ASB Std 136, Forensic Laboratory Standards for Prevention, Monitoring, and Mitigation of DNA Contamination
28-Sep-20

#	Section		Type of Comment	Comments	Proposed Resolution	Final Resolution
27	overall		T	Title, foreward, and scope should be modified to indicate this is aimed at laboratories doing human ID testing. Some points are in conflict with wildlife standards already issued. As wildlife laboratories target non-human organisms, and detection of contaminationg human DNA is easy, the contaminatioon-control needs of wildlife labs are different than those in human labs.	Modify title, scope, and foreward to clarify this is meant for human labs.	Accept
158	General		E/T		Consider replacing policy with protocol in places where policy is used throughout the document. "Policy and protocols" can also be substituted for places where "policy" is used only.	Accept with modification: Section 4.4.2 was modified and "protocol" was added.
96	General		T	clarity needed throughout document for use of words to define items, samples, evidence, etc. vs. extracts, profiles or amplified product (e.g., Foreword, last line of paragraph 4, change "sample" to "DNA profile"; 4.1.4 - what is the difference between "items" and "samples" and 4.2.3 - "evidence" and "sample"?)	review entire document for clarity and consistency in use of words for item, sample, DNA extract, profile, amplified product, etc.	Accept
128	General		T	There is nothing about the environmental conditions for the examination area. Is it okay to have a ceiling fan blowing on an examination area? Open windows to the street? Is it okay to have light fixtures or an AC Unit that is not decontaminated? The way it was written will create a sequal to the phantom of Heilbrun.	Add requirements about environmental condtions.	Accept: Added 4.1.6
129	General		T	Who in the laboratory is ultimately responsible for ensuring the contamination procedures? Is it the lab director? I think it is helpful to define a person who's job it is to make sure that eh contamination procedures are followed.	Add requirement specifying that a laboratory shall have protocol indicating who has responsibility for ensuring that the contamination procedures are followed, e.g., the lab director or tech leader.	Accept: requirement added under section #4.
43	Title		E	The standard only applies to forensic laboratories that analyze human DNA. It is not applicable to other DNA laboratories (e.g. Wildlife) where human DNA contamination is not an issue. The title should reflect that this is a standard for human DNA forensic laboratories.	Change title of document to: Human Forensic Laboratory Standards for the Prevention, Monitoring, and Mitigation of DNA Contamination or Forensic Laboratory Standards for the Prevention, Monitoring, and Mitigation of Human DNA Contamination	Accept
93	Title		E	should Standards be singular?	delete "s" to have singular "Standard"	Accept
150	Foreword		T	Standard 136 "includes provisions for Rapid DNA analysis performed in the laboratory." By including "Rapid DNA analysis," Standard 136 clearly suggests that the OSAC is approving laboratory use of rapid on crime scene samples. Standard 136 should not ratify Rapid DNA analysis in this way.	Remove Rapid DNA analysis from Standard 136, and reiterate SWGDAM's position that, "Rapid DNA technology is not currently suitable for crime scene samples . . . ."	Reject: Standards are needed for forensic laboratories performing rapid DNA on reference samples.
94	Foreword		E	the last half of the last sentence in the first paragraph is unnecessary; non-laboratorys could embrace this standard; no point is saying they shouldn't. Laboratory is used throughout the requirements so that is already covered.	delete the whole last sentence of the first paragraph since unnecessary	Reject: This standard is not applicable to police booking stations using rapid DNA.
95	Foreword		E	comma between "donor" and "can be" in 3rd paragraph breaks up the flow of the sentence	delete comma	Accept
139	Foreward		E	"Defining limitations of the interepretation methods	this defination is too broad. Insert examples such as probablistic genotyping and other examples of interpretation methods.	Reject: This comment is not relevant for this document Std 136.
44	Foreword paragraph 1		E	As above, the Foreword needs to reflect that this is a standard for human DNA forensic laboratories	This document discusses the standards required for a laboratory conducting PCR-based analysis of human DNA to limit, to detect,	Accept with modification: "human" was added to the title, foreword and scope.
45	Foreword paragraph 2		E	As above, the Foreword needs to reflect that this is a standard for human DNA forensic laboratories	Some, but not all, contamination events in human casework and database samples can be detected.	Accept with modification: "human" was added to the title, foreword and scope.
1	Foreword, 2nd paragraph, 2nd sentence		E	Awkward sentence	remove 'the transfer of DNA from' Would then read '…including but not limited to individuals such as first responders….'	Accept with modification: This sentence was rewritten.
2	Foreword, 2nd paragraph, 2nd sentence		E	Awkward sentence	add 'and' or 'or' ….'first responders, laboratory personnel, or crime scene technicians…'	Accept with modification: This sentence was rewritten.
3	Foreword, 2nd paragraph, 3rd sentence		E	clarify that lab personnel is a given?	…the use of elimination databases that contain not only the DNA profiles of laboratory personnel, but also of first responders including….'	Accept with modification: This sentence was modified.
4	Foreword, 3rd paragraph		E	can' is used twice in a way that does not work	change to 'software capabilities that can assist in…..can also be useful…'	Accept with modification: This sentence was modified.

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46	Foreword paragraph 4		E	As above, the Foreword needs to reflect that this is a standard for human DNA forensic laboratories	While contamination has always been an issue in forensic laboratories, the sensitivity of testing instrumentation and methods in use in human forensic DNA	Accept
47	Scope		E	As above, the Scope needs to reflect that this is a standard for human DNA forensic laboratories	This standard provides requirements for limiting, detecting, assessing the source of, and mitigating DNA contamination as applied to PCR-based DNA analysis conducted within a human DNA forensic laboratory (i.e. casework and DNA database).	Accept
22	1		E	limiting and mitigating mean the same thing; mitigating more specific for DNA contamination	Replace with "mitigating, detecting and assessing the source of...."	Reject: Limiting and mitigating are two different words used to describe the purpose of this document.
5	3.1		E	Wordy	remove 'the location of' to read 'present at the crime scene' Also not sure why 'crime scene' is hyphenated	Reject with modification: this definition was edited in its entirety.
33	3.2		T	The definition of contamination appears to be too broad for purposes of this standard. Contamination can only be controlled after law enforcement has control of the evidence.	Restrict the definition of contamination to exogenous DNA introduced after law enforcement has dominion and control of the evidence.	Accept with modification: The word "responders" is now used instead of "law enforcement". Also, this definition was updated.
48	3.2		T	The definition of contamination appears to be too broad for purposes of this standard. The measures and controls set forth in this document can only be implemented after law enforcement has control of the evidence. To have a definition of contamination broader than that confuses the issue, and dilutes the meaning of the word.	Restrict the definition of contamination to exogenous DNA introduced after law enforcement has dominion and control of the evidence. To try and draw a line elsewhere confuses the issue of what is contamination and what is transfer.	Accept with modification: The word "responders" is now used instead of "law enforcement". Also, this definition was updated.
53	3.2		T	You cannnot distinguish between drop-in and contamination. Drop-ins ARE contamination - period. Separating these two identical ideas (adventious DNA in the sample) invites laboratories to mis-classify their issues and avoid the label of contamination	Change the definition to what it should be: drop-ins are contamination with one allele or possibly two alleles in two loci. A double drop-in is obviously a full profile of a contaminant at the locus. The concept of three (3) alleles not being contamination is wishful thinking and simply providing an excuse for the laboratory to avoid labelling the result as contamination,m which it is.	Reject with modification: This definition was updated and drop-in is no longer reffered to within this definition. Drop- in is still distinguished from contamination in the document (see drop-in definition in section 3).
97	3.2		T	contamination can occur from DNA extract to DNA extract or amplified product tube/well to another tube/well but not addressed in the definition clearly	Recommend using the OSAC lexicon definition that includes all possibilities (Exogenous DNA or other biological material in a DNA sample, PCR reaction, or item of evidence; the exogenous DNA or biological material could be present before the sample is collected, or introduced during collection or testing of the sample.)	Reject: This definition was modified but it does not mimic the OSAC's lexicon.
6	3.2 note		E	Awkward sentence	make consistent with Foreword comments above for 2nd paragraph, 2nd sentence	Accept with modification: The note was deleted.
