Deadline of Submission of Comments: 4-Dec-23
Document Number: ANSI/ASB Std 173
Document Title: Standard for Education, Training, Continuing Education, and Certification of Forensic Toxicology Laboratory Personnel

#	Section	Type of Comment (E-Editorial, T-Technical)	Comments	Proposed Resolution	FINAL Resolution
25	Overall	T	Inconsistent terminology throughout the document (tasks, job duties, job functions and areas).	Harmonize to one term across the entire document.	ACCEPT: Harmonized to the use of the term "duties"
13	Forward	T	Several revisions, including the phrase in the Forward "...laboratory personnel or individuals performing..." indicates BrAC calibration isn't performed by lab personnel. This is contradicted by footnote a) on page 1.	Delete the last portion of the sentence (leaving only --'This document provides minimum requirements for educational qualifications, training, competency, experience, continuing education, and certification of laboratory personnel performing, interpreting, or overseeing forensic toxicology analyses.')	REJECT: The proposed removal of the last portion of this sentence was rejected; however, a modification was made to clarify that this document is intended to apply to evidentiary breath alcohol calibration activities performed by laboratory personnel. Section 3 defines laboratory personnel.
19	Forward	T	I understand carving out an exception for consultants in the scope (since this is a lab personnel document...). However, I think the goal of standardization would be better served if a sentence was added indicating we should all meet these requirements (whether part of a lab system or not).	Add something like -- While consultants not part of a laboratory are excluded from the scope of this document, there is a stakeholder expectation that they would meet the requirements in order to provide toxicology services.	REJECT: While the proposed change was not made, the exception for consultants was removed from the scope of this document, thereby including them within the expectations of this document.
104	Foreward	T	Selection of personnel is not addressed in this document, the required qualifications are.	replace 'selection' with 'qualifications'	ACCEPT: Changed to "qualifications"
146	Title, Page 1	E	Footnote should be after Laboratory, not Personnel	Move footnote to after the word that is being qualified with the footnote (laboratory).	REJECT: Removed footnote and added an explanation to the Foreword.
14	Footnote a) (attached to title)	T	The note is foundational to this meshed document. It should be part of the document, not a footnote to the title. And calling out Breath Alcohol Calibration is awkward in this document. If 'work' is defined as testing and calibration in the beginning of the document the split throughout the rest of the document wouldn't be so divisive.	Capture the concept of forensic toxicology work to include testing and calibration activities right from the start in the document. This can be captured in either 3.9 (examples could work) and/or Forward.	ACCEPT: Added concept to both the Foreword and definition of laboratory personnel (Section 3).

147	1	T	Why would the scope not apply to consultants that are performing interpretation of results from a laboratory or other interpretive testimony? This seems a significant deficiency in the document.	Scope should include consultants that interpret testing performed, results, or other roles described in this document.	ACCEPT: The scope was modified so that consultants are not excluded. The definition of laboratory personnel includes a note that includes consultants who function as toxicologists.
43	1	T	It is not clear in the Scope what "interpeting… forensic toxicology analyses" refers to. Would this include interpeting data and results from the analyses? Or is this intended to refer to interpretive opinions? None of the defintiions for individual's roles refer to the task of "interpreting forensic toxicology analyses" so that does not help clarify the intent.	Modify the scope to clarify what type of "interpreting" is intended.	ACCEPT WITH MODIFICATION: "Interpretation" was added as a term in Section 3.
44	1	T	The scope as written limits this to only those "performing" breath instrument calibrations. This appears to align with the technician definition. However, the analyst definition covers an individual who "conducts, directs, or reviews…breath alcohol instrument calibration activities." The Toxicologist defintion appears to intentionally not apply to any breath calibration activities in the definition (3.14), but breath alcohol is included for Toxicologist in Annex A (possibly for interpreting breath test results, not instrument calibration results/instrument reliability?).	Modify the Scope to "...personnel performing, interpreting, or overseeing forensic toxicology analyses and breath alcohol instrument calibrations." Alternatively if the intent is to limit the scope to only those who perfom the calibrations, and exclude those who interpet calibration results or oversee calibration activites, then edit the analyst definition to not include breath calibration examples.	ACCEPT WITH MODIFICATION: The suggested edit was not made, but the scope was modified to clarify this point.
17	Scope	T	Several revisions, including the phrase in the Scope "….toxicology analyses, as well as anyone…" indicates BrAC calibration isn't performed by lab personnel. This is contradicted by footnote a) on page 1.	Revise to: This document provides minimum requirements for educational qualifications, training, competency, experience, continuing education, and certification of laboratory personnel performing, interpreting, or overseeing forensic toxicology analyses including breath alcohol instrument calibration.	ACCEPT WITH MODIFICATION: The suggested edit was not made, but the scope was modified to clarify this point.
18	Scope	T	Re:"..individuals engaged in expert consultation outside of a forensic toxicology laboratory." Why are consultants excluded from this scope? They should be expected to meet the same expectations. I understand difficulties in obtaining proficiency tests, but that's a different document. Including this 'exception' doesn't seem to support the goal of standardizing expectations.	Delete the portion related to consultants.	ACCEPT: The scope was modified so that consultants are not excluded. The definition of laboratory personnel includes a note that includes consultants who function as toxicologists.
27	Scope	T/E	"laboratory personnel that exclusively perform administrative or non-technical…"	Change to just personnel so it doesn't conflict with definition of laboratory personnel in 3.9	ACCEPT: Removed "laboratory" from this statement.

28	Scope	T	will this still apply to individual PDs for example that perform breat calibration?	articulate that it applies to any personnel performing breath alc calibrations if that is the intent	ACCEPT: The revised scope makes it clear that this document applies to laboratory personnel who perform, interpret, or oversee breath alcohol calibrations. Section 3 further defines laboratory personnel as "individuals who perform analytical or laboratory-based functions of a technical nature." A note was added that states: "Laboratory personnel include individuals who perform, interpret, or oversee breath alcohol instrument calibration duties." If Police Departments have personnel that meet this definition, this document is intended to apply to them.
96	2	E	The normative/informative sentence is quite confusing as Annexes A and B are titled "normative"	Clarify	REJECT: ASB requires this language.
97	3	E	Footnote c: "Reach conclusions"	Reaches conclusions	REJECT: The footnote was removed.
16	3.1	T	Calibration as a task is also part of general toxicology. A revision may help cement the thought that all BrAC is part of toxicology.	Revise term to: Individual who conducts, directs and reviews testing and/or calibration activities. Analysts evaluate data and reach conclusions; may sign a report for court or investigative purposes as a consequence of such examinations. The analyst may testify but does not provide interpretive opinions. Duties and responsibilities may include those of a technician.	ACCEPT WITH MODIFICATION: The suggested edit was not made, but the definition was restructured to include a portion of the proposed change.
105	3.1	E	Parentheses in definition suggests an alternative term.	move 'however named' into the definition after individual; Indivdual, however named, who conducts…	ACCEPT: Moved "however named" into the definition.
106	3.1, footnote a	E	The use of the term 'laboratory' is more than an implication, it is a referenced term.	replace 'is implied as' with 'refers to'	REJECT: The footnote was removed.
107	3.1, footnote c	E	Tense in explanation is confusing.	replace 'quantify' with 'its quantitative value'	REJECT: The footnote was removed.
108	3.1, footnote c	E	Submission of findings for review is separate from reaching conclusions.	remove 'and submit those findings for review'	REJECT: The footnote was removed.
84	3.3	E	Definition is not complete.	Should be amended to include interpretation, i.e., "… necessary to perform forensic analysis and/or interpretation successfully."	ACCEPT WITH MODIFICATION: The proposed change was not made; however, the definition was modified so that all aspects of testing and calibration activities are included.
109	3.4	E	Examples provided in parentheses should use e.g.,.	replace 'such as a' with 'e.g.,'	ACCEPT: Replaced with "e.g.,"
110	3.6	E	The examples provided at the end of the definition suggest that diploma and license are examples of abilities rather than examples of credential.	replace '(e.g., diploma, license)' with a period. Add on 'For example, diploma or license.'	ACCEPT WITH MODIFICATION: Moved the example to the beginning of the sentence as opposed to creating a new sentence.

