



## **MODULE 6**

### **PROFICIENCY TESTING (PT) AND ROUND ROBIN PROGRAMS**

#### **6.1 PARTICIPATION**

The laboratory shall participate in AIHA Proficiency Analytical Testing (AIHA PAT) Programs, LLC, or an equivalent proficiency testing program approved by AIHA-LAP, LLC, as specified on the AIHA-LAP website and the Sections below, for all Fields of Testing (FoT)/Methods defining its scope of accreditation. Samples from the AIHA PAT Programs, LLC, or other approved proficiency testing and round robin program, shall be analyzed as specified by the program administrator, using the same preparation, analytical procedure and instrumentation combination used to test customer samples.

##### **6.1.1 Enrollment and Fees**

Laboratories participating in AIHA PAT Programs, LLC and other approved proficiency testing and round robin programs shall interface directly with the program administrators when enrolling in the programs and when paying the required fees.

##### **6.1.2 Documentation of Program Participation**

All documentation between the participating laboratory and the proficiency testing program or round robin administrator shall be retained by the laboratory for three (3) years (five (5) years for ELPAT) and shall be made available to AIHA-LAP, LLC or its agents (e.g., AAB, TAP, Site Assessors) upon request. The laboratory shall have participated and maintained proficiency in at least two (2) consecutive rounds to be considered for initial accreditation.

##### **6.1.3 Reporting of Proficiency Testing Results and PT Data Reports**

**6.1.3.1** AIHA-LAP LLC receives regular reports on the status of the participating laboratories' proficiency testing from AIHA PAT Programs, LLC.

**6.1.3.2** For other proficiency testing programs and round robins that have been formally approved by AIHA-LAP, LLC the laboratory shall provide a report of proficiency sample results in accordance with the AIHA-LAP accreditation application requirements. The proficiency testing report provided shall contain adequate information to make a determination on FoT proficiency in accordance with stated criteria.

##### **6.1.4 Proficiency Status**

**6.1.4.1** Laboratories must be proficient in the selected proficiency testing program or round robin to obtain and maintain accreditation for the applicable FoT/Method(s). Accredited laboratories shall maintain proficiency for all applicable FoT/Method(s).

**6.1.4.2** Laboratories that become non-proficient for any FoT/Method shall adhere to the procedures outlined in Module 3, Section 3.8.2. Laboratories shall also evaluate their results and take documented corrective action in the event of an unacceptable result. See Policies 2A.4.9.1, 2A.4.9.2, 2A.4.11.1 and 2A.4.11.2 on nonconforming testing and corrective actions for proficiency testing failures, including outliers.



## **6.2 PROGRAMS OFFERED BY AIHA PAT PROGRAMS, LLC**

AIHA PAT Programs, LLC offers programs that support AIHA-LAP, LLC laboratory accreditation and include the following programs: IHPAT, ELPAT, EMPAT, BAPAT, and BePAT. Laboratories using a program offered by AIHA PAT Programs, LLC to maintain accreditation for a FoT/Method(s), or to add a Field of Testing as specified in Policy 3.9, must comply with the following requirements:

**6.2.1** A laboratory seeking accreditation for a single FoT for which a proficiency testing scheme exists must participate in that PAT program to demonstrate proficiency. In addition, a laboratory wishing to accredit multiple methods within the FoT may choose to use a demonstration of competency option from Sections 6.3 or 6.4 for some or all methods for analytes not included in the scheme.

**6.2.2** When a single proficiency testing analyte category can be used to demonstrate proficiency for multiple FoTs, and the lab seeks accreditation for only one of these FoTs, the laboratory must tie that FoT to the required PAT, as listed on the AIHA-LAP website.