54	3.3		T	An important missing control is the substrate control - an area of the evidence without visible stain. This control is vital for a number of reasons, scientifically more than anything, as formally one cannot associate an observed profile with the stain without knowing what the background DNA is on the object or fabric. This type of control used to be collected but for some reason is currently neglected. Its use as a control for claiming, or not, that contamination is present, is obvious.	Include the concept of taking and processing a substrate control into the process for DNA profiling from fabric, in particular, and include this in your document.	Reject. For the purpose of this document, substrate controls are not useful in assessing and determining contamination.
140	3.3		T	Number 2. In the context of probablistic genotyping, the accumulation of test data within the laboratory to demonstrate that established parameters, software settings, formulae, algorithums....	Neither STRMix or True Allele provide alogorithms for their software. This section should provide that algorithums be provided access granted so that there is compliance with this section.	Reject: This recommendation is unfortunately outside the scope of this document.
7	3.3 3rd paragraph ( )		E	Wordy	remove 'observed', to read '...may impact the results from samples...'	Accept with modification: 3rd paragraph has been reworded to read as a definition.
8	3.4 sentence 3		E	Refer reader to 3.8	Internal validation studies (see 3.8) follow...' (or similar)	Reject: "developmental validation" was deleted from section #3.
55	3.4		E	Basically restates the definitions in current ISO and FBI QAS documents. Adds little or nothing to the issue of contamination	Remove	Accept
149	3.5		T	When you write, "A DNA elimination database cannot detect all forms of contamination," it sounds like a cop-out. The more comprehensive the database is of individuals who might be in the vicinity of the sample, the more helpful the database will be. And if distributions of likelihood ratios are produced of all of the profiles in the database, contamination in the form of minor profiles might see the light of day.	Amend the last sentence to read, "A DNA elimination database cannot detect all forms of contamination, but with DNA profiles of first responders including law enforcement and medical personnel, and with the production of likelihood ratio distributions for elimination database profiles, more contamination can be detected."	Accept
56	3.5		T	The elimination DNA database needs more detail: specifically those individuals who should be (shall be, in your language) in the database. Currently most laboratories do not have a comprehensive elimination DNA database and the only way to rectify this is to specify who shall be (your wording) be included.	All personnel who had contact with the crime scene or evidence need to be included: crime scene techs, EMT personnel, first responders, cops who transport the evidence, evidence room techs, of course all member of the laboratory including supervisors, and evidence receipt personnel. A better carve out for commercial labs who do not have access to any of thes personnel or their profiles needs to be more explicit as they do not access (and will not be provided) with these DNA profiles.	Accept with Modification: This definition was expanded to further define personnel.
9	3.5		E	Meaning of recognized in 'recognized by the laboratory'?	reword so the meaning of 'profiles recognized by the laboratory' is clear	Accept: Now it reads identified by the laboratory.

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57	3.6		T	This is probably useless and in any event the wording is poor. What is important is whether or not DNA profiles are developed from the supposed laboratory monitoring - the presence of DNA is not important - the issue is whether or not DNA profiles can be observed after a stringent protocol (which is not listed or described). As an example: the treatment of ethylene oxide does not eliminate DNA, but it does break the DNA into fragments such that profiles are not observed but 'DNA' could still be measured -similar for UV treatment - the DNA is not destroyed, merely rendered un PCR-able using STR kits. If the goal is contamination reduction, then DNA profile elimination is the end point, not elimination of DNA. This is not semantic but impacts directly the type and kind of remediation that might be considered.	Use more precise wording - monitor for DNA profiles from relevant equipment and describe how the stringent test might be applied; e.g., concentrating buffers 10X and then testing in a STR kit, e.g., combining swabs from all door handle swabs in the lab, concentrating the DNA and then testing in an STR kit. Note: performing DNA quant is not appropriate as it does not identify profiles and we do not care about DNA being present - only if profiles are possible from the item/surface.	Reject. Adding the word "profile" to the definition is too restrictive.
23	3.6		T	this is usually described as DNA laboratory environmental monitoring in the literature	Replace with DNA laboratory environmental monitoring	Reject: DNA environmental mentoring means temperature monitoring and airflow, a concept outside of the definition for the use of this term.
98	3.6		E	"Assess" is used twice in the first sentence	change the first to "evaluate"	Accept
10	3,6 sentence 2		E	Awkward	change 'the taking of DNA swabs from' to 'swabbing at-risk equipment...'	Accept
51	3.7		T	The term 'drop-in' shoud not be used as there is no scientific basis to distinguish types of contamination. Limiting a contaminated sample to those where 4 or more 'foreign' alleles are identified is arbitrary and allows labs to undercount contamination events	Exclude the section that uses the term	Reject: Explanation is provided in referenced document #13 in the Bibliography section. Also the definition for 'Drop-in" was updated.
36	3.7		T	The term 'drop-in' shoud not be used as there is no scientific basis to distinguish types of contamination. Limiting a contaminated sample to those where 4 or more 'foreign' alleles are identified is arbitrary and allows labs to undercount contamination events	Exclude the section that uses the term	Reject: Explanation is provided in referenced document #13 in the Bibliography section. Also the definition for 'Drop-in" was updated.
24	3.7		T	Drop-in is still contamination from the laboratory environment but it can be modelled based on its presence in negative controls. It is assumed that drop-in alleles originate from different individuals but this may not be true at very low levels of DNA and stochastic events	Replace with "Drop-in alleles are assumed to originate from different individuals...."	Accept
165	4		T	The standard contains no language regarding the physical and time seperation of evidence and reference samples.	Add a section that requiring that all evidence be processed prior to the processing of reference samples from the same case. Add language requiring that evidence and reference samples be processed in separate dedicated work areas and tools	Reject: This information is covered in section 4.2.3.
141	4.1	Now 4.2	T	Notes: other appropriate scientific sources	language too broad. Need definition of appropriate scientifc resources. Section as written subject to subjective interpretation.	Reject: "other appropriate scientific sources" is not mentioned in the document and in the referred to section 4.1.
11	4.1.1	Now 4.2.1	E	focused on' seems vague	perhaps change 'focused on' to 'performing' or 'involved with'	Accept
58	4.1.1	Now 4.2.1	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for a decade.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
99	4.1.1	Now 4.2.1	E	extra "the" present	delete the extra "the" before "introducing"	Accept
100	4.1.1	Now 4.2.1	T	As written, this requirement seems to preclude auditors and maintenance, repair and cleaning personnel from entering entire laboratory areas.	more clearly define "actively focused on laboratory procedures" or provide other clarity to permit others in certain situations to come into the laboratory as needed	Reject: "Actively involved" includes maintenance and repair staff.
59	4.1.2	Now 4.2.2	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
130	4.1.2; 4.1.2.1; et al	Now 4.2.2; 4.2.2.1; et al	T	Requirements in 4.1 repeatedly reference pre- and post- PCR areas, but it is never defined/stated that the PCR belongs in the "post-amp" category	Either add "PCR" as its own category in addition to pre and post-amp or define the terms pre-amp and post-amp, including what testing steps are categorized under each. *See* SWGDAM, Contamination Prevention and Detection Guidelines for Forensic DNA Laboratories.	Accept with modification: Section 4.1.2 was revised to address this comment.
28	4.1.2.1	Now 4.2.2.1	T	includes floor to ceiling adds nothing	Requires floor-to-ceiling	Accept
60	4.1.2.1	Now 4.2.2.1	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
61	4.1.2.2	Now 4.2.2.2	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
29	4.1.2.2	Now 4.2.2.2	T	Appropriate is vague and leaves too much room for interpretation	As outlined in internal protocals addressing the nature of the equipment in use	Accept with modification: This sentence was deleted.
12	4.1.2.3	Now 4.2.2.3	E	will'	change 'will' to 'shall'	Accept
62	4.1.2.3	Now 4.2.2.3	E	How many time does the document has to repeat the obvious - every accreditated laboratory is already audited against this and the above requirements; the the lack of technical details make the comment useless. Unless specific instructions are included the "how" remains elusive. Bleach on what? UV on what? disposals for which segments? Without details this is a useless comment.	Remove	Reject: This is a standalone document.

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157	4.1.2.3	Now 4.2.2.3			The current 4.1.2.3 should be changed to 4.1.2.4. The standard should require appropriate PPE to be worn in pre and post amp environments, since PPE is not necessarily the same in both spaces. 4.1.2.3 should require PPE to be worn and 4.1.2.4 individuals to have personal PPE. This seems fitting since there is a specific requirement for PPE use with the preparation of Rapid DNA samples.	Accept with modification: This section was updated.