148	3.8	E	KSAs is not necessary to be included as a definition. KSAs (abbreviation) is not used anywhere in the document. 3.16 covers the same idea without needing to include this federal government term. The definition could replace the language in 4.2.2.1.1 without adding a significant number of words and providing better clarity.	Delete from definitions.	ACCEPT: Removed from definition list.
111	3.12	E	Parentheses in definition suggests an alternative term.	move 'however named' into the definition after individual; Indivdual, however named, who conducts…	ACCEPT: Moved "however named" into the definition.
112	3.12	E	Explanation of 'evaluate data' and 'reach conclusions' would be beneficial to reader in all instances.	add cross-reference to previous footnotes b and c.	REJECT: Suggested edit was not made. Footnotes were removed.
1	3.12	T	what is meant by basic analytical functions? Would someone who simply prepares buffers, mobile phases, etc., but does not perform analytical testing, be considered a technician, or is this referring to someone who performs basic functions of testing specimens?	further description of what is meant by "basic analytical functions" OR add that the individual performs basic analytical *testing of evidence*	REJECT: Laboratories must be allowed some discretion in determining the appropriate category their employees fall within based on the provided definitions.
15	3.14	T	Note does not adequately capture difference in Toxicologist (alcohol) vs (breath alcohol)	Revise note to say "blood alcohol" and retain "breath alcohol"	REJECT: The proposed change was not made. Further clarification was added to the note.
113	3.14	E	Parentheses in definition suggests an alternative term.	move 'however named' into the definition after individual; Indivdual, however named, who conducts…	ACCEPT: Moved "however named" into the definition.
98	3.14	E	alcohol)].)]	Check brackets are correct when all changes are resolved	ACCEPT: Brackets were verified as correct.
29	4.1.1.1	E	should this read, "current employees"?	insert word, current	ACCEPT: Added "current" to the section.
94	4.1.1.1	T	"employees meet all educational srequirements contained below no later than December 31, 2033"--10 year (or less depending upon adoption of agreement) is too strict a deadline for current employees in the field. This could create a time/personal/financial hardship for individuals that as existing employees have likely (1) already demonstrated proficiency in the field and (2) are likely juggling family/career balance as it is. Depending on the deficiency (e.g. a chemistry course or two), becoming compliant could be burdensome for some recent hires or a misapplied exertion for employees scheduled to retire shortly after implementation (e.g. 2034 or 2035).	Allow acceptable certification to substitute for educational requirments for existing employees (or some combination thereof) or extend the deadline to current employees to 15-20 years, or grandfather existing employees based on demonstrated proficiency in the field and performing their work under the supervision/or direction of someone meeting the criteria.	REJECT: The deadline will be updated to coincide with 10 years after the document is published as an American National Standard. The Consensus Body believes that 10 years is sufficient time for current employees lacking in any of these elements, including educational requirements, to correct the deficiencies and meet these requirements.
114	4.1.1.1	T	The date provided seems out of scope and beyond the reach or clout of the standard or its publisher. This suggests that adoption or implementation of this standard could be done before actually meeting the requirements below. The enforcement and timeline is up to the laboratory or a body requiring such standards (e.g., state commission).	remove 'no later than December 31, 2033'	ACCEPT WITH MODIFICATION: Sections 4.1.1.2 and 4.1.1.1 were switched to clarify that new hires should meet these requirements upon publication of the standard but to allow sufficient time for existing employees to become compliant.

115	4.1.1.2	T	The enforcement and timeline is up to the laboratory or a body requiring such standards (e.g., state commission). If a laboratory is not ready to implement the standard, they simply won't - tying the requirement to the timeline of 'upon publication of this document' is not in line with the scope or purpose of national standards. 4.1.1.2 seems to exist only to call out new hires and internal promotions as it adheres to a different timeline than 4.1.1.1.	remove 4.1.1.2 in entirety	ACCEPT WITH MODIFICATION: Sections 4.1.1.2 and 4.1.1.1 were switched to clarify that new hires should meet these requirements upon publication of the standard but to allow sufficient time for existing employees to become compliant.
6	4.1.1.3	T	will ALL U.S. Degrees include the word "conferred"? wIll 10-25 year old transcripts include "conferred"? If not, then this shoulld not be a requirement. The burden is on the employer to ensure employees meet minimum requirements.	delete "to include the degree(s) conferred"	ACCEPT: This clause was not intended to require that the word "conferred" be printed, but to indicate that documentation must include information about the degree(s) awarded. The langurage was modified to reflect this.
30	4.1.2	T	Associate's Degree requirement is too stringent for this job title	past educational or work experience should be commensurate with expected job duites (e.g. electronics background)	REJECT: If an individual meets the definition of a Technician that is within the scope of this document, they will be required to have an Associate's degree in natural science, applied science, or technology within 10 years after the document is published as an American National Standard. The Consensus Body supports a 10-year deadline for current employees lacking in any of these elements, including educational requirements, to correct the deficiencies and meet these requirements.
45	4.1.2	T	As per the definition of Technician, they do not evaluate data or reach conclusions. It seems their scope of responsibility could be quite similar to tasks performed by automation. Requiring minimal science education would be reasonable as a minimum standard, but requiring they have achieved a degree goes beyond what seems applicable to their duties. Since most people pursuing a bachelors degree do not achieve an associates degree along the way, this requirement excludes bachelor students from working as techs while in school.	Modify the requirement to be a minimum number of college credits, with a minimum number of science courses.	ACCEPT WITH MODIFICATION: The section was modified to allow for an equivalent number of semester hours to substitute for an Associates degree.

142	4.1.3	T	Historical recommendations for coursework requirements were more stringent and included chemistry and/or specialized science courses beyond general and organic chemistry. We believe this additional coursework is necessary for an analyst to understand and perform their job duties.	Personnel in Analyst positions shall have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (forensic science, medical sciences) from an accredited institution and have completed general and organic chemistry courses with associated laboratory classes (accounting for at least 16 credit hours), with at least two (2) college-level courses from column A and/or column B located in Annex B.	REJECT: As a minimum standard, the Consensus Body supports individuals filling Analyst positions (as defined within this document) to have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (forensic science, medical sciences) from an accredited institution and have successfully completed general and organic chemistry courses with associated laboratory classes. Allowing for all of these degrees to fulfill the Analyst requirement can impact courses individuals may have taken to earn their degree. For example, an individual who earned a Biology degree may not have taken two courses from Annex B. Should a laboratory demand two college-level courses from those listed in Annex B, they can do so and exceed this document's requirement.
86	4.1.3	T	It is unclear why the educational requirements have been so watered down from the corresponding SWGTOX document. Agencies such as the Texas Forensic Science Commission adopted the SWGTOX standard and have the educational requirements in their law. This now creates a true dilemma for such agencies as their hiring practices have been solidifed for years. Further, courses in general and organic chemistry do not set a basic analytical chemistry foundation to understand theoretical and practical applications of tools utilized in a forensic toxicology laboratory. The new standard effectively equates the Analyst position to nothing more than that of an apprenticeship, i.e., on-the-job training, but without the proper educational foundation.	Revert back to the SWGTOX educational requirements.	REJECT: As a minimum standard, the Consensus Body supports individuals filling Analyst positions (as defined within this document) to have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (forensic science, medical sciences) from an accredited institution and have successfully completed general and organic chemistry courses with associated laboratory classes. Allowing for all of these degrees to fulfill the Analyst requirement can impact courses individuals may have taken to earn their degree. For example, an individual who earned a Biology degree may not have taken two courses from Annex B. An individual who earned a Bachelor's degree in Chemistry may not have taken a statistics course. Should a laboratory demand two college-level courses from those listed in Annex B, they can do so and exceed this document's requirement.
87	4.1.3	T	Over the pandemic, many universities and colleges withdrew the need for the laboratory component of chemistry classes due to remote learning. As such, the credit hours for many educational institutions did not equate to 4 hr/semester. While this could be a one-off situation, a general statement related to such circumstances, which could easily happen again, should be in the document.		REJECT: No proposed resolution was provided. Despite the pandemic, universities still required a minimum laboratory course hours to award degrees. Laboratory courses may have been conducted through virtual demonstrations. Nonetheless they meet the requirements of this document. The clause was modified to state: "...have successfully completed general and organic chemistry courses with associated laboratory classes", removing the minimum number of laboratory credit hours.
31	4.1.3	T	16 credit hours for analyst is the same as that required for toxicologist with the same type of courserk (gen and organic chem).	General Chem required	REJECT: Organic Chemistry is viewed as a vital course for individuals working in Analyst positions (as defined in this document). At a minimum, a Toxicologist must have at least one (1) college-level course from column A and one (1) 36-hour workshop or college-level course from column B in Annex B.