### **6.2.3 Use of a Single AIHA PAT Programs, LLC Category for Multiple FOTs under the Industrial Hygiene Laboratory Accreditation Program and the Environmental Lead Laboratory Accreditation Program**

**6.2.3.1** When a single proficiency testing analyte category can be used to demonstrate proficiency for multiple FoTs, and the lab seeks accreditation for these FoTs, the lab may elect to use the analyte category for this scheme to demonstrate proficiency for only one FoT, and elect to demonstrate competency for the other(s) by choosing an option from Sections 6.3 or 6.4.

**6.2.3.2** When a single proficiency testing scheme analyte category (e.g. Organics under AIHA IHPAT for GC and GC/MS and Paint under AIHA ELPAT for FAA and ICP under the single ELLAP Paint FoT) can be used to demonstrate proficiency for two FoTs/technologies/matrices, and the lab seeks accreditation for these FoTs, the laboratory may elect to tie all methods in each FoT to the Proficiency Testing. Under ELLAP, the laboratory may use a single set of ELPAT samples to demonstrate proficiency for multiple technologies within a FoT/matrix.

**6.2.3.3** The laboratory may not elect to tie more than two (2) FoTs/technologies to any single proficiency testing analyte category. For example in the AIHA PAT Programs, although Silica may potentially be used to demonstrate competency for XRD, UV/VIS and IR, no laboratory could choose to link all three FoTs to the silica proficiency testing category.

**6.2.3.4** When two (2) FoTs are tied to a single proficiency testing analyte category, the laboratory must alternate analysis of IHPAT samples between the two technology types. Under ELLAP, when multiple technologies are accredited within a FoT/Matrix, the laboratory must also alternate analysis of ELPAT samples between the technologies.



**6.2.3.5** If an accredited laboratory fails to maintain proficiency in a given PT category to which they have elected to tie two (2) FoTs/technologies, the accreditation shall be suspended for both FoTs or technologies, regardless of which FOT or technology led to the non-proficient status.

### **6.3 OTHER APPROVED PROFICIENCY TESTING PROGRAMS AND ROUND ROBINS**

AIHA-LAP, LLC reviews and formally approves other proficiency testing and round robin programs for its accreditation programs and accepts data from these “approved” programs for certain FoTs. Laboratories shall analyze all samples provided for a given scheme by the proficiency testing programs in which they are enrolled and participate. Examples of such programs are listed on AIHA-LAP, LLC’s website: [www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)

AIHA-LAP, LLC reserves the right to review and approve other proficiency testing programs and their subcontractors for conformity to ISO/IEC 17043.

#### **6.3.1 Requirements for Other Approved Proficiency Testing Programs**

In approving other proficiency testing and round robin programs, AIHA-LAP, LLC will look for the following features:

**6.3.1.1** Proficiency samples and background matrices shall resemble real-world samples to the degree possible.

**6.3.1.2** Target concentrations of the proficiency testing samples shall be appropriate for the program in which they are being applied. For example, if the samples submitted to the laboratory are for occupational hygiene purposes, the target concentrations shall be relevant to evaluation of an occupational exposure guideline.

**6.3.1.3** The units of results for reported data shall be appropriate for the type of testing performed. Reported results shall be in units appropriate to the end use of the data, such as for comparison to target standards.

**6.3.1.4** All proficiency testing programs shall conclude with a performance rating, preferably a proficient or non-proficient rating based on a common statistic or other procedure acceptable to the AIHA-LAP, LLC.

**6.3.1.5** Samples taken from reference atmospheres (laboratory or field) are preferable to samples spiked using solutions or slurries.

**6.3.1.6** Samples shall be in, or on collection media, similar to media used in the field, to the degree possible.

**6.3.1.7** All proficiency testing programs shall have at least two (2) rounds per year or as specified by the appropriate accreditation module.

**6.3.1.8** For those programs not meeting the 2-round annual minimum, the laboratory shall augment their participation with a QA program as specified in Section 6.4 below.



## **6.4 OTHER OPTIONS FOR DEMONSTRATION OF COMPETENCY**

For FoTs not covered by AIHA PAT Programs, LLC or other AIHA-LAP-approved proficiency testing provider's scheme(s), the laboratory shall demonstrate competency for a minimum of one (1) method per FoT through the implementation of one (1) of the following two alternatives.