151	4.1.2.3	Now 4.2.2.3	E	This section uses the modal verb "will" instead of either "shall" or "should," which were defined as the operative modal verb choices in the Foreword. Therefore, this section is stylistically inconsistent and is neither mandatory nor recommended under the standardized system.	Change "will" to "shall"	Accept
13	4.1.3	Now 4.2.3	E	comma	add a comma after 'consumables'	Accept
63	4.1.3	Now 4.2.3	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
64	4.1.4	Now 4.2.4	T	Unless the document provides insight on how this should be accomplished, the comment is useless. Paper or plastic? Hoods or bench top? Mask, hair nets or just sleeves? Details are what counts and this general idea provides no support for a laboratory to improve. If this was really followed there would be no contamination, but of course there is, so what is this actually accomplishing?	Remove	Reject: These details are more appropriate for a laboratory protocol.
25	4.1.4	Now 4.2.4	T	Program is typically noted as DNA environmental monitoring	Insert "environmental" after DNA laboratory	Reject: section 4.1.4 does not include the words "DNA Laboratory". It is unclear as what this comment is referring to.
65	4.1.5	Now 4.2.5	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
30	4.1.7	Now 4.2.7	T	regular cleaning should be in addition to testing protocol cleanings	This is in addition to cleaning protocols for before and afgter testing conducted	Accept with modification: 4.1.7. was split into two requirements (4.1.7 and 4.1.8).
159	4.1.7	Now 4.2.7	T	The policy for the DNA laboratory monitoring program should not be happening directly after laboratory cleaning has taken place. There is a benefit in knowing that a cleaning may not be thorough, but the assumption is that directly after cleaning things will be clean.	A note or additional sentnece needs to provide further guidnce on when the DNA laboratory monitoring program takes place within the the cleaning program.	Reject: 4.1.7. was split into two requirements (4.1.7 and 4.1.8). The details associated with the program is defined by the laboratory.
67	4.1.7	Now 4.2.7	T	Is there any actual experimental data to support this approach? I doubt it. If all work was performed in working laminar flow hoods and analysts used gloves and sleeves, the condition of the laboratory would be irrelevant to contamination in the hood. Also, cleaning how? Vacuuming? Swifter? Separate cleaning mops buckets and sponges for pre and post PCR (this we actually do), but your document does not specify. Probably having additional personnel in to 'clean' all but guarantees a new source of adventious DNA. Better, adding ceiling UV lights (with interlock cutoff for accidental entry) than vacuuming and dusting which creates more dissemination. Clean does not equal DNA (profile) free. It is more pleasant to work in a clean lab, but what objective data is there that it makes a difference? And again, how to clean? Spray everything with bleach? Use 409?	Provide details or remove -	Reject: The routine cleaning of a DNA laboratory must take place, but the frequency and the details are defined by the laboratory.
101	4.1.7, 3.6	Now 4.2.7	T	Unclear 1) what the difference is between "regularly scheduled" and "the frequency of cleaning" and 2) how a "cleaning procedure" can include "a monitoring program"	Provide clarity. Perhaps separate the two sentences into separate requirements to address 2 and reword to delete procedure; and maybe add "program" to definition 3.6.	Accept with Modification: a second sentence was added to section 4.17 for clarity. The monitoring program was separated in section 4.1.8.
68	4.1.9	Now 4.2.9	T	Way outside the issues of contamination and unfortunately, nothing withstands the constant use of bleach - not stainless, no plastic, not epoxy lab benches . . all of these show damage after even a relatively short time.	Remove, not relevant to the issues of contamination unless the document is selling lab equipment	Accept
69	4.1.9	Now 4.2.9	E	Not particularly practical. The standards for this ISO rule are not specific enough and there is no way to comply with this recommendation as there are no on-site inspections being conducted at the moment, a state of affairs that will most likely last at least a year. If you want a standard, then set on: no DNA profiles can be observed from XX when Y process is used.	Make this a wish list and add details of what this means - note that most contamination does not arrive from purchased reagents (though this does happen). Better to focus on the most likely sources of contamination: law enforcement personnel and lab personel (when your hear hoofbeats, think horses, not zebras)	Accept with modification: "Practical" was changed to "possible" to encourage laboratories to comply.
102	4.1.9	Now 4.2.9	T	this is a recommendation, not a requirement; this cannot be assessed by an auditor as the lab simply has to say "it's not practical."	clarify what the requirement is (e.g., The laboratory shall purchase reagents … when commercially available.)	Accept with modification: This is a recommendation was updated to a requirement. "Practical" was changed to "possible" to encourage laboratories to comply.
70	4.1.10	Now 4.2.10	T	Details - how is this to be accomplished? If UV light, energy and time details, bleach: concentration and length of contact time (bleach takes time to destroy DNA, this has been published), no lab is going to institute EO, take this out . .and what is etc., exactly? would like to know of other methods: Cs irradiation? this works, but need a source,	Edit and improve	Reject: Protocol details are up to the laboratory to implement.
131	4.1.10	Now 4.2.10	T	Test tubes and other multi-use equipment are missing from the requirement, yet it is critical that the lab institute procedures to minimize the possibilty of contamination for these items.	Should include other laboratory equipment such as glassware e.g., test tubes, etc or define consumables to include multi-use items.	Accept

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71	4.1.11	Now 4.2.11	T	The question is why? What advantage is there in 'tracking' (whatever this vague term means) in reducing contamination. There are already requirements for testing all critical reagents (and some accreditations require ALL reagents to be tested) prior to releasing for case work. What does this undefined section bring to the issue at hand? This is not explained or described in any way. Yet another poorly described request will not improve laboratory quality	Remove	Accept with modification: Narrowed down the requirement.
103	4.1.11	Now 4.2.11	T	it is unclear what needs to be tracked; what came into the lab only? Where it is stored? what lot was used in each case? The goal of the requirement is unclear.	Provide more clarity for users and auditors re: what actually needs to be tracked and when	Accept with modification: Narrowed down the requirement.
66	4.1.15.1 (section not in document)		E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
152	4.2	Now 4.3	T	Throughout Section 4.2, the standard's procedural requirements suggest that laboratories are required to conduct contaimination investigations and use contamination databases. These are lofty and important requirements. But the standard fails to make clear *when* contamination databases should be used and investigations should be conducted.	Throughout 4.2, the standard should be clear that contamination database searches are required with every sample, and a contamination investigation shall be conducted any time an indication of potential contamination appears.	Accept with modification: 4.2 and 4.11 are clarified and see 4.2.11 - 4.2.12 for contamination investigation.
132	4.2	Now 4.3	T	Sufficient guidance concerning what steps the laboratory should take once a contaminated sample is identified is absent.	Add requirements concerning what a lab should do once it detects possible contamination. Add a step by step process, to include various steps that can be taken and when they are appropriate i.e. reinjection, remplification, re extraction, elimination samples, etc). Add an annex with examples of how labs should identify and deal with contamination.	Reject: Protocol details are up to the laboratory to implement.
133	4.3	Now 4.4	T	Various corrective actions including case reviews, root cause analyses, and even suspending casework are absent from document.	Add requirements, see SWGDAM, Contamination Prevention and Detection Guidelines for Forensic DNA Laboratories , section 4.3.	Accept with Modification: Section 4.3 (now 4.4) was added to this document.
14	4.2.1	Now 4.3.1	E	cleaning agents'	Is UV considered a cleaning agent? If not maybe 'Cleaning agents or procedures known to destroy DNA...;	Accept
72	4.2.1	Now 4.3.1	E	Finally an actual recommendation that adds to the laboratory process. Congratulations. However, laboratories are already required to have Clean Technique, to define this, to document the cleaning of benches and surfaces prior and after . . so, this is a good recommendation but is already in practice.	Need to reference existing audit standards as the source of this request	Reject: This is out of scope.
123	4.2.1	Now 4.3.1	T	The standard should be specific as to cleaning protocols. I suspect it is written in a vague way as to be future proof. But with these wiggly words, it will allow laboratories to argue that subpar cleaning methods are acceptable. Be specific as to how workbenches, lab tools, etc. need to be cleaned. What UV wave length, how long, what bleach percentage, how shoudl it be applied, etc.	Add requirements with specifics for cleaning procedures. Be specific as to how workbenches, lab tools, etc. need to be cleaned. What UV wave length, how long, what bleach percentage, how should it be applied, etc.	Reject: Protocol details are up to the laboratory to implement.