73	4.1.3. and Annex A	T	This is regarding the requirement of 16 credit hours. During the recent pandemic, mandated remote learning is affecting how some universities may apply credit hours to students towards certain coursework. Some universities may pro-rate certain lab credit hours since the labs were not completed in person and may not have added up to their criteria for a credit hour. This practice is not consistent between universities. It is negatively impacting some recent graduates. Instead of receiving a total of 4 credit hours for courses such as General Chemistry 1 and an associated lab, one example recently seen this year was that it was pro-rated to 3.67 credit hours. The adjustment of the credits do not appear to affect conference of the degree in other manners. Graduates and universities may not know that some courses within a conferred degree may also have specific credit hours requirements in order to be eligible for a specific type of job. The expectation for these required courses, General and Organic Chemistry, is that they take both a lecture and a laboratory class for levels 1 and 2 in each respective course. This set of coursework, under normal circumstances, would add up to 16 credit hours. During the time of COVID, this total may be adjusted by universities. The minor allowance for these pro-rated credit hours would off-set by the required formal training that a person must complete in order to perform their job tasks. Also Historical recommendations for coursework requirements were more stringent and included chemistry and/or specialized science courses beyond general and organic chemistry. We believe this additional coursework is necessary for an analyst to understand and perform their job duties and also be able to have the ability to grow towards the toxicology path.	Add wording in for an allowance of pro-rating for these 16 credit hours if this course work was taken and passed during the timeframe of 2019-2020. See below. Personnel in Analyst positions shall have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (forensic science, medical sciences) from an accredited institution and have completed general and organic chemistry courses with associated laboratory classes (accounting for at least 16 credit hours, which may be pro-rated if these classes were acquired during the timeframe of 2019-2020), with at least two (2) college-level courses from column A and/or column B located in Annex B.	REJECT: As a minimum standard, the Consensus Body supports individuals filling Analyst positions (as defined within this document) to have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (forensic science, medical sciences) from an accredited institution and have successfully completed general and organic chemistry courses with associated laboratory classes. Allowing for all of these degrees to fulfill the Analyst requirement can impact courses individuals may have taken to earn their degree. For example, an individual who earned a Biology degree may not have taken two courses from Annex B. An individual who earned a Bachelor's degree in Chemistry may not have taken a statistics course. If a laboratory wishes to demand more, it will exceed this document's minimum requirements. Despite the pandemic, universities still required minimum laboratory course hours to award degrees. Laboratory courses may have been conducted through virtual demonstrations. Nonetheless, they meet the requirements of this document. The clause was modified to state: "...have successfully completed general and organic chemistry courses with associated laboratory classes" removing the minimum number of laboratory credit hours.
116	4.1.3, Annex A	T	Applied science could include food science and other not so related fields of study. I agree that this is not a problem for 4.1.2 technician.	add 'i.e.,' within the parentheses	ACCEPT WITH MODIFICATION: The appropriate addition is "e.g." and was added. The exclusion of certain Applied Science degrees is not supported if the individual has met the coursework requirements.
117	4.1.4, Annex A	T	Applied science could include food science and other not so related fields of study.	add 'i.e.,' within the parentheses	ACCEPT WITH MODIFICATION: The appropriate addition is "e.g." and was added. The exclusion of certain Applied Science degrees is not supported if the individual has met the coursework requirements.

74	4.1.4., 4.1.5. and Annex A	T	This is regarding the requirement of 16 credit hours. During the recent pandemic, mandated remote learning is affecting how some universities may apply credit hours to students towards certain coursework. Some universities may pro-rate certain lab credit hours since the labs were not completed in person and may not have added up to their criteria for a credit hour. This practice is not consistent between universities. It is negatively impacting some recent graduates. Instead of receiving a total of 4 credit hours for courses such as General Chemistry 1 and an associated lab, one example recently seen this year was that it was pro-rated to 3.67 credit hours. The adjustment of the credits do not appear to affect conference of the degree in other manners. Graduates and universities may not know that some courses within a conferred degree may also have specific credit hours requirements in order to be eligible for a specific type of job. The expectation for these required courses, General and Organic Chemistry, is that they take both a lecture and a laboratory class for levels 1 and 2 in each respective course. This set of coursework, under normal circumstances, would add up to 16 credit hours. During the time of COVID, this total may be adjusted by universities. The minor allowance for these pro-rated credit hours would off-set by the required formal training that a person must complete in order to perform their job tasks.	Add wording in for an allowance of pro-rating for these 16 credit hours if this course work was taken and passed during the timeframe of 2019-2020.	ACCEPT WITH MODIFICATION: The clause was modified to state: "...have successfully completed general and organic chemistry courses with associated laboratory classes." There is no minimum number of credit hours required now.
5	4.1.5	T	"successfully" has been omitted in this description referring to completion of the 16 hours of chemistry. Other than this word, it reads exacctly as a Toxicologist requirements.	add "successfully" to mirror Toxicologisst decription	ACCEPT: Modified to include "successfully"
143	4.1.5	T	Historical recommendations for coursework requirements were more stringent and included chemistry and/or specialized science courses beyond general and organic chemistry. We believe this additional coursework is necessary for a toxicologist to understand and perform their job duties.	Personnel in Toxicologist positions shall have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (forensic science, medical sciences) from an accredited institution and have completed general and organic chemistry courses with associated laboratory classes (accounting for at least 16 credit hours), with at least one (1) college-level courses from column A and two (2) from column B located in Annex B.	REJECT: As a minimum standard, the Consensus Body supports individuals filling Toxicology Technical Leader positions (as defined within this document) to have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (e.g., forensic science, medical sciences) from an accredited institution and have successfully completed general and organic chemistry courses with associated laboratory classes, at least one (1) college-level course from column A, and one (1) 36-hour workshop or college-level course from column B located in Annex B. Allowing for all of these degrees to fulfill the Toxicology Technical Leader requirement can impact courses individuals may have taken to earn their degree. For example, an individual who earned a Chemistry degree may not have taken two courses from Annex B. Should a laboratory wish to require that two college-level courses from those listed in Annex B also be required, they will exceed this requirement.