**6.4.1** The laboratory shall participate in a round robin program designed to allow for the accreditation of laboratories that share the same key analyte(s) of interest (e.g., formaldehyde and isocyanates) and meeting the requirements of Policies 6.4.1.1 through 6.4.1.9. An independent vendor or one (1) of the participating laboratories shall generate and distribute the round robin samples to other participating laboratories. A laboratory with multiple facilities may participate as individual entities with the stipulation that samples are analyzed and reported by each facility as a separate entity. Acceptance criteria shall be determined.

Actions to be taken in the event of an unacceptable result shall be described in the laboratory's management system documentation, per Policy Module 2A.

The following are requirements for round-robin programs:

**6.4.1.1** Round robins samples shall consist of or resemble real-world samples to the degree possible.

**6.4.1.2** Round robins shall include participation of at least three (3) laboratories.

**6.4.1.3** All round robin programs shall have at least two (2) rounds per year, with each round completed within a six-month time frame.

**6.4.1.4** Each round shall include a minimum of four samples at varying concentrations. Target concentrations of the round robin samples shall be appropriate for the program in which they are being applied.

**6.4.1.5** When analysis includes subjective analyst evaluation (e.g., microscopic identification and/or quantitation) each laboratory shall have all analysts assess each round robin sample independently and shall report all individual analyst's results separately.

**6.4.1.6** The units of results for reported data shall be appropriate for the type of testing performed. Reported results shall be in units appropriate to the end use of the data, such as for comparison to target standards.

**6.4.1.7** A designated laboratory shall be responsible for data collection and distribution.

**6.4.1.8** Resulting data shall be evaluated using appropriate statistical methods.

**6.4.1.9** The laboratories shall attempt to resolve any significant differences in results among laboratories.



**6.4.2** The laboratory shall implement a comprehensive internal QC program for at least one method in the FoT. A minimum of twenty (20) QC data points shall be obtained initially to determine upper and lower control limits at three (3) standard deviations. At least twice annually, the laboratory shall prepare a minimum of four independently prepared blind spikes at varying levels with the resulting data treated as it would be in a round robin program. The spiking procedures, to include frequency, responsibility for implementation, statistical treatment of resultant data, acceptance criteria, and actions to be taken in the event of an unacceptable result, shall be fully described in the laboratory's management system documentation. The spiking must be performed on an appropriate matrix. For IH metals procedures other than those requiring analysis by cold vapor atomic absorption spectroscopy, the filter media must be spiked with solid standard materials to include the challenge of digestion. Liquid spikes are not permitted.

## **6.5 PARTICIPATION IN PROFICIENCY TESTING (PT) FOR INDUSTRIAL HYGIENE LABORATORIES**

Participation in AIHA Proficiency Analytical Testing Programs (AIHA-PAT Programs), LLC Industrial Hygiene Proficiency Analytical Testing (IHPAT) or an equivalent proficiency testing program approved by AIHA-LAP, LLC is a prerequisite to qualification under the AIHA-LAP, LLC Industrial Hygiene Laboratory Accreditation Program (IHLAP). Laboratories in the IHLAP are required to analyze samples for those Fields of Testing (FoT)/Method(s) for which accreditation is sought, according to the approved IHLAP Scope/PT Table maintained on the AIHA-LAP, LLC's website ([www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)).

**6.5.1** IH Laboratories participating in the AIHA-PAT Programs, LLC testing program (IHPAT) shall comply with the requirements stated in Section 6.2. above.

**6.5.2** IH Laboratories participating in other AIHA-LAP, LLC approved proficiency testing programs or round robins shall comply with the requirements stated in Section 6.3 above.

**6.5.3** IH Laboratories using other options (round robin or internal QC program) to meet proficiency testing requirements shall comply with the requirements stated in section 6.4 above.