73	4.2.2	Now 4.3.2	T	Too vague - why? Are they hazardous? Do they present a contamination risk? If so, state this. If so, recommend how this can be mitigated. There is already a mandated separation of pre and post PCR - this might be considered redundant.	Edit and improve - provide reason for action and recommendation for method(s)	Reject: Supplemental recommended information is not required.
74	4.2.2.1	Now 4.3.2.1	T	Really? If this needs to be stated the laboratory in question needs to be closed. Are there examples of this? If so, name the guilty. Too obvious an issue to state	Should be wrapped into a set of action plans / method recommendations rather than a stand-alone comment	Reject: This document is a standards and contains auditable requirements.
75	4.2.2.2	Now 4.3.2.2	T	This is probably not sufficient as a precaution - the laboratory design and work flow should make this impossible to begin with. Why is this included? Is there a laboratory that does not conform to the accreditation requirement for separate rooms and is trying to conserve trash bags? Just handling post PCR materials and transporting this where samples are prepped is enough to warrant restructuring the lab.	Should be described as a particularly poor procedure - again wrapped into a an actual set of protocols to be followed rather than a stand-alone comment. Too obvious for words.	Reject: This document is a standards and contains auditable requirements.
122	4.2.3	Now 4.3.3	T	The standards will allow an analyst to work on two evidence items from separate cases on the same bench at the same time. That is a basic precaution. These standards need to be explicit as to how evidence should not be handled.	Add requirement specfically prohibiting more than one open piece of evidence on the bench at a time. In general, create more specific requirements about evidence examination regarding seperation of cases as well minimum standards for cleaning and decontaminating the work area.	Accept with modification: Added new section 4.2.3-d and updated section 4.2.3-e for clarity.
127	4.2.3	Now 4.3.3	T	Define a minimum stadard for personal protective equipment. This is not a controversial area.	Add requirement indicating the types pf personal protective equipment that must be word.	Reject: Details are up to the laboratory to implement.
142	4.2.3	Now 4.3.3	T	...the possibility of inhibition or or degradation for one or more contributors	add the phrase contamination	Reject: This comment is not relevant for this document Std 136.
	4.2.3	Now 4.3.3			The WG replaced "that" with "to" in the introductory sentence.	Accept
31	4.2.3 C	Now 4.3.3 d	T	The separation is a bit vague, could just be adjacent lab station, which is dangerous for contamination	Include "physical and temporal"	Reject: Details are up to the laboratory to implement.
42	4.2.3 c	Now 4.3.3 d			add temporal (two machines next to each other)	Reject: Details are up to the laboratory to implement.
104	4.2.3 c)	Now 4.3.3 d	T	This requirement needs some clarity or definition of "separate processing"; does this mean a completely separate work flow through the entire process, or is it OK to have samples on the same plate for quantitation, amplification, CE and profile analysis as is often done in laboratories currently? From 4.2.3 it is unclear if this is referring only to evidence items or also extracts and amplificed products.	Define "separate processing" or provide clarity to the extent of separation needed throughout each step of the testing process to meet this requirement.	Reject: Details are up to the laboratory to implement.

#	Section		Type of Comment	Comments	Proposed Resolution	Final Resolution
105	4.2.3 c)	Now 4.3.3 d	T	consider expanding this to require separate testing of evidence from complainants vs. suspects so that the risk of cross-contamination is substantially reduced (e.g., clothing from each extracted and tested separately; vaginal swabs, etc. separate from penile swabs)	The laboratory shall examine and process/test evidence collected from or belonging to complainants separately and independently of evidence collected from persons of interest/suspects.	Reject: Commenter agreed that this can be reviewed and added to future documents.
134	4.2.3c	Now 4.3.3 c	T	The requirement to separate reference from evidentiary items for the duration of testing is critical. However, samples containing high levels of DNA should be separated from samples containing trace levels due to an increased risk of contamination. Additionally, evidentiary items taken from suspects should be separated from evidentiary items taken from crime scenes and victims.	Add requirement for the separate processing of samples containing high levels of DNA and those containing trace levels; add requirement for the separate processing of evidentiary (as opposed to reference) samples taken from suspects (body, clothes, car, etc.) from evidentiary items taken from crime scenes and victims.	Accept with modification: 4.2.3-c was added for examination extraction steps.
	4.2.3 c	Now 4.3.3 d			Section was modified for clarity	Accept
	4.2.3 d	Now 4.3.3 f			Section was modified for clarity	Accept
15	4.2.3 e	Now 4.3.3 f	E	DNA destroying reagents	change to 'DNA destroying reagents or procedures'?	Accept
76	4.2.3	Now 4.3.3	T	Items (a), (b), and (~~d~~ ~~e~~) are completely redundant with existing requirements are merely restate what labs are already audited against. Take these out or reference the existing standards. Item (c), however needs to be strengthened - this is so obviously best practice but there are still many laboratories that do not follow this. So, emphasize section (c) much more strongly.	Emphasize section (c) much more strongly. Demand a complete separation, at a minimum different days and different equipment for pre-PCR. Better, a separate laboratory that only processes reference samples - could be an offshoot of the convicted offender sample processing lab, for example. Finally a recommendation that is not already described and needs to be implemented throughout the labs.	Reject: Details are up to the laboratory to implement.
20	4.2.4	Now 4.3.4	T	It is not clear the reason(s) to document this in the casefile. Explain why this is necessary for labs to do this and its benefits.	Add the reason in another sentence such as "This reason for this is to determine and track what other evidence may be potentially contaminated if it was determined that a co-packaged piece of evidence has been contaminated.	Reject: This is not necessary.
77	4.2.4	Now 4.3.4	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has been implemented for decades.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
106	4.2.4	Now 4.3.4	T	Should this also be included in the report?	modify to include requirement to report items packaged together	Reject: This is already documented in the case file.
78	4.2.5	Now 4.3.5	E	Redundant with current standards, ISO and FBI - adds nothing to the document and worse, provokes the thought that ASB is claiming originalilty by mentioning a standard that has already been implemented.	Remove	Reject. This document recognized the ISO and FBI documents and their importance on the issue, they are referenced in the bibliography.
143	4.2.5	Now 4.3.5	T	Criteria for defining what are interpretable data versus data which cannot be interpreted	To broad. Data which cannot be interpreted based upon laboratory protocols	Reject: This comment is not relevant for this document Std 136.
79	4.2.6	Now 4.3.6	E	In theory this should already be being followed - this is a good place to improve this requirement on several fronts: making this documentation universal for all drop-ins and contamination, by making this document available under discovery (and requiring this transparency), in demanding a single name for this document (to limit the subterfuge labs use by claiming a different name for the contamination log vs unusual occurrence log, vs some other name).	Edit, strengthen and improve	Reject: Not enough actionable items provided.
107	4.2.6	Now 4.3.6	T	to meet this requirement, a lab simply needs to keep a log; there is no requirement to do anything with the log; the purpose/use of having the log should be included in this requirement or delete it since there's no point in having a log that isn't used for any reason	expand the requirement to include some use of the log (e.g., assist in tracking the origin of the event; in a database for screening for contamination and possible interpretation and reporting of the data, and so forth) or delete the requirement if it has no purpose	Accept with modification: This section was updated.
124	4.2.6	Now 4.3.6	T	This standard calls for a log. What is supposed to be in that log? Again, be specific!!	Add requirement requiring that, the genotype of the contaminants and drop in be included in log and that the contamination/drop in events are regularly compared to each other, casework and lab employees/visitors.	Reject: This section was modified but the recommendations were not added because it is up to the laboratories to define the specifics.
108	4.2.6	Now 4.3.6	T	How would a lab ever know that drop-in is present in an evidence profile? This could only be assessed in negative controls.	delete phrase in ( )	Reject: The requirement also specifies controls so the drop-in can be detected in the negative controls.
145	4.2.6	Now 4.3.6	T	Maintaining a log for drop in events would be cumbersome and uninformative to the laboratory. 2-3 alleles is not enough genetic information to meaningfully screen against a staff or known contaminant database, and contamination events within drop in criteria may be determined permissable by the lab's internal threshold of tolerance for low level contamination events that do not impact the analytical data reported.	Strike "drop-in" from the requirement for maintaining in the log of exogenous DNA.	Reject: The requirement also specifies controls so the drop-in can be detected in the negative controls.