88	4.1.5	E	The description in 4.1.5 includes reference to a 36-hour workshop. However, Table A has no such inclusion.	Add to Table A the allowance for a 36-hr course.	REJECT: Workshops are not allowed for Column A in Annex B because the material is foundational education obtained through university/college courses.
32	4.1.5	E and T	These are the same requirements as Toxicologist	meet all requirements of a Toxicologist (above). If it is not rewritten, add the word "successfully" to read "have successfully completed..."	ACCEPT: Modified to include "successfully"
118	4.1.5, Annex A	T	Coursework in statistics or biostatistics is critical to providing a foundation to understand scientific literature, correctly employ and evaluate control data, validation, measurement uncertainty, etc.	add 'at least one (1) college-level course in statistics or applied statistics'	REJECT: As a minimum standard, the Consensus Body supports individuals filling Toxicology Technical Leader positions (as defined within this document) to have a Bachelor's degree or higher in natural science (preference in chemistry, toxicology, biochemistry, pharmacology, or biology) or applied science (e.g., forensic science, medical sciences) from an accredited institution and have successfully completed general and organic chemistry courses with associated laboratory classes, at least one (1) college-level course from column A, and one (1) 36-hour workshop or college-level course from column B located in Annex C. Allowing for all of these degrees to fulfill the Toxicology Technical Leader requirement can impact courses individuals may have taken to earn their degree. For example, an individual who earned an undergraduate chemistry degree may not have taken statistics. Should a laboratory wish to require statistics for the Toxicology Technical Leader position, it will exceed this requirement. It is also noted that statistics training is a requirement of Section 4.2.2.1 for Training.
119	4.1.5, Annex A	T	Applied science could include food science and other not so related fields of study.	add 'i.e.,' within the parentheses	ACCEPT WITH MODIFICATION: The appropriate addition is "e.g." and was added. The exclusion of certain Applied Science degrees is not supported if the individual has met the coursework requirements.
50	4.2	E	The section is overly subitemed. 4.2.2 is titled "Training and Experience", but the sub headings are "Training Program" and "Ongoing Competency". There's nothing about "experience".	Update headings to 4.2 Training and Competency, 4.2.1 General, 4.2.2 Initial training program, 4.2.3 Ongoing Competency	ACCEPT WITH MODIFICATION: The suggested changes were made except for the heading change for 4.2. Section 4.2.4 was added to address experience.
20	4.2.1.1	T	1- Awkward inclusion of BrAC. 2-Doesn't provide wide enough net for competence expectations. And 3- 'technical' is not defined earlier but seems unnecessary since the scope implies technical personnel.	Revise to: The laboratory shall ensure personnel are trained and demonstrate competency in each assigned task prior to being authorized for independent work. Tasks include but are not limited to handling test and calibration items, instrument maintenance, preparation of reference material, conducting and reviewing testing/calibration activities, evaluating data, reaching conclusions, signing reports, and testimony.	ACCEPT: The suggested changes were made; however, clarification was added to help the reader understand that training and competency are only required for those tasks relevant to a given position.

24	4.2.2.1.5	T	The concept of performing supervised casework while in training is in direct conflict with accreditation requirements most labs follow. While the ASB doesn't require labs to be accredited it would be helpful to consider the reasoning behind the accreditation requirement - trainees handling evidence (test and calibration items) before they're cleared for work. Especially risky in destructive testing like general toxicology.	revise to: --practical training using surrogate test and calibration items -- period of supervised performance of tasks after competence confirmed	ACCEPT WITH MODIFICATION: The original concept of the first bullet was incorporated into an edited list. The second proposed bullet was not included, as it suggests that people who are deemed to be "competent" will not be allowed to work unsupervised. Section 4.2.3 requires ongoing monitoring of competency for those that have completed the training program.
149	4.2.2.1.1	E	Delete the terms "knowledge, skills, and abilities" and delete the definition in 3.8. Using KSAs here states that the training program shall address qualifications and experience; which is not necessary or appropriate. This can be addressed in a job description (more appropriately). Change to encompass the definition of training, which is more accurate as to what a training program must cover.	Change wording to "The laboratory shall have a documented training program which addresses the level of scientific knowledge and expertise necessary to perform job functions."	ACCEPT: The suggested changes were made.
150	4.2.2.1.2	E	Inconsistent language used here and in the header to Table 1. This section states "shall include", while the table heading is "Suggessted Training Content"	Rephrase for clarity. Consider changing "shall" in 4.2.2.1.2 to "should" to be consistent with Table 1.	ACCEPT WITH MODIFICATION: The language was harmonized between this section and Annex A. The use of "shall" was maintained. Section 4.2.2.2 states, "Training elements shall include the applicable content as summarized in Annex A."
21	4.2.2.1.2	E	Use consistent language.	Switch the term 'areas' to 'tasks' as used above in 4.2.1.1	REJECT: The proposed change was not made; however, the section was clarified, and changes were made to the Annex A headings.
23	4.2.2.1.2	E	Table 1 appears out of order	Allow table to break across the page or shift (renumber) the clauses so the clause referencing Table 1 appears with Table 1.	REJECT: The table fills an entire page so was moved to the Annex section of the document.
46	4.2.2.1.4	T	While just a list of examples, it doesn't mention internal resources.	Edit to "Sources for external training may include…".	ACCEPT: The suggested change was made.
120	4.2.2.1.4	E	There is no requirement here.	join the text from 4.2.2.1.4 with 4.2.2.1.3	ACCEPT: The suggested change was made.
121	4.2.2.1.5	E	It is unclear whether the documentation referred to here is the documentation of the defined training program or as evidence that training occurred. This assumes that 4.2.2.1.1 is the former.	if intended as the documentation of the defined training program as in 4.2.2.1.1, replace 'training program documentation' with 'documented training program' and replace 'training program completion' with 'completion criteria'. if intended as evidence that training occurred, replace 'The training program documentation' with 'Documentation of completed training'.	ACCEPT: The intent was to document the training program. The suggested applicable change was made.
122	4.2.2.1.5	T	Instructor qualifications may be not so relevant to the content being delivered. The bio of an instructor may only contain some relevant information. The combination of defined objectives in a training along with the bio of instructor is more complete.	add 'training objectives' to the list	ACCEPT: Objectives were added to the list to tie to Annex A.
123	4.2.2.1.5	T	Unclear what performance goals refers to. Performance suggests post-authorization performance of a task.	replace 'performance goals' with 'predefined criteria for successful completion' (of training) or other intended definition	ACCEPT: The list was modified to include defined criteria for successful completion.

22	4.2.2.1.5	T	It is not obvious that trainee requirements would include physical tests and acceptance criteria (e.g., do they need practical exams and how close do they need to get to the right answer).	Revise 'program assessment mechanisms' to 'program assessment mechanisms including acceptance criteria'	ACCEPT: The list was modified to include the required periodic assessment of the trainee with performance metrics to be met.
47	4.2.2.1.5, 6th -	T	"supervised casework/calibration" means very different things in different laboratories. Ranging from direct observation of each activity, to just Technical Review of the final product.	Define the minimum requirements for supervised casework/calibrations	REJECT: The requirement for supervised casework/calibrations was removed due to concerns about "unqualified" personnel performing these functions. It was replaced with "trainee requirements to include the actions required of the trainee to meet the objectives of the training program (e.g., required reading of specific literature; minimum number of surrogate test and calibration items analyzed)."
48	4.2.2.1.5	T	Is the requirement for supervised casework part of the training program, or a requirement post training to monitor a newly authorized employee?	If this is a requirement prior to training completion, suggest rewording to require the training program include mock casework/calibrations. If it is a post training monitoring activity, then clarify that timing.	ACCEPT: The requirement for supervised casework/calibrations was removed due to concerns about "unqualified" personnel performing these functions. It was replaced with "trainee requirements to include the actions required of the trainee to meet the objectives of the training program (e.g., required reading of specific literature; minimum number of surrogate test and calibration items analyzed)."
49	4.2.2.1.5	E	"Training program documentation" indicates the records of training.	Reword to "The training program shall specify:"	ACCEPT: The proposed change was made.
9	4.2.2.1.5	E	Table 1 breaks the content and makes it hard to follow	Move the table to annex	ACCEPT: The table was moved to the Annex portion of the document.
75	4.2.2.1.5	T	When conducting internal training, the qualifications of the instructor are known to the laboratory. It is only necessary to document instructor qualifications when the instructor is unknown, as is the case for external trainings.	Add "(external training only)" after "--instructor qualifications"	REJECT: Whether internal or external training, the trainer must be qualified to provide that training.
144	4.2.2.1.5	T	When conducting internal training, the qualifications of the instructor are known to the laboratory. It is only necessary to document instructor qualifications when the instructor is unknown, as is the case for external trainings.	Add "(external training only)" after "--instructor qualifications"	REJECT: Whether internal or external training, the trainer must be qualified to provide that training.
2	Table 1	T	Are all components of the suggested training content required for all positions? Training listed under "Alcohol Toxicology" and "Toxicology" should not be required for a technician or analyst and training for "Calibrating Device" should not be required for positions that are not affiliated with breath alcohol calibration	specify which training elements are required for all positions and which are required for specific positions	REJECT: Section 4.2.2.1.4 above was modified to require the training program to define the specific elements the trainee needs to learn from Annex A. This allows for different training requirements based on position classification.
54	Table 1	T	While the list of things cognitive bias may affect is not meant to be all inclusive, it should include testimony.	"...may affect testing strategies, interpretations, reporting, and testimony;"	ACCEPT: The suggested edit was made to Annex A.