**6.5.4** IH Laboratories seeking or maintaining accreditation for Compressed/Breathing Air analysis shall participate in the Compressed/Breathing Air Round Robin (CAPT) in accordance with the Protocol for Compressed Air Proficiency Testing (CAPT) Program.

**6.5.4.1** For the Compressed/Breathing Air Round Robin (CAPT), a laboratory's proficiency rating will be based on accumulated results for the last two consecutive rounds.

**6.5.4.2** A laboratory will be rated proficient if 90% or more of the accumulated results over the last two consecutive rounds are acceptable.

**6.5.4.3** Laboratories using CAPT for accreditation purposes must notify the statistical analyst of non-participation with appropriate excuse information for non-participation consistent with the accreditation organization's policies. The excuse documentation must be submitted to the appropriate accrediting organization along with the CAPT round results.



**6.5.4.4** Any issues or concerns that a participating laboratory may have regarding its proficiency rating will be handled by the CAPT group.

**6.5.5** IH Laboratories seeking or maintaining accreditation for Pharmaceutical Analyses shall participate in the Pharmaceutical Round Robin Program in accordance with the Protocol for Pharmaceutical Round Robin Proficiency Testing Program.

**6.5.5.1** For the Pharmaceutical Round Robin Proficiency Testing Program, a lab's performance rating will be based on accumulated results over two consecutive rounds (one year).

**6.5.5.2** A lab will be rated proficient if three-fourths (75%) or more of the accumulated results over two consecutive rounds are acceptable.

**6.5.5.3** Any issues or concerns that a participating laboratory may have regarding its proficiency rating will be handled by the Pharmaceutical Round Robin group.

## **6.6 PARTICIPATION IN PROFICIENCY TESTING (PT) FOR ENVIRONMENTAL LEAD LABORATORIES**

Participation in AIHA Proficiency Analytical Testing Programs (AIHA-PAT Programs), LLC Environmental Lead Proficiency Analytical Testing (ELPAT) or an equivalent proficiency testing program approved by AIHA-LAP, LLC is a prerequisite to qualification under the AIHA-LAP, LLC Environmental Lead Laboratory Accreditation Program (ELLAP). This program has adopted the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing Statistical Protocol as the ELLAP Standard. Laboratories in the ELLAP are required to analyze samples for those Fields of Testing (FoT)/Method(s) for which accreditation is sought, according to the approved ELLAP Scope/PT Table maintained on the AIHA-LAP, LLC's website ([www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)).

Laboratories participating in an AIHA-LAP-approved proficiency testing program to seek accreditation for the ELLAP shall conform to all proficiency testing requirements as outlined in this module.

### **6.6.1 NLLAP Recognition**

Analyses conducted by a laboratory in a non-proficient FoT/Method are not recognized under the NLLAP until a proficient rating is achieved. Those laboratories that are NP following a main ELPAT round while waiting on the retest shall be removed from the AIHA-LAP, LLC accredited ELLAP labs listing and the NLLAP until such time as a proficient rating is achieved. A laboratory shall not be recognized under the NLLAP for a FoT/Method for which accreditation has been suspended. When a laboratory is suspended or rated non-proficient in a FoT/Method, AIHA-LAP, LLC shall notify the laboratory that analysis conducted by that laboratory for the non-proficient or suspended FoT/Method are not recognized by NLLAP.

## **6.7 PARTICIPATION IN PROFICIENCY TESTING (PT) FOR ENVIRONMENTAL MICROBIOLOGY LABORATORIES**

Participation in AIHA PAT Programs, LLC's Environmental Microbiology Proficiency Analytical Testing (EMPAT) program or an equivalent proficiency testing program approved by AIHA-LAP, LLC is a prerequisite to qualification under the AIHA-LAP, LLC Environmental Microbiology Laboratory Accreditation Program (EMLAP). Laboratories in the EMLAP are required to analyze samples for those



Fields of Testing (FoT)/Method(s) for which accreditation is sought, according to the approved EMLAP Scope/PT list maintained on the AIHA-LAP, LLC's website ([www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)).

