratory director (or representative) upon initiation of an on-site inspection. This form is required under the new provisions of A.R.S 1034. This form details the authorities granted to the Department to perform on-site inspections, copy records and to charge fees. Also this form details the rights granted to the laboratory. This form must be signed by the laboratory director (or representative) and a copy will be given to the laboratory.
4. Our office has had many questions from the laboratories on the issue of the matrix spikes and batching for the 8000 series organic methods (reference; 8000B, Section 8.5). You should find the following clarification helpful.

For volatile water samples, a precision measurement in the form of a duplicate must be done with each 12-hour shift of analysis. This requirement can be met by either doing LCS/LCSD, MS/MSD or

sample duplicates. If the lab chooses to do a LCS/LCSD or sample duplicates, then a matrix spike must be done every 20 samples.

For volatile soil samples and other extracted samples (semi-volatiles), a duplicate must be included for the precision measurement with each extraction batch. An extraction batch is defined as a group of 20 samples or less, extracted at the same time. If more than 20 samples are extracted at the same time, then two pairs of duplicates must be extracted.

5. Our office is working with the Arizona Department of Environmental Quality (ADEQ) to bring the Arizona licensed laboratories into compliance with the holding times and the sampling containers for the EPA Method 5035.

Due to the recent promulgation of the Arizona Soil Remediation Levels (SRLs, December 1997), ADEQ anticipates that the majority of soil samples collected for VOCs will be preserved using the "High Level Concentration Sample" technique. The *Low Level Soil Samples* technique may be necessary at some sites, for example, where specific analytes of concern have SRLs below the achievable detection limit of the High Method. Please consult with your clients for their reporting limit requirements. The majority of the routine VOC soil samples can be analyzed using the *High Concentration Soil Samples* technique, with the reporting limits between 50 to 200 ug/kg. We have consulted with the EPA/MICE line regarding the use of the *High Level Soil Samples* technique for the quantitation of samples below 200 ug/kg. The staff at the EPA/MICE do not see any problem as long the state regulatory limits are met.

There are two extraction options for the *High Level Concentration Samples* technique. Field methanolic preservation of the subcore upon collection of the sample or lab methanolic preservation of the subcore collected in En Core[®] sampling devices. The En Core[™] collected samples can be held unpreserved at 4°C in the sampling device up to 48 hours before adding the extraction solvent. Enchem, the manufacturer of the En Core[®], has agreed to demonstrate the En Core[®] devices on 12/10/98 in Phoenix. Please contact Prabha Acharya @ (602) 255-3454 x221 if interested in attending. The implementation of EPA 5035 has been set for January 4, 1999.

6. The next quarterly Environmental Laboratory Advisory Committee meeting is scheduled for 12/03/98 at Casa Grande. Please call Lorraine Burridge @ (602) 255-3454 x202 for details.
7. The Technical Sub-committee of the Arizona Environmental Laboratory Advisory Committee in conjunction with ADEQ has developed a shortened standardized list for EPA Method 8260B. This consists of [58 compounds](#). 8260AZ is not a modification to the method criteria but is a shortened target analyte list for EPA Method 8260B. At a minimum these compounds should be reported whenever 8260B is requested in Arizona. The laboratories have an option to report this shortened list to their clients if it meets your client's needs. It is not required to get certification for 8260AZ, the referenced method would still be 8260B. The certification for 8260B is required to be able to report 8260AZ standardized list for compliance testing in Arizona. The clients might request additional compounds from 8260B or the complete list but at a minimum the laboratories should report this shortened list.
8. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send [e-mail](#) to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A [table of contents](#) to all the Information Updates published is also available.

Standardized 8260AZ --Analyte List

Acetone
Benzene
Bromobenzene
Bromochloromethane

Bromodichloromethane
Bromoform
Bromomethane
2-Butanone (MEK)

n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon tetrachloride

Chlorobenzene
Chlorodibromomethane
Chloroethane
2-Chloroethyl vinyl ether

Chloroform
Chloromethane
2-Chlorotoluene
4-Chlorotoluene

1,2- Dibromoethane (EDB)
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene

Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane (1,2-DCA)
1,1-Dichloroethene

cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane

2,2-Dichloropropane

1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene

Ethylbenzene
2-Hexanone
4-Isopropyl toluene
Methylene chloride

4-Methyl-2-pentanone (MIBK)
Methyl-tert-butyl ether (MTBE)
n-Propylbenzene
Styrene

1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,1,1-Trichloroethane

1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,3-Trichlorobenzene

1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl acetate

Vinyl chloride
Xylenes, Total

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Jane Dee Hull, Governor
James R. Allen, MD, MPH, Director

DATE: December 23, 1998
TO: Laboratory Director and QA Manager
FROM: Dr. Barbara J. Erickson, Ph.D., Bureau Chief
SUBJECT: Information Update #53
RE: Extension on the implementation of EPA method 5035 and promulgation of Revision 1.0 of 8015AZ.
NOTE: If any problems occur with this web site, please call 1-800-952-0074 or (602) 255-3454 and ask for Technical Resources and Training. Thank You

1. C₆-C₃₂ hydrocarbons in Soil - 8015AZ has been revised to be consistent with Arizona Department of Environmental Quality (ADEQ) Rules. C₁₀ - C₃₂ hydrocarbons in Soil - 8015AZ, Revision-1.0, dated 9/25/98, was approved by the Director of the Arizona Department of Health Services on 12/22/98. Our Office has assigned a transition period up to 2/01/99 for the implementation of this revision 1.0 for the compliance testing of C₁₀ - C₃₂ hydrocarbons in soil. The laboratories can start to use this revision 1.0 immediately. Please send in a request to include C₁₀ - C₃₂ Hydrocarbons in soil-8015AZ, Revision 1.0, to your license. If you are already licensed for Revision-0, you do not have to send in additional fee of \$69.00. If you are getting initially licensed for 8015AZ, please see the instructions in the [Information Update #41](#), dated 1/23/98. During this transitional period, our Office will accept both the revision-0 and revision-1.0. This method, titled [8015AZR1, is now available on our web site](#). Some of the major changes from the original Revision-0 are:

1. C₁₀-C₃₂ hydrocarbons are for compliance testing. C₆ - C₃₂ and C₆ - C₁₀ are not for compliance testing.
 2. Holding time for the extraction for C₁₀ - C₃₂ has been extended to 14 days and the analysis must be completed within 14 days of sampling.
 3. Minimum Reporting Limit (MRL) for Oil Range organics (ORO) has been increased from 50 to 100 mg/kg. The MRL for C₁₀ - C₃₂ is now 130 mg/kg.
2. Update on the implementation of EPA method 5035 for the extraction of volatile soil samples:

Postponement of the implementation date:

- a. The implementation date has been postponed by two months to March 1, 1999. The purpose for the postponement is to enable each program within ADEQ which chooses to employ Method 5035 for compliance purposes to adhere to the sampling requirements as outlined by method 5035 and to enable ADEQ to prepare and conduct outreach to explain the implications to its consultants, laboratories and other stakeholders.

EPA 5035 method criteria:

- a. Samples with contaminant concentrations <200 $\mu\text{g}/\text{kg}$ must be preserved using one of the following two procedures:
 - Sodium bisulfate preservative is added in the field and a Closed- System Purge-and-Trap system at the laboratory is used for analysis. This technique provides the low level reporting limits of much lower than 50 $\mu\text{g}/\text{kg}$.
 - The sample can be collected using an EnCore™ Sampler and sodium bisulfate added within a 48-hour period after sampling. The sample will be analyzed using a Closed-System Purge-and-Trap system.
 - There are a total of 14 days from the time of sampling to complete the analysis.
 - One of the above two procedures is followed if low level reporting limits of much lower than 50 $\mu\text{g}/\text{kg}$ are desired.
- b. Samples with contaminant concentrations >200 $\mu\text{g}/\text{kg}$ must be collected using one of the following two procedures:
 - A bulk sample may be collected in a vial or other suitable container (brass sleeves, glass jars/vials, etc.) without the use of a preservative.
 - The sample is preserved with methanol in the laboratory.
 - A sample collected may be field methanolic preserved.
 - There are a total of 14 days for the completion of the analysis as referenced in Chapter 4, Table 4-1, SW-846 Update III.

ADEQ can be more stringent than the method requirements:

- a. ADEQ programs have the authority to shorten the holding times, (thereby making the method more stringent), to commensurate with the project's Data Quality Objectives.

Arizona Laboratory Licensure interpretation of 5035 and the requirements (with EPA consultation):

- a. If the reporting limits desired are <200 $\mu\text{g}/\text{kg}$ (~50-150 $\mu\text{g}/\text{kg}$), methanolic preservation, either in

the field or laboratory, is permissible. The following holding times and the sampling containers criteria must be met. The samples can be field preserved with methanol or sub-cored using EnCore™ Samplers and preserved with methanol within 48 hours. The analysis must be completed within 14 days of sampling.

- b. If the reporting limits desired are 200 or >200 $\mu\text{g}/\text{kg}$, then the sampling containers and the preservation techniques are project-specific. **Please note that this is different from the requirement specified in the [Information Update #52](#).** The samples at a minimum have to be cooled @ 40⁰C immediately upon sampling and the analysis completed within 14 days from the time of sampling.
- c. If a Closed-System Purge-And-Trap System is utilized for very low reporting limits (much lower than 50 $\mu\text{g}/\text{kg}$), the samples must be field preserved with sodium bisulfate or sub-cored using EnCore™ Samplers and bisulfate preserved within 48 hours. The analysis must be completed within 14 days from the time of sampling. Sodium bisulfate preservation should not be done for samples containing individual volatile concentrations >200 $\mu\text{g}/\text{kg}$ due to analytical constraints.
- d. A clarification memo from EPA Office of Solid Waste dated 8/7/1998 on the preservation criteria, does not differentiate between <200 or >200 $\mu\text{g}/\text{kg}$. Our Office is enforcing the current promulgated version of the method 5035. The EPA Office of the Solid Waste is projecting a revision to the existing 5035 method in the spring of next year. Based on EPA's requirements of the revised method, ADHS requirements may change in the near future.

Laboratories Concerns:

- a. The method has different criteria for the sampling containers and holding times which are dependent upon both the concentrations of contaminants present in the samples and the reporting limits desired. The laboratories must be made aware of in advance as to the required technique (field methanolic/sodium bisulfate preservation or laboratory methanolic/sodium bisulfate preservation or EnCore™ sampling) and the required reporting limits (>200 $\mu\text{g}/\text{kg}$; ~ 50 - 150 $\mu\text{g}/\text{kg}$; or much lower than 50 $\mu\text{g}/\text{kg}$).
- b. ADEQ program staff must inform the contracted consultants on the requirements of the site-specific projects so the consultants can in turn instruct the laboratories. Examples of the requirements that laboratories must be made aware of for specific projects include:
 - The extent of contamination in the samples (specifically <200 $\mu\text{g}/\text{kg}$ or >200 $\mu\text{g}/\text{kg}$).
 - The type of containers the laboratories need to provide (EnCore™ vs. vials with preservatives).
 - The type of preservation required (sodium bisulfate vs methanol).
 - Communication to the laboratories of any project-specific holding time requirements.
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