89	Training Elements Table	E	For Instrumentation, "History" is listed. History of what? This has no clarity about it. "Chromatography" should also be removed as it represents only one kind of Instrumentation. Also, change the order of the list under instrumentation for better flow.	Remove the word "History" from the instrumentation element. For flow purposes, the list of suggested training content next to "Insturmentaion" should be rearranged. Delete "Chromatography." All other items currently in Instrumentation are superfluous. Change order of items in Instrumentation to: Theory; Operation; Limitations; Maintenance and Troubleshooting.	ACCEPT WITH MODIFICATION: History was removed. A more concise list of suggested training content was inserted; however, some of the proposed removals were left within the document to ensure appropriate coverage for breath alcohol testing programs.
141	Table 1 – Training Elements	T	The requirements for topics in legal training are insufficient, particularly in that they do not mention the Brady doctrine ["Legal aspects: Applicable federal, state, or local laws and rules (regulations); Case law; Terminology; Courtroom Procedures; Deposition and Courtroom Testimonies (ANSI/ASB 037 Guidelines for Opinions and Testimony in Forensic Toxicology); Legal factors related to other elements."].	Change to (quoting a recent excellent Odontology training standard): "Note: Forensic Science Service Providers should not take it upon themselves to determine the correct description of rules of evidence and case law. Instead, they should rely on legal experts, including representatives from both the prosecution and defense bar where available and willing, to determine the content of this training: a) Knowledge of civil litigation case procedures b) Knowledge of criminal litigation case procedures c) Explain roles and responsibilities d) Cite rules of evidence and case law (e.g., Daubert, Frye) e) Knowledge of Brady and other disclosure obligations in a criminal case f) Create trial exhibits g) Present sworn testimony h) Demonstrate knowledge of professional ethics i) Demonstrate knowledge of proper sworn testimony and the ethical limitations of allowable testimony j) Demonstrate knowledge of the ethical creation of trial exhibits k) Describe the importance of confidentiality" [note that the LTG recognizes that it may be difficult to find representatives of both the defense bar and prosecution to conduct trainings, and are open to suggestions from the SDOs as to what would be most helpful to labs; the point is to ensure neutrality in presentation of these issues as much as possible.]	ACCEPT WITH MODIFICATION: Annex A is intended to be a general overview of the required elements of a training program and contains some examples. Most of the commenter's proposed additional elements are already covered within the other 13 portions of the table) or other parts of the document (Section 4.2.2.1.4). Adding the proposed level of detail to only the legal portion of training would not make sense, so all 14 training elements would also need to be expanded. This is different than the intended purpose of this table. It should be noted that efforts are underway within the OSAC to develop specific legal training requirements for FSSPs so that this document will remain a minimum requirement. A change was made to section 4.2.2.1.4 which specifies that the training program must define the instructor qualifications that, minimally, include competency and area(s) of expertise for specific training elements. This includes instructors providing legal training.
124	Table 1	E	It is unclear in this table whether the parenthetical content are 'i.e.' or 'e.g.,'.	Add to table header "examples, not exhasutive, are listed in parentheses" or add to 4.2.2.1.2 where Table 1 is first introduced.	ACCEPT WITH MODIFICATION: Instead of the proposed solution, "e.g.," was added to the examples in Annex A.
125	Table 1	E	Redundant 'security' listed in list.	Edit "Safety and security" to read "Safety (…); Security".	ACCEPT: The proposed change was made.
126	Table 1	T	History of instrumentation is not critical, though the theory and limitations certainly are.	Remove "History" and move "Theory" to the beginning of this list.	ACCEPT: The proposed change was made.

127	Table 1	E	Chromatography and Mass Spec are examples of instrumentation, not elements of training content.	replace 'Chromatography' and 'Mass Spectrometry' and move 'Theory' to the beginning of the list	ACCEPT WITH MODIFICATION: Chromatography was removed, but mass spectrometry remains to highlight the importance of ANSI/ASB 098 Standard for Mass Spectral Analysis in Forensic Toxicology.
103	4.2.2.1.6.	E	The training program shall be reviewed for relevancy, efficacy, and content at an interval established by the laboratory.	Consider suggesting min/max intervals. Otherwise as written, a lab could review their training program at 20-year intervals.	ACCEPT: The section was modified to require reviews no more than every two years. This frequency forces laboratories to stay abreast of changes in the training topics and may help identify areas for supplemental training of qualified personnel.
51	4.2.2.2.1	T	This does not add any value, it's duplicative of 4.2.2.2.2. They both require the lab to evaluate ongoing competency.	Remove 4.2.2.2.1, or combine anything important with 4.2.2.2.2	REJECT: These are not duplicative, as suggested. Instead, they are two separate requirements: a) ongoing evaluations of competency shall be conducted, and b) how this must be accomplished
52	4.2.2.2.2	T	There are lots of ways to demonstrate ongoing competency, recommend the examples be expanded on to provide more assistance to labs beyond just PTs. There's already a separate standard requiring PTs.	add other examples such as retesting, observation audits	ACCEPT: The suggested addition was included.
53	4.2.2.2.2	T	PTs are already required by Std 153. This standard should require conformance to Std 153, but also provide other ideas to the user of mechanisms beyond just the minimum PT requirement, since PTs are limited in their ability to test over competency of an individual.	State that ongoing competency be assessed through PTs in accordance with Std 153 (and make that a normative reference)	REJECT: This document is not intended to address individual proficiency test requirements. ANSI/ASB Std 153 addresses proficiency testing for laboratories. A future document may address individual requirements.
151	4.3.1	E	No requirement is listed. This is informational and should not be numbered as a subsection.	Delete 4.3.1 - move text under 4.3 as no requirement is listed. Renumber following subsections.	ACCEPT: The suggested edit was made.
26	4.3.2.2	T	Section 4.3.3 requires minimum CE, so the wording of this clause places the burden on employees. Why is it a 'labs should allocate…'? U.S. Labs performing DNA are required to provide the CE credits, forensic toxicology should expect the same.	Revise the 'should' to a 'shall'. (Laboratory management shall allocate financial resources and provide support, time, and/or opportunities for continuing education and professional development.)	ACCEPT WITH MODIFICATION: The sentence was modified to require laboratory management to provide financial support, time, and/or opportunities for continuing education and professional development.
55	4.3.3	T	The requirement for external CE on an annual basis is unnecessarily burdensome on laboratories. External CE is important, but the minimum number of external hours should be required within a multi-year time frame (e.g. 3 years or 5 years). This would allow laboratories more flexibility to meet the requirements.	update each sub section to allow for the minimum hours of external CE to be accomplished over a mutli-year period.	REJECT: Given the vast number of external training opportunities offered through free options (e.g., webinars) coupled with the value of obtaining training from experts outside one's laboratory, these requirements for external CE seem reasonable. The requirement was reduced to only 0.25 units per year.
152	4.3.3	E	It is confusing and somewhat misleading to call these CE "hours" here and in Annex A (as well as all of 4.3.3). It is especially misleading in Annex A where CE hours is presented without clarification. Both ABFT and ABC use the term points which is more accurate. ACCENT (AACC) uses credits.	Change to CE points	ACCEPT WITH MODIFICATION: A change was made to CE Units but not to CE points as proposed.