21	4.2.7	Now 4.3.7	T	There is no mention of the potential for adventitious hits when investigating contamination events, especially when comparing low level, partial profiles from a sample to an elimination database. Any adventitious hits shall be noted in the case file	add a requirement under 4.2 that states "When seaching low level partial profiles to an elimination database, care should be taken to determine if any potential matches are adventitious or contamination. These shall be documented in the case file.	Accept with modification: The first sentence was not used because it not auditable, however the second sentence was incorporated in section 4.2.7.
80	4.2.7	Now 4.3.7	T	This is a good start. Some details of the database could be considered (see next section), how the search should be conducted (more on this with the use of PG)	More specifics on how the internal database should be searched, also consider requesting that a database of results be maintained and searched to find recurrent profiles that were not identified as contamination.	Reject: It is up to the laboratory to implement because not all the laboratories have access to CODIS.
117	4.2.7	Now 4.3.7	T	overlaps with other document under review at OSAC - needs to be reconciled before publication	reconcile this section with BPR for Elimiation Databases	Reject: The document referred to has not been submitted to ASB.
41	A	Should be 4.3.7.1	T	parenthetical omits mentions of police	add cops to list of examples in parenthetical	Accept

#	Section		Type of Comment	Comments	Proposed Resolution	Final Resolution
81	4.2.7.1	Now 4.3.7.1	T	In order to be effective this database must include law enforcement personnel (cops), first responders, EMTs, crime techs, evidence techs - it needs to be comprehensive or it is really only marginally useful. The carve out for commercial or outsourcing labs is O.K. but then profiles obtained by the outsourcing lab should be run against the source laboratory data base. Note that there is already a requirement for a lab staff DNA database - there is no point in merely repeating this (as in many of the above sections) but the concept expanded to include all personnel who were within any distance of the evidence	The 'where possible' leaves too many loopholes for the lab: this needs to be a 'shall include' otherwise it has no force and no real impact on identifying 'trouble spots' or areas for improvement. All too often government labs find excuses not to have a comprehensive DNA database - it can be anonymized, at least from external view, but it needs to be comprehensive.	Reject:"law enforcement" was added to the list of examples. Personnel external to the laboratory are not under the control of the laboratory.
109	4.2.7.1	Now 4.3.7.1	E	does the ":" belong?	review the punctuation and wording in this requirement to improve the flow	Accept: The punctuation in this section was revised.
110	4.2.7.1	Now 4.3.7.1	T	unclear how laboratory visitors fit the "professionally involved" criteria	delete laboratory visitors or move to a different list	Accept
160	4.2.7.1	Now 4.3.7.1	E		At a minimum this database shall include biology staff and positive control samples from donors and kits; and contamination elimination profiles: unknown DNA profiles obtained from negative or positive controls, or profiles that have been putatively assigned as possible contaminant profiles (e.g., from consumables). To the extent possible, typing shall use the same genetic markers/amplification test kit(s) utilized by the laboratory. Where possible, the laboratory shall include profiles from any individuals who are professionally involved in the collection and handling of evidence, work samples, reagents, equipment or consumables (e.g., staff, agency and other associated workers such as medical examiners, sexual assault nurses, service personnel and laboratory visitors.).	Accept with Modification: Added the word "equipment". Other parts of the paragraph have been updated in response to other comments.
16	4.2.7.1 sentence 1	Now 4.3.7.1	E	semi-colon use	change semi-colon after 'kits' to a comma?	Accept: The punctuation in this section was revised.
17	4.2.7.1 sentence 1	Now 4.3.7.1	E	definition of contamination elimination profiles	should 'contamination elimination profile' be defined in section 3?	Reject: Section 3.2 and 3.4.
18	4.2.7.1 sentence 3	Now 4.3.7.1	E	agency'	agency' is not a person (as are the others in this list) maybe 'agency personnel'? Also, comma after 'service personnel'?	Accept
82	4.2.7.2	Now 4.3.7.2	T	The language needs to be amended so that this is not used as an excuse to avoid having a full, comprehensive DNA database - if this is not changed, labs will use this excuse to ignore recommendation 4.2.7	Strengthen the language	Reject: Not enough actionable items provided.
83	4.2.7.3	Now 4.3.7.3	T	Timely is too vague - set a time limit -the obvious being when the personnel handles or comes into contact with evidence - make this a requirement. We all know what happens if the labs are allowed to decide on their own what is 'timely'.	Strengthen the language	Reject: Not enough actionable items provided.
39	4.2.8	Now 4.3.8	T	as appropriate provides nno guidance --what is appropriate?	Add a requirement "Labs shall conduct validation studies to determine when to suspect intra batch contamination has occurred"	Reject with modification: "as appropriate" was deleted from this section and further validation requirements are not within the scope of this document.
84	4.2.8	Now 4.3.8	T	This is always appropriate - make this a requirement. There is no reason NOT to do this, so, require it.	Strengthen the language	Reject: Not enough actionable items provided. Though, "as appropriate" removed baseed on comment #39
111	4.2.8	Now 4.3.8	T	It is unclear what this requirement means and what is required, especially with the "as appropriate" phrase present	clarity to define what is actually needed to meet this requirement will assist technical leaders and auditors in fulfilling; the definition of an "intra-batch" is also needed (extraction, amp, CE, or all of the above?)	Accept with modification: This section was updated to include (i.e., samples processed concurrently).
135	4.2.8	Now 4.3.8	T	The phrase "as appropriate" is subject to variable interpretations; insufficient to operate as a standard	Delete "as appropriate"	Accept
85	4.2.9.1	Now 4.3.9.1	T, E	Useless - what is an assessment? How would it be made? Why is it in this section? Makes no sense and just adds a needless line of text to the validation. Until you have actual examples of contamination for a procedure there is no good way to assess and this subsection merely invites a 'brush-off' section in the validation without adding any quality.	If we could accurately assess the contamination of the procedures ahead of time we would have much less contamination, and as we clearly cannot guess accurately, this is merely window dressing - Remove	Reject: This sections' requirements are appropriate as written for this document.
86	4.2.9.1	Now 4.3.9.1	T, E	See above - merely adds useless text to a validation or a modification of an existing procedure. You want to know if a 'mod' is better or worse for contamination? Test it! Do the experiment! Run 100 samples through and see what you get . . . not willing to do the work or expense of an actual experiment? Substituting guesswork and meaningless language to a validation mod is not the answer to improving lab quality	Remove	Reject: This sections' requirements are appropriate as written for this document.
19	4.2.9.2	Now 4.3.9.2	E	will'	change 'will' to 'shall'	Accept
153	4.2.9.2	Now 4.3.9.2	E	This section uses the modal verb "will" instead of either "shall" or "should," which were defined as the operative modal verb choices in the Foreword. Therefore, this section is stylistically inconsistent and is neither mandatory nor recommended under the standardized system.	Change "will" to "shall"	Accept
146	4.2.9.2	Now 4.3.9.2	T	The requirement for a contamination assessment when a lab method/technology is modified would ideally be specific to modifications that impact sample handling. For example, if a modification is made to software or reaction volumes, but there is no change in how samples are handled by the instrument or operator, there would be no change in the conditions which impact contamination risk.	Suggested change: When a laboratory method/technology is modified, the need for a contamination assessment as part of the modification validation will be conducted.	Reject: A contamination assessment should always be conducted but it can be as simple as "non-applicable".
40	4.2.10	Now 4.3.10			Report all positive LRs produced by comparison to the elimination database	Accept with modification: The positive LRs are documented and only a summary is reported. See 4.3.10-e added to this section.

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87	4.2.10	Now 4.3.10	T, E	What a Pandora's box: what LR should be used? We already have one example of a laboratory using 1 x 10E4 as the LR required for identifying contamination which is way higher than what they will report for a defendant as signficant - in other words set so high that the lab will not find many contamination issues - how convenient. Since the details of the commercial PG software are not available there is no way to evaluate if this is an effective approach. This should be a 'wish list' when PG is actually understood and transparent and we are no way near that now. This is abdicating responsibility to a black box which was not designed for this task and which is easily manipulated by the laboratory.	Improve or Remove - details of how this could work, suggest for the future, demand an independent assessment of this option, develop a testing set to see if this really could be effective . . . none of this has been done so using this is pure speculation at this point.	Accept with modification: The positive LRs are documented and only a summary is reported. See 4.3.10-e added to this section.