Laboratories participating in an AIHA-LAP-approved proficiency testing program to seek accreditation for the EMLAP shall conform to all proficiency testing requirements as outlined in this module.

### **6.8 PARTICIPATION IN PROFICIENCY TESTING (PT) AND ROUND ROBIN PROGRAMS FOR FOOD LABORATORIES**

All laboratories pursuing/maintaining accreditation in the Food Laboratory Accreditation Program (FoodLAP) shall participate in an AIHA-LAP, LLC-approved proficiency testing program as maintained on the AIHA-LAP, LLC web site ([www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)). Laboratory accreditation for each Field of Testing (FoT) shall be defined by the extent of participation in an AIHA-LAP, LLC-approved proficiency testing program. If the laboratory utilizes multiple testing technologies (or methods) for a specific FoT, then the proficiency testing samples shall be analyzed such that the proficiency of each technology (or method) used to report sample results is evaluated at least once per year. The laboratory shall participate in quantitative proficiency testing analyses, wherever available.

**6.8.1** For those laboratories seeking to obtain or maintain accreditation for a FoT under Chemistry and/or Microbiology, the laboratory shall participate in an approved, commercially available, proficiency testing program at least three (3) times per year, quarterly participation is preferred.

**6.8.2** For those laboratories seeking to obtain or maintain accreditation for an FOT under Residue Chemistry, the laboratory shall participate in an approved proficiency testing program at least two (2) times per year.

### **6.9 PARTICIPATION IN PROFICIENCY TESTING (PT) AND ROUND ROBIN PROGRAMS FOR UNIQUE SCOPE LABORATORIES**

#### **6.9.1 Participation**

All laboratories pursuing/maintaining accreditation in the Unique Scope program are required to participate in proficiency testing programs and round robins approved by AIHA-LAP, LLC. Approval is determined at time of application. The AIHA-LAP, LLC may seek input from the AAB and the TAP during this approval process and there is further review during the on-site assessment prior to accreditation. The purpose of the proficiency testing requirements is to ensure that accredited laboratories, and those seeking accreditation, meet established performance criteria.

#### **6.9.2 Demonstration of Competency**

For Unique Scope accreditation, none of the FoTs are covered by AIHA PAT Programs, LLC samples. Therefore, the laboratory shall demonstrate competency for a minimum of one (1) method per FoT through the implementation of one (1) of the following three (3) alternatives.

**6.9.2.1** Annually, the laboratory shall register and participate in a proficiency testing program. Proficiency testing samples shall be distributed, analyzed, and results reported at least two (2) times per year. For those programs not meeting the 2-round annual minimum, the laboratory shall augment their participation with a QA program as specified



in Section 6E.2.3 of this module. Laboratories shall evaluate their results and take action in the event of an unacceptable result

**6.9.2.2** The laboratory shall participate in a round robin program designed to allow for the accreditation of laboratories that share the same key analyte(s) of interest and meeting the requirements of Policy 6.4.1 above. An independent vendor or one (1) of the participating laboratories shall generate and distribute the round robin samples to other participating laboratories. A laboratory with multiple facilities may participate as individual entities with the stipulation that samples are analyzed and reported as separate participants. Acceptance criteria shall be determined. Actions to be taken in the event of an unacceptable result shall be described in the laboratory's management system documentation.

**6.9.2.3** The laboratory shall implement a comprehensive internal QC program for at least one method in the FoT. A minimum of twenty (20) QC data points shall be obtained initially to determine upper and lower control limits at three (3) standard deviations. At least twice annually, the laboratory shall prepare a minimum of four independently prepared blind spikes at varying levels with the resulting data treated as it would be in a round robin program. The spiking procedures, to include frequency, responsibility for implementation, statistical treatment of resultant data, acceptance criteria, and actions to be taken in the event of an unacceptable result, shall be fully described in the laboratory's management system documentation.