56	4.3.3	T	The standard is unnecessarily strict by mandating the CE on an annual basis. An annual average over a 3 year period (for example) is much more realistic and allows labs flexibility, especially in meeting the external mandates. This would still meet the intent of ensuring people in the field stay current, while allowing managers flexibility to balance the cost and time to meet the standard. This was previosuly recommended and the comment adjudication stated "the field of forensic toxicology is so diverse that annual CE is necessary to stay current in the field." That may be relevant to a toxicologist level postion in a full service tox lab, but is defenitely not applicable to an analyst in a breath calibration program or to a technician with a limited job function. Since this is a "minimum" standard for individual personnel, the time frame should not be set based on a person involved in all the diverse areas of the field.	Revise the minimum CE requirements to be met over a multiyear time period (e.g. 3 years) instead of making it an annual requirement.	REJECT: Given the vast number of external training opportunities offered through free options (e.g., webinars), and the reduction in the requiremnt to 0.25 CEUs, this should be easy to meet.
33	4.3.3.2	T	6 CE hours is not necessary	Suggest 2 CE with 1 CE being external	ACCEPT WITH MODIFICATION: The requirement was reduced to 1.5 units.
57	4.3.3.2	T	This is excessive as a minimum standard for a technician. Due to the limited job duties (does not interpret data or reach conclusions), finding 6 CE hours per year of material relevant to the job function is not reasonable. The hours should be reduced and it should allow for things to be outside their job function.	Reduce the requirement, min of 3 hours is recommended.	ACCEPT WITH MODIFICATION: The requirement was reduced to 1.5 units.
58	4.3.3.2	T	This is excessive as a minimum standard for a technician. Due to the limited job duties (does not interpret data or reach conclusions), finding 6 CE hours per year of material relevant to the job function is not reasonable. The scope of applicable CE should be expanded to beyond their job function and allow for general topics or professional development that would allow them to move up form their current job function.	"…relevant to job function or forensic toxicology, or toward other professional development in the field (e.g. promotion).	ACCEPT WITH MODIFICATION: The proposed change was made; however, the parenthetical was removed.
76	4.3.3.2.	T	Regarding to 1 CE hour being obtained from external sources: Some smaller laboratories do not have the financial support to be able to acquire this type of external education for their staff. If utilizing the current stated CE hours for the type of CE acquired in section 4.3.4.2, they would need to attend a four, one hour lectures. Most outside sources do not have presentations that are that long. Normal presentations are usually for an hour, unless you are attending a conference. While some larger laboratories have enough staff with appropriate expertise to be able to provide CE's internally. Larger labs may have staff that is already presenting lectures at seminars. The mandate to require external sources may be both burdensome and unnecessary dependent upon the laboratory.	Delete the requirement to have at least 1 CE being from an external source.	REJECT: Given the vast number of external training opportunities offered through free options (e.g., webinars) coupled with the value of obtaining training from experts outside one's laboratory, these requirements for external CE seem reasonable. The requirement was reduced to only 0.25 units per year.

77	4.3.3.3.	T	Regarding to 2 CE hours being from external sources: Some smaller laboratories do not have the financial support to be able to acquire this type of external education for their staff. If utilizing the current stated CE hours for the type of CE acquired in section 4.3.4.2, they would need to attend a four, one hour lecture. Most outside sources do not have presentations that are that long. Normal presentations are usually for an hour, unless you are attending a conference. While some larger laboratories have enough staff with appropriate expertise to be able to provide CE's internally. Larger labs may have staff that is already presenting lectures at seminars. The mandate to require external sources may be both burdensome and unnecessary dependent upon the laboratory.	Delete the requirement to have at least 2 CEs being from an external source.	REJECT: Given the vast number of external training opportunities offered through free options (e.g., webinars) coupled with the value of obtaining training from experts outside one's laboratory, these requirements for external CE seem reasonable. The requirement was reduced to only 0.5 units per year.
34	4.3.3.3	T and E	8 CE hours is not necessary	Suggest 4 CE with 2 CE being external--add in "CE" before hours	ACCEPT WITH MODIFICATION: The requirement was reduced to 2 units with 0.5 being from external sources. "CE" was added before.
7	4.3.3.3, 4.3.3.4, 4.3.3.5	T	Some states require "licensing" and/or certification.	Should read "to maintain their certifcation/license" for each of these three categories	ACCEPT: Suggested edit was made.
59	4.3.3.3, 4.3.3.4, 4.3.3.5	T	Since certification bodies differ in CE requirements, and those requirements are not subject to public comment and due process like a standard, the minimum requirements in this standard should not allow for certification requirements to be a replacement.	Remove "sufficient to maintain their certification or"	ACCEPT: The suggested modification was made.
35	4.3.3.4	T	16 CE hours is not necessary	Suggest 8 CE with 4 CE being external	ACCEPT WITH MODIFICATION: The requirement was reduced to 4 units, with 1 being from external sources.
78	4.3.3.4.	T	Regarding to 4 CE hours being from external sources: Some smaller laboratories do not have the financial support to be able to acquire this type of external education for their staff. If utilizing the current stated CE hours for the type of CE acquired in section 4.3.4.2, they would need to attend a four, one hour lecture. Most outside sources do not have presentations that are that long. Normal presentations are usually for an hour, unless you are attending a conference. While some larger laboratories have enough staff with appropriate expertise to be able to provide CE's internally. Larger labs may have staff that is already presenting lectures at seminars. The mandate to require external sources may be both burdensome and unnecessary dependent upon the laboratory.	Delete the requirement to have at least 4 CEs being from an external source.	REJECT: Given the vast number of external training opportunities offered through free options (e.g., webinars) coupled with the value of obtaining training from experts outside one's laboratory, these requirements for external CE seem reasonable. The requirement was reduced to only 1 unit per year.
79	4.3.3.5.	T	It is appropriate for someone in a leadership role to be required to obtain CE's from an outside source.	Concur	REJECT: No suggested edit.
36	4.3.3.5	T	16 CE hours is not necessary	Suggest 8 CE with 4 CE being external	ACCEPT WITH MODIFICATION: The requirement was reduced to 4 units, with 1 being from external sources.

60	4.3.4.1	T	This clause does not add value. Section 4.3.3 already mandates external sources, it seems irrelevant to add a statement that it should also include internal sources.	Remove the statement	ACCEPT: Removed this sentence.
61	4.3.4.2	E	The statement says "the following are…" but all the examples appear to be part of the NOTE rather than the actual clause.	Format or reword appropriately	ACCEPT: The section was modified to move the note below the list of activities.
67	4.3.4.2	T	Is membership and/or volunteer service in a professional society considered applicable professional development? Certification bodies often include these activities as a way to earn CE points. If that would also be applicable to this standard, then suggest adding it since it is a common way to earn credits.	Add membership and/or service in professional society as an example, with applicable CE hours. (If the comment is accepted, it is further suggested to then add an example of the records to 5.4.2)	ACCEPT WITH MODIFICATION: Membership in a professional society will not be included in this list due to concerns that simply being a member may not be sufficient to meet the intended requirement. A new clause was added to make it clear that laboratories are expected to define what can be considered as CE and Professional Development for their employees. If a laboratory decides that professional society membership is sufficient, this document allows it. The document was also modified to allow for serving on a scientific committee or working group to earn some CE and Professional Development hours.
62	4.3.4.2	T	This is a useful list of examples. Suggest indicating if the examples would count toward the external CE requirements. For some that is not obvious, e.g. is publishing a scientific article considered internal or external? It is based on internal information, but peer review allows for external influence and the end product benefits others external to your lab. Same with presentations.	Add information about the CE being applicable to the external requirements or not.	ACCEPT WITH MODIFICATION: A new clause was added for the laboratory to decide if training is considered internal or external.
38	4.3.4.2	T	What about other activities that don't fall underf these categories? Perhaps being a ;ead scientist in a laborfatory and being in charge of method development?	Suggest a means for evaluating other non-listed activities	ACCEPT: A new section was added that indicates the laboratory shall define activities that may be counted toward continuing education and professional development activities, the appropriate number of CE hours assigned to each activity, the quality of participation required to receive credit, and whether the activities count as internal or external sources of training.