119	4.2.10	Now 4.3.10	T	Part b) "performing mixture to mixture comparisons to detect common sources" is vague and requires clarification. Are mixtures to be selected at random? Is there a suggested frequency for these comparisons? Would the labs be required to keep some sort of database of past mixed samples for this purpose?	Provide clarifying language as to type of mixtures to be used for comaparisons and suggested frequency of mixture to mixture comparisons for contamination detection purposes.	Accept with modification: Section 4.3.10-a was updated for clarity to include all mixtures.
125	4.2.10	Now 4.3.10	T	This needs to be more specific as to how and where to check for contamination. Including genotypes and drop in alleles will enable the lab to see if there is a common source of contamination/drop-in.	My suggestion is not only the DNA elimination database but all DNA profiles examined at the desk for a 48 hour window, every profile from the same amplification and also every case that the examining (swabbing, cutting, etc) analyst handled are compared to ensure explore whether there was a contamination event.	Reject: This request is already covered in section 4.3.10 (a-e).
136	4.2.10	Now 4.3.10	T	The requirements concerning the use of probabilistic genotyping to detect contamination are unclear and nonspecific. For example, for (a), if a comparison with the elimination database returns a LR of more than 1, does this mean that the samples is contaminated? All LRs over 1 should be disclosed to the defense and prosecution.	Provide more clarification and examples for how probabilistic genotyping program capabilities are to be used to detect contamination. Add requirement that inclusionary LRs generated from comparisons with the database (or mixture to mixture matching) should be disclosued to the defense and prosecution.	Accept with modification: Section 4.3.10-f was added to provide further clarity. Also see section 4.3.10-e for disclosure requirements.
52	4.2.10 a)		T	Require positive likelihood ratios generated by a search contemplated by this subsection to the DNA elimination database shall be reported out.	Add language, "Any positive likelihood ratios generated by a search to profiles within the DNA elimination database shall be reported out."	Accept with modification: See section 4.2.10-e added to this section for further clarification.
148	4.2.10 (a) - (d)		T	This section reads a little too fuzzy; if by "performing batch comparisons," you mean "create a distribution of likelihood ratios for every sample," then you are taking full advantage of the PG system at the lab. You are also creating helpful information for the future. For instance, if Dirty Don the Lab Analyst's profile consistently has LRs at the top of these distributions, the lab may want to figure out why. BUT if (d) does NOT mean to create likelihood ratio distributions, then you really need to add it to help ferret out contamination.	Add "(e) creating distributions of likelihood ratios of lab elimination database profiles to help ferret out contamination."	Accept with modification: See sections 4.2.10-e and f added to this section for further clarification.
147	4.2.10 b and d		T	The requirement details that labs utilizing prob genotyping shall perform mixture to mixture analysis and batch comparisons within the software, if it is within the capability. However, labs may already have an alternative approach for batch comparisons that is performed outside of the PG system. So long as the batch comparisons are performed, does the standard need to dictate the approach? Similarly for mixture to mixture comparisons, the software utilized may encompass the feature, but our policies prefer to only assert mixture to mixture matches of a deduced component based on the PG deconvolution (for purposes of reporting common contributors) and all samples are then searched in our batch search for contamination assessments.	Modify b and d to allow for the use of other comparison methods, so long as all data is compared within the batch.	Accept with modification: Section 4.2.10 first paragraph was updated for clarity; with respect to 4.2.10-b no method was specified.
	4.2.10 f				Section was edited for clarity	Accept
37	4.2.11		T	Contamination events shall be investigated- There is no mention of conducting root cause analyses or requiring that written documentation include descriptions of if and how the problem was resolved [I.e. WHAT STEPS DID LAB TAKE TO REMEDIATE, ie. RETRAIN ANALYST , etc.]	Include requirements for formal root cause analyses and documented resolutions [CORRECTIVE ACTION?]	Accept with modification: This section was updated to include root cause analysis when contamination is identified.
38	4.2.11		T	Only requires record keeping within case.	Require that records of a contamination event exist outstide of the case file.	Reject: Record requirements are detailed in section 4.2.12.
161	4.2.11		T	Does the investigation include a root cause analysis?	Greater detail is needed on the investigation of a contamination event.	Accept: Additional sentence added in this section.
88	4.2.11		T	Yes of course - and add that such a record becomes part of the case file that is discoverable. In addition the laboratory 'shall' provide the root cause analysis of the contamination, the action plan for correcting the source of the contamination and the final response to the plan. In theory this series of steps is already required under the ISO standard, but are either not enforced or not followed by many laboratories. Here providing all three responses, root cause analysis, mitigation plan and final assessment, should be required.	Amend to strengthen	Accept with modification: 4.2.11 was strengthened.
112	4.2.11		T	when/why would it be appropriate to not include the investigation of a contamination event in a case record?	delete "referenced or"	Reject: The contamination may span many cases and may be related to a more global issue.
166	4.2.11		T	The standard does not contain any requirment for root cause analysis of a contamination event and mitigation of the cause of the contamination	Add a section requiring that the lab conduct a root cause analysis of any contamination event and document this investigation in the case file as well as in a centralized place	Accept with modification: This section was updated to include root cause analysis when contamination is identified.
118	4.2.11-4.2.14		T	overlaps with other standard under review at OSAC - needs to be reconciled before publication	reconcile these requirements with Standard for Interpreting and Reporting DNA Test Resulst with Failed Controls and Contamination Events	Reject: Std 136 is a standalone document. The commenter is referring to an unpublished document.

#	Section		Type of Comment	Comments	Proposed Resolution	Final Resolution
113	4.2.12	4.3.12	T	how does this relate to 4.2.6?	reconcile this requirement with requirement 4.2.6 and differentiate specifics needed to meet each requirement	Reject: 4.2.6 refers to potential contamination events and 4.2.12 refers to identified contamination events.
34	4.2.12	4.3.12	T	The information being tracked is not complete enough.	Include requirements that the analysts involved in the contamination are also tracked, and that formal root causes analyses are being performed and documented. Note: definition of root cause analysis should be added.	Accept with modification: section 4.2.12 was updated to include "individuals involved" in parentheses. A document on forensic root cause analysis was added to the Bibliography and reference [10} was added to section 4.2.11.
49	4.2.12	4.3.12	T	The information being required to be tracked does not appear sufficient to document these incidents fully.	Include requirements that the analysts, and individuals involved in handling the evidence involved in any contamination incident also be tracked. Additionally there needs to be a requirement that a formal root cause analysis be performed and documented for each incident as well as a documented resolution of each incident. A definition of root cause analysis may need to be added.	Accept with modification: section 4.2.12 was updated to include "individuals involved" in parentheses. A document on forensic root cause analysis was added to the Bibliography and reference [10} was added to section 4.2.11.
89	4.2.12	4.3.12	T	Good - make this transparent to the auditor and make this discoverable. You want to make the labs better? Make it more difficult to hide unusual occurrences, contamination events and the like. Contamination is a fact of life in a forensic DNA lab -this is the reality. However ignoring, hiding or disregarding contamination is the problem. This section, if transparent, could provide some of the goad to make the labs improve.	Amend to strengthen	Reject: Comment provided is not specific enough to section 4.2.12.
121	4.2.12	4.3.12	T	It is important for forensic labs to be transparent and accountable to the public regarding their efforts to reduce contamination events and the frequesncy of contamination even within the lab. The standard should be amended to require labs to disclose contamination records upon request. In addtion, contamination records should include specific information such as names of individuals involved and a description of any remediation efforts including root cause analysis documentation	Amend language to include public disclosure upon request of all contamination events related documentation. Also amend "identifying information" description to include names of individuals involved and "outcome" to include root cause analysis dcumentation.	Reject with modification: section 4.2.12 was updated to include "individuals involved" in parentheses. The suggested recommendation regarding "public disclosure" is outside of the scope of this document.
126	4.2.12	4.3.12	T	What is the data retention policy? These records should be kept for long periods given the low cost of keeping digital data and the reality of post conviction cases taking decades.	Add requirement that contamination records be kept indefinitely.	Accept
120	4.2.13	4.3.13	T	The standards do not define the term "customer." Many labs, especially those funded or directed by law enforcement agencies, may not consider defense attorneys to be customers. In the interest of scientific transperancy and the furtherance of justice, disclosures of contamination events should be made affirmatively and directly to law enforcement and defense counsel for the acccused in the relevant matter.	Remove the word "customer" and replace with "legal parties."	Accept with modification: "to legal parties (i.e. prosecution and defense)." is now used.