80	4.3.4.2	T	The amount of CE given for attending and participating is comparatively low from standard practice of CEs. In order for a technician to acquire 6 CE and an analyst to acquire 8 CE hours by attending seminars, lectures, classes, they would need to attend 24 and 32 hours of seminars, lectures, classes respectively. That is financially burdensome to a laboratory to have staff out for this timeframe and also to pay for more seminars, classes, lectures since it is not a 1-1 ratio. Most sources that provide this type of training, class, etc. already provide a certificate of completion that states the amount for CE's. It is usually a 1 CE for 1 contact hour while actively attending or participating in some type of learning. For instructing and mentoring, the normal amount of CEs given is twice as much as the contact hour. This is due to the amount of preparation work gone into getting ready to instruct or mentor compared to only attending or participating in the CE. A standardized time of 5 CEs for an audit is not related to the actual time spent on an audit. Audits can range from a few hours to many days depending upon the size of the laboratory(system).	Strike the conversion of CE/contact hour. Follow that 1 CE/contact hour and allow the judgement of time be relative to the time spent during the acquisition of the education and not arbitrary times.	ACCEPT WITH MODIFICATION: A new section was added that indicates the laboratory shall define activities that may be counted toward continuing education and professional development activities, the appropriate number of CE units assigned to each activity, the quality of participation required to receive credit, and whether the activities count as internal or external sources of training. In general, forensic toxicology activities are awareded 0.25 CE units per contact hour.
41	4.3.4.2	T	There is no mention of licensing bodies in this document. Was it intential? At least in Texas, the licensing body (Texas Forensis Science Comission) also dictates CE hours.	Add a reference regarding licensing bodies	ACCEPT: Reference to licensing bodies was included.
90	4.3.4.2	T	The hours listed per activity seem arbitrary and perhaps in conflict with certifying bodies. For example, what is the justification for 0.25/contact hour for participating as a visiting scientist. Why would an in spection be worth 5 CE hr/inspection when an inspection can last days? While the intention may be just examples, individuals will view these hours as gospel.	Remove actual hours next to each example.	REJECT: This section is meant to recommend the appropriate number of CE units based on common activities; however, a new section was added that indicates the laboratory shall define activities that may be counted toward continuing education and professional development activities, the appropriate number of CE hours assigned to each activity, the quality of participation required to receive credit, and whether the activities count as internal or external sources of training. Further, the NOTE allows certifying and licensing bodies to assign different values for each activity.

95	4.3.4.2	T	There appears to be a large inequity between the number of contact hours assigned to instruct a seminar, lecture, or class (1 CE per contact hour) vs. attending the same seminar, lecture, or class (0.25 CE per contact hour). Presumably the instructor is already and expert in the content area, so while the time committment to develop the seminar is greater than the time invested by the attendee, the educational value is greater for the attendee than the instructor.	Increase the amount of CE per contact hour earned by attendees to seminars, lectures, etc.	REJECT: The time spent researching and developing educational content can be significant and thus worthy of earning more CE units than the individual learning the content. The four-fold difference is conservative compared to what is typically offered to academia. A new section was added that indicates the laboratory shall define activities that may be counted toward continuing education and professional development activities, the appropriate number of CE hours assigned to each activity, the quality of participation required to receive credit, and whether the activities count as internal or external sources of training. Further, the NOTE allows certifying and licensing bodies to assign different values for each activity.
128	4.3.4.2	E	There is no requirement here.	join the text from 4.3.4.2 with 4.3.4.1	REJECT: The section was reworded to clarify the recommendation within this clause.
129	4.3.5	T	Many continuing education and professional development activities do not have assessment mechanisms.	remove 'an assessment mechanism' from the list and replace it with a NOTE to say something to the effect of 'While often not readily available, assessment mechanisms can decrease subjectivity and increase confidence in efficacy of such activities and are encouraged.'	REJECT: A note was added to assist in establishing assessment mechanisms.
3	4.3.5	T	No all CE's provide an assessment mechanism. For example, most online webinars (RTI, AAFS, etc.) provide a certificate of attendence, but there is no formal assessment such as a quiz	remove "an assessment mechanism"	REJECT: A note was added to assist in establishing assessment mechanisms.
39	4.3.5	T	Official records of completion of the activities--how does one document mentoring since it is suggested activity in 4.3.4.2?		REJECT: No suggested change; however, a note was added to provide examples of assessment mechanisms.
130	4.4	E	Certification as described in 4.4.1 is a component of professional development and is yet a separate section to 4.3 Continuing Education and Professional Development.	move 4.4 to become 4.3.6	ACCEPT WITH MODIFICATION: The sentence was removed from the document, as the CB agreed it caused confusion.
131	4.4	E	Certification as described in 4.4.1 is a component of professional development and is yet not included in 4.3.5 Components of … Professional Development Activities. Understandably these are different uses of the phrase 'component' but can be confusing.	move 4.4 to become 4.3.6 and replace 'a component' to 'a form'	ACCEPT WITH MODIFICATION: The sentence was removed from the document, as the CB agreed it caused confusion.
132	4.4.1	E	The definition of certification in 3.2 may be more helpful here than the second and third sentences.	replace the last two sentences with: Through third party written assurance, certification provides forensic stakeholders the ability to quickly identify those who have successfully completed a host of requirements, including agreement to a code of ethical conduct.	REJECT: The sentence was modified.
37	4.4.1	E	Use of "clinical toxicology"--only time it is mentioned in document as it is not singled out in scope	suggest removing it	ACCEPT: The reference to clinical toxicology certification was removed.
133	4.4.1	E	There is no requirement here.	remove numbering	ACCEPT: The numbered clause was removed.
153	4.4.1	E	No requirement is listed. This is informational and should not be numbered as a subsection.	Delete 4.4.1 - move text under 4.4 as no requirement is listed. Renumber following subsections.	ACCEPT: The numbered clause was removed.

63	4.4.1 and 4.4.2	T	The title and scope of the document clearly apply to forensic toxicology. Further, all the CE requirements in 4.3.3 (besides technician) only allow for CE to be earned "relevant to forensic toxicology". But now the certification section adds that clinical toxicology is applicable in this standard.	Reword both clauses to just state "Minimum standards for certification requirements…". This would then allow users to determine if the certification is "relevant" or "commensurate with job duties" as required in other sub sections of 4.4.	REJECT: The sentence was removed.
154	4.4.2	E	No requirement is listed. This is informational and should not be numbered as a subsection.	Delete 4.4.2 - move text under 4.4 as no requirement is listed. Renumber following subsections.	ACCEPT: Section 4.4.2 was deleted.
134	4.4.2	E	There is no requirement here.	remove numbering	ACCEPT: Section 4.4.2 was deleted.
139	5	E	font sizes of numbering and text are inconsistent. See font size of the numbered list 5.4.5 vs. 5.5.	make font size consistent	REJECT: The font is correct according to ASB instructions.
136	5	E	References to other sections do not exist or ar incorrect. See 5.2.1, 5.2.2., 5.3.1, 5.4.5.	replace static references with internal document references and refresh before publication	ACCEPT: Sections are appropriately reference.
10	5.2.1	E	Laboratories may not be able to meet this requirement if they have specific policies or requirements that they are unable to control	Include wording such as "unless otherwise required by state statue, regulation, or law."	ACCEPT: The suggested language was added to this section.
81	5.2.1.	T	Training records shall permanently be maintained. This is burdensome and inappropriate for a laboratory to keep files permanently. Training is an ongoing process and these documents are constantly being collected. Once an employee is no longer with a company there should be no burden to the company to permanently keep these files.	Update the wording to: Training records that demonstrate an employee's completion of the requirements of the laboratory's training program shall be maintained while the person is employed at this laboratory.	REJECT: Retention of training records should be independent of how long a person is employed with the laboratory, as inquiries about their training may occur after their employment has ended. The time that cases may take to move through the legal process may necessitate record submission to a court well after the individual has left the laboratory.
42	5.2.2	E	Regarding "records showing progress", it is related to a progress of each training module or a progress of the entire training program?	Clarify "progress"	ACCEPT: Added the word "through" to make it clear that progress is for completion of training modules. Completion of training modules leads to overall completion of the training program.
155	5.2.2	E	As defined ksas is not appropriate here and does not add anything to the text. Formatting needs to be corrected as there are two open parenthesis and one closed. Section 4.2.3.1 does not exist.	Revise text to -"results of assessments, including initial competency tests (Section 4.2.1.1);"	ACCEPT WITH MODIFICATION: The referenced section was corrected.
99	5.2.2	E	(including initial competency tests (Section 4.2.3.1) of	Insert missing bracket	ACCEPT: Added closing bracket.
100	5.2.2	E	casework or breath alcohol instrument calibrations (e.g., memorandum).	Incorrect font used	ACCEPT: Font was changed.
91	5.2.2	E	Last hash mark needs to be rewritten. As written, it means the employee has to give authorization.	Change to "Agency authorization for an employee to perform…"	ACCEPT WITH MODIFICATION: Changed to "Laboratory authorization…"
135	5.2.2	E	Two fonts exist in the third bullet.	make font consistent	ACCEPT: Font was changed.