50	4.2.13	4.3.13	T	Information about any and all contamination events should be made available to any member of the public upon request. Everyone is a customer, and there is a danger that a lab will interpret "customer" to be the prosecution only.	Replace with language, "Records pertaining to contamination incidents shall be available to any member of the public upon request."	Reject: Disclosing documents to any member of the public is beyond the scope of this document. This document is not a disclosure document.
35	4.2.13	4.3.13	T	Information about any and all contamination events should be made available to any member of the public upon request. Everyone is a customer, and there is a danger that a lab will interpret "customer" to be the prosecution only.	Replace with language, "Records pertaining to contamination incidents shall be available to any memebr of the public upon request."	Reject: Disclosing documents to any member of the public is beyond the scope of this document. This document is not a disclosure document.
162	4.2.13	4.3.13	E	Who is defined as the customer? Does ASB have a definition of the customer and is the information given the same to the customer irrespective of who is requesting information? Is there a reason why “protocols” was used in this standard and not policy?	Please provide greater clarity.	Accept with modification: "to legal parties (i.e. prosecution and defense)." is now used.
90	4.2.13	4.3.13	T, E	Customer is a poor choice here. Government labs should have no customers -they have responsibilities but customers, which implies among other things favorable treatment for some and not others and implies work for money is not the way to describe this.	Change wording to better describe the proper goal of the governmental forensic laboratory. It is understood that state labs are an arm of the prosecution (this is merely factual and any pretense of neutrality by these labs is pure window dressing) but the responsibility of the lab is clear. This should be emphasized even if it will not change the current bias and organization of these labs	Accept with modification: "to legal parties (i.e. prosecution and defense)." is now used.
138	4.2.13	4.3.13	T	Proper documentation of contamination events and their disclosure to the defense is critical to the defense's ability to represent their clients (it would be considered Brady information). This includes an explicit statement in a report that a contamination event has occurred in the case and immediately or as soon as practicable disclosure to the prosecuting agency and the defense, if known.	Include a statement (in forward or in requirement) that proper documentation of contamination events and their disclosure to parties is critical. Add to requirement that the lab shall include an explicit statement in a report that a contamination event has occurred in the case and immediately or as soon as practicable disclose to the prosecuting agency and the defense, if known. If the name of the defense attorney is not known, the lab shall take reasonable steps to learn it in order to disclose the information.	Reject: Contamination events are already required to be investigated, documented in a centralized manner and communicated to all relevant parties and included in the reports if interpreted - see section 4.2.11 -4.2.14. Oftentimes prosecutor and defense teams are unknown.
137	4.2.13	4.3.13	T	It is critical that the public receive this information. Increased transparency is critical if the public is to trust evidence used in criminal cases.	Delete customer and require public disclosure.	Accept with modification: "to legal parties (i.e. prosecution and defense)." is now used.
91	4.2.14	4.3.14	T, E	Contamination in a case needs to be described in the laboratory report - period. The DNA profile of the contamination source needs to be included in the allele summaries in the case file this needs to be mandated. The sentence as written has too much wiggle room and is not 'shall' - it needs to be.	Strengthen the language	Reject with modification: Section 4.3.14 was removed entirely and laboratories are to follow information in section 4.3.13 for reporting and communicating contamination events. ASB DNA CB will be working on an upcoming document that will address reporting of contamination.
26	4.2.14	4.3.14	T	Laboratories should not interpret and give evidential value to a contaminated result in a report. This section infers that it may.	Contaminated samples shall be described in the report and are not of evidential value.	Reject with modification: Section 4.3.14 was removed entirely and laboratories are to follow information in section 4.3.13 for reporting and communicating contamination events. ASB DNA CB will be working on an upcoming document that will address reporting of contamination.

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167	4.3	4.5	T	The standard lacks any requirment to train analysts when new contamination events have occurred	Add a requirement that after contamination events and root cause analysis that all analysts be trained on the root cause and possible mitigation	Reject: Training/retraining is covered under section 4.3.2-e and section 4.4.
92	4.3.1	4.5.1	T	More detail: which personnel? it should be all personell who touch, bag and tag, open, document, store or otherwise have any contact with evidence. If defined by the laboratory only the barest minimum will be chosen thereby defeating an opportunity to train and educate the entire evidence 'train'. The mention of practical is excellent. The addition of competency testing (as analysts have to undergo) should also be included here	Expand to all personnel who have any contact with evidence, test for competency for all such personel.	Reject: Section 4.5.1 puts the requirement on the laboratory to define which one needs training.
114	4.3.1	4.5.1	T	"Personnel defined by the laboratory" is too broad; unclear who in the whole lab vs. lab section needs to meet this requirement; e.g., should the cleaning staff be trained?	define the requirement to cover ALL personnel in the laboratory (and where possible outside of the laboratory) who is in any way associated with evidence at the crime scene and/or in the laboratory or comes into the testing or storage areas of the laboratory	Reject: Section 4.5.1 puts the requirement on the laboratory to define which one needs training.
115	4.3.2	4.5.2	T	the laboratory should have a documented training protocol, not just a policy	change "policy" to "protocol"	Reject: Section 4.5.2 states a training policy and protocol.
144	4.3.2	4.5.2	T	It is recognized that the analysis of supplemental evidentiary data may occur after the reference data have been interpreted.	Delete the language..."It is recognized" and start with the analysis of supplemental evidentiary data.....	Reject: This comment seems to not pertain to this document.
32	4.3.4	4.5.2	t	Lacks important specificity. Item sof are in separate bags, inside a box or larger envelope	This includes when items are containes in the same larger container, even ifplaced in individual envelopes or evidence bags 4.2.7.1Tthe e.g. needs to specify that police officers are part of this groupadd law enforcement personnel 4.2.1Tshoul include disclosure an documentation of any evidence of possible contaminationIncluding any inculpatory LRs produced from elimination samples	Accept with modification: It seems this comment refers to section 4.2.4 and not 4.3.4. Section 4.2.4 was updated. Section 4.2.7.1 was updated and does include police officers. Accept with modification: in response to comment section 4.2.1 please see section 4.2.3-c.
154	4.4	4.6	T	Standard 136 "includes provisions for Rapid DNA analysis performed in the laboratory." By including "Rapid DNA analysis," Standard 136 clearly suggests that the OSAC is approving laboratory use of rapid on crime scene samples. Standard 136 should not ratify Rapid DNA analysis in this way.	Delete Section 4.4 entirely	Reject: Standards are needed for forensic laboratories performing rapid DNA on reference samples.
116	4.4.3	4.6.3	E	there's no such thing as "a postive and negative control"	modify to "use of a positive control and a negative control" or "use of positive and negative controls"	Accept with modification: Wording from reference # 5 in Annex A was used to modify this section.
155	4.4.5	4.6.5	E	This section uses the modal verb "will" instead of either "shall" or "should," which were defined as the operative modal verb choices in the Foreword. Therefore, this section is stylistically inconsistent and is neither mandatory nor recommended under the standardized system.	Change "will" to "shall"	Accept
156				I have submitted a spreadsheet but I also think there are details that need greater explanation for stakeholders outside of the lab since all lab's protocols are not publicly made available.		This is not a comment that is specific enough to a specific section and does not include a recommendation. However, all other comments have been included in this spreadsheet with a resolution.
163				Some references in the bibliography need work. For example, "Duncan, T.", who is the first author in references #2 and #3, should be "Taylor, D." Duncan Taylor's first and last name have been inadvertently inverted.		Accept
164				I am a member of the working group for this proposed standard. While there are critical requirements in this document as it stands that should improve current practice, upon further review, I believe that a number of requirements aren't sufficiently specific or detailed and need strengthening, and some others need explanation and context. Specifically, the contamination assessment, incident tracking database, and the probabilistic genotyping requirements would benefit from more specific sub-requirements and explanations/examples. An explanatory Annex may be necessary for this standard since I believe it would be introducing requirements new to the field (e.g., prob geno). I also believe that there needs to be a greater emphasis on transparency and disclosure to the defense.		Reject with modification: Section 4.2.10 was updated to clarify the elimination database. Reject: Public disclosure was addressed in resolutions of comments for this document above. Reject: Specificity is better suited to be addressed in a best practice recommendation document.