64	5.2.2, 2nd-	E	missing a closing parenthesis	Add ")"	ACCEPT: Closing bracket added.
65	5.2.2, 3rd-	E	"or breath alcohol instrument calibrations" appears to be a different font	check font and correct is applicable	ACCEPT: Font was changed.
11	5.3.1	E	Laboratories may not be able to meet this requirement if they have specific policies or requirements that they are unable to control	Include wording such as "unless otherwise required by state statue, regulation, or law."	ACCEPT: The suggested language was added.
101	5.3.1	E	Records shall be maintained for at least seven years that demonstrate an employee's completion of ongoing competency	Not sure what this means - competency testing only required for the first seven years of employment? Competency testing needed for all years of employment but records only need to be maintained for the first seven? Records only need to be retained for seven years? Something else?	REJECT: No solution was proposed. The section was rewritten.
157	5.3.1	E	Section 4.2.3.2 does not exist	Change to 4.2.2.2	ACCEPT: The appropriate section was referenced.
137	5.3.2	E	(s) is not necessary within an e.g.	remove parentheses around (s)	ACCEPT: Removed parentheses.
138	5.3.2	E	grammatical edit for the third bullet	revise to say 'remediation when the expected outcome is not achieved'	ACCEPT: Corrected the third bullet.
68	5.3.1 and 5.4.5	E	Section 5.3 puts the records retention as the first subsection, section 5.4 puts it as the last requirement. Suggest consistency.	Move 5.4.5 to the first subsection, or move 5.3.1 to the last subsection.	REJECT: The documentation retention for 5.4 reads better at the end of the section.
102	5.4.1	E	"count toward the minimum number of required CE hours listed in Annex A."	Also cite section 4.3.4.2 here?	ACCEPT: The reference to the CEU requirements in Section 4.3.2 was included.
156	5.4.1	E	CE hours is misleading as applied in this document.	Revise to points or credits	ACCEPT WITH MODIFICATION: The term was changed to "CE Units" throughtout the document.

66	5.4.2	T	There doesn't seem to be a need to call out JAT CE certificates. Other journals may do that too and it doesn't seem to add value to be specific to JAT in the examples. None of the other examples cite a particular orgnaization's record that is provided.	Remove JAT specific reference	ACCEPT WITH MODIFICATION: Restructured sentence so that JAT is an example for this bullet.
82	5.4.2.	E	The first sentence states "activities include". The way that it is inferred is that the full list would be required when some of the list is as applicable to the type of activity it is. An example is that not all continuing educations are a course and therefore would not have a course syllabus.	Add the wording "as applicable" in the open sentence.	REJECT: The proposed change would create confusion. These are examples of what may be appropriate to include, but there are no required documentation that **must** be included.
92	5.4.4	E	Awkward.	Eliminate "in which such" and replace with "that"	ACCEPT WITH MODIFICATION: The sentence was modified differently than suggested.
93	5.4.5	T	Why 7 years? That seems too long especially since relevant certifying bodies require on-line uploading of proof of individual claimed CE.	Replace 7 years with 2 years.	REJECT: To maintain consistency with document retention of the above sections and in recognition that not all are required to be certified, the 7-year document retention policy seems appropriate.
83	5.5.1.	E	The first sentence infers that all certificates would contain all of the listed information. What is provided would vary dependent upon the provider. Allow the flexibility for the information that is/not provided on the certificate.	Add the wording "as applicable" in the open sentence.	REJECT: An acceptable certification body will be accredited under ISO/IEC 17024 (as stated in Section 4.4.3) and issue a certificate, letter, or card with the listed requirements.
69	Annex A	T	The scope for "Analyst" does not include breath instrument calibration.	Update Scope to be consistent with 3.1.	ACCEPT: The document's scope was updated to ensure it included breath alcohol instrument calibration.
70	Annex A	E	Training and Experience/Tech Leader - requires 3 years expereince as a Toxicologist. This is the only requirement in the table that is not also stated in the Requirements section of the standard. Since this is a normative reference, that is ok, but seemed inconsistent to just have one thing not in both places.	Consider adding the 3 years experience requirement for the Tech Leader in section 4.	ACCEPT: Added a section to specify the required experience to serve as a Technical Leader
71	Annex A	T	The titles all include "Breath Alcohol" but the other parts of the document are very specific to "breath alcohol instrument calibration". The breath calibration work is spelled out for Technician 3.12 and Analyst 3.1, however the Toxicologist 3.14 definition does not refer to breath calibration duties. Is Annex A referring to a Toxicologist interpreting breath alcohol test results? Or should breath instrument calibration work be added to their definition in 3.14? The duties may include those of an Analyst, but that doesn't make it clear what a Toxicologist level scope is related to breath.	Clarify the role (if any) for a Toxicologist related to breath instrument calibration, either in Annex A and/or 3.14.	ACCEPT: The Annex includes a statement "Individual, however named, who provides factual information, interpretations, and opinions related to the results of toxicological tests for court or investigative purposes. Duties and responsibilities may also include those of an analyst." The Analyst position description includes a reference to breath alcohol instrument calibration.

72	Annex A	T	The job titles refer to "(breath alcohol, blood alcohol, and drug tox)". Most forensic tox labs include other specimens in besides blood for alcohol testing (e.g. serum, plasma, vitreous, etc). The non-breath alcohol scope should not specify the matrix. Also, the other parts of the standard are specific to only instrument calibration for breath - and intentionally leave out the testing part.	Modify to "Breath Alcohol Calibration, Alcohol Toxicology, and Drug Toxicology"	ACCEPT WITH MODIFICATION: The headings under the titles were deleted, as the concept is evident throughout the rest of the document.
40	Annex A	E	edit duties	add "alcohol calibration" in between breath and laboratory	ACCEPT: Suggested edit was made.
4	Annex A	T	Technical leaders should not need to have prior experience providing interpretive opinions. As long as the tehnical leader has experience as an Analyst, and the laboratory deems them qualified, they can serve as a technical leader with or without the ability to interpret toxicology results for court purposes	Training/experience for a technical lead should be 3 years of experience performing independently as an ***Analyst***	REJECT: The consensus opinion is that a Technical Leader fulfilling the duties as described in this document needs to have been a Toxicologist for 3 years prior to assuming the TL duties.
8	Annex A	T	Is a Technician allowed to perform breath alcohol calculations and technical review with no course work required and an associates degree?	Breath Alcohol Calibrations and Technical Reviews should only be performed by those meeting the minmum requirements for analyst position	REJECT: The document does not suggest that a Technician can perform breath alcohol calculations or technical reviews.
12	Annex B	T	Column B has a workshop equivalent to the applicable courses listed while Column A does not	Consider adding a workshop equivalent to Column A similar to what is already in place for Column B	REJECT: Workshops are not allowed for Column A of Annex B because the material is foundational education obtained through university/college courses.
145	Annex B	T	The Analytical Science Courses listed in Column A assume consistent coursework names across educational institutions. This could be overly prohibitive.	Include disclaimer from SWGTOX on the page with Annex B: "The courses below serve as examples of acceptable courses in accredited colleges or universities. This list is not meant to exclude similar courses with similar content bearing different titles."	ACCEPT WITH MODIFICATION: A modified version of the disclaimer was added to the document.
140	Annex C	E	Two fonts exist.	make font consistent	ACCEPT:
85		E	Technician definition is not completely deleted.	Remove entire definition.	REJECT: The section this proposed change refers to is unclear, but the Technician definition in Section 3 is correct.