ASB Std 136, Forensic Laboratory Standards for Prevention, Monitoring, and Mitigation of DNA Contamination
Public Comment Period: August 13, 2021 - September 27, 2021

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
95	Foreword		E	"While contamination has always been an issue in forensic laboratories, the sensitivity of testing instrumentation and methods in use in human forensic DNA laboratories has steadily increased and has resulted in a greater chance of detecting low-level contamination and drop-in events"	While contamination has always been an issue in forensic laboratories, the sensitivity of testing instrumentation and methods in human forensic DNA laboratories has steadily increased and has resulted in a greater chance of detecting low-level contamination and drop-in events	Accept
93	Forward		E	"to limit, to detect, to assess the source of, and to mitigate contamination events"	"to limit, detect, assess the source of, and mitigate contamination events"	Accept
94	Forward		E	"This standard includes provisions for Rapid DNA analysis performed in a laboratory and does not cover the use of Rapid DNA instrumentation outside of a laboratory environment." This is unclear, there are many types of laboratories, not all are held to the same type of standards an accredited forensic DNA laboratory are held to	This standard includes provisions for Rapid DNA analysis performed in **an accredited forensic DNA laboratory** and does not cover the use of Rapid DNA instrumentation outside of **an accredited forensic DNA laboratory** environment.	Accept
1	3.1		T	this definition of background DNA isn't clear	better definitions exist: e.g., see "Background DNA on Flooring…", Reither et al FSIG 2019. https://www.sciencedirect.com/science/article/pii/S1875176819300757#bib0005	Accept with modification- Definition deleted because "background DNA" is not referred to in the standard.
43	3.1		E	This definition does not clearly describe the presence of DNA which may be present on an item prior to and unrelated to a crime event.	DNA present on an item which is unrelated to a crime being investigated. The origin and source of this DNA is unknown.	Accept with modification- Definition deleted because "background DNA" is not referred to in the standard.
44	3.1		T	"foreign" usually refers to DNA foreign to a known contributor i.e. DNA foreign to the female from which a vaginal swab is collected. The use of the term "foreign" does not make sense in this context.	Delete the sentence including the term "foreign".	Accept with modification- Definition deleted because "background DNA" is not referred to in the standard.
78	3.1		T	the use of "unknown" in the definition of background DNA is not accurate. The source of background DNA on an item is often known (for example, the background DNA on my steering wheel is mine, it is known who it belongs to and how it got there).	Reword to remove the word "unknown"	Accept with modification- Definition deleted because "background DNA" is not referred to in the standard.
96	3.1		T	"DNA that is present from unknown sources and unknown activities. It can be described as 'foreign' (non-self). It is unknown how or why it is there"	May want to include language stating background DNA can be deposited prior to the crime to differentiate between background and contaminant DNA.	Accept with modification- Definition deleted because "background DNA" is not referred to in the standard.
112	3.1		E	This definition is not used in the requirements	delete the definition for background DNA	Accept
42	3.2	3.1	T	The definition of "contamination" doesn't take into account that evidence can be contaminated before responders arrive.	Revise 3.2 to state: Introduction of DNA onto the evidence **[by contact with people or objects not related to the crime.]**	Accept with modification- Definition was modified.
45	3.2	3.1	E	Since contamination can occur following a crime and prior to the arrival of a first responder, for instance by a witness or individual who discovers the crime scene, this definition is too narrow. Also, evidence can be tested outside of the laboratory by crime scene personnel which can introduce contamination.	The inadvertent introduction of DNA onto the evidence due to improper handling, storage, or testing procedures.	Accept with modification- Definition was modified.
79	3.2	3.1	T	Definition of contamination - who are the "responders" who are arriving, and why is contamination limited to occurring after their arrival	Reword to be more encompassing of the way that contamination can occur. The original definition seems to be more appropriate.	Accept with modification- Definition was modified.
97	3.2	3.1	T	The introduction of DNA onto the evidence after the crime occurred. Contamination can occur through handling and storage of the evidence and laboratory work products. Drop-in is distinguished from contamination. (See 3.7. Drop-in.)	Parts of this definition have been crossed out, which we believe is in error. It should be stated that contamination is deposited after the crime or during handling by forensic personnel.	Accept with modification- Definition was modified.

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113	3.2	3.1	T	this definition is too limited in scope. Contamination may be introduced into the evidence by anyone on the scene after commission of the crime and prior to first responders arrival. It may also be introduced at any step during laboratory testing to the evidence item or into any of the DNA containing tubes (e.g., the DNA extract or PCR amplification or CE set up) from contaminated solutions or other direct or indirect mechanisms. It needs to encompass any DNA introduced by any means that is not directly related to what was on an evidence item at the time of the crime and any subsequent introduction to any evidence derivatives or subitems, such as extracts, etc. in the laboratory.	Substitute modification of OSAC glossary "Exogenous DNA present in a DNA sample, PCR reaction, or item of evidence; the exogenous DNA or biological material could be present before the sample is collected, or introduced during collection or testing of the sample."	Accept with modification- Definition was modified.
98	3.3	3.2	E	A positive control is a sample that is used to determine if a test performed properly. This control consists of the test reagents and a known DNA sample that will provide a known DNA profile in the test	A positive control is a sample that is used to determine if a test performed properly. This control consists of the test reagents and a known DNA sample that will provide a known DNA profile **as a result of the test.**	Accept
99	3.3	3.2	T/E	The use of negative controls helps assess the overall health of the testing process but cannot be used to determine whether a particular sample is free from contamination.	This language has been removed but we feel strongly this caveat should be stated in this document, we see it in the Foreword but it should also be included here as this is the area most analysts and lawyers will point to as an indication there is no contamination.	Reject - information is not essential for this defintion.
12	3.4	3.3	T	Remove explanation from the definition.	Delete, "A DNA elimination database cannot detect all forms of contamination, but with DNA profiles of first responders including law enforcement and medical personnel, and with the production of likelihood ratio distributions for elimination database profiles, more contamination can be detected."	Reject with modification: The CB feels that the content is important to the definition and it has been converted to a note.
46	3.4	3.3	E	the change from recognized to identified seems to exclude the inclusion of consumable profiles provided to a laboratory by a vendor since the laboratory would not be the party who identified the profile.	revert to recognized by the laboratory	Accept
47	3.4	3.3	E	The entire last sentence should be deleted since it is not a definition but rather an opinion.	delete the last sentence "A DNA elimination database cannot detect all forms of contamination……"	Reject with modification: The CB feels that the content is important to the definition and it has been converted to a note.
70	3.4	3.3	T	While having the DNA profiles of first responders/investigators/etc. is a wise idea, that is a policy decision set outside the crime labs. I would argue it's not appropriate to use a document intended to be useful during the analysis process to try and effect large policy changes that are the responsibility of government appointed persons or elected officials.	Soften language throughout, as it is a true statement to say that having a large elimination database is useful, but that ultimately it is recognized the crime lab has no control over compelling elimination samples from stakeholders.	Reject- The suggestion is ambiguous and does not provide a concrete change for evaluation.
114	3.4	3.3	T	evaluate for consistency with other documents in circulation regarding elimination database	Recommend having a consistent definition across various documents using this term, if feasible. If, however, the term is used differently in different documents, the definition should clearly reflect what the difference is as it relates to each specific document.	Reject- The suggestion is ambiguous and does not provide a concrete change for evaluation.
60	3.5	3.4	Technical	"such activities" implies that one has options and this is an example. We are unaware of documentation showing that swabbing areas of the laboratory has provided useful information that helps discover potential sources of contamination. Additionally, it is unclear how to perform testing in the post-amplification area because swabbings would have to be brought back into pre-amplification areas for processing.	Change to "such activities **may** include" or consider moving it to section 4.4 as one option to help with corrective measures when issues arise.	Accept with modification- Definition was modified.

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13	3.6	3.5	T	The definition for "drop-in" is excessively complex and brings educational aspects (e.g., "The occurrence of drop-in alleles may be minimized, but cannot be avoided completely. If drop-in occurs then approximately 1 to 3 alleles are expected in addition to the main profile(s). The number of alleles which can reasonably be assumed to be drop- in as opposed to 'contamination' can be estimated by plotting a Poisson distribution. The data are taken from negative controls. These data can be used to inform probabilistic genotyping models that take account of the phenomenon.") that may be better in an Annex. I recommend using the definition from the SWGDAM Enhanced Detection Guidelines - Final 10/6/2014, page 17.	Replace existing wording to SWGDAM ED Guidelines definition, "Drop-in: Non-reproducible allele(s) that show up in the profile or control that does not originate from the principal DNA donor(s). Typically, drop-in events are not detected using Standard Methods." And add appropriate reference.	Accept with modification- Definition was modified.
34	3.6	3.5	T	It isn't clear what the basis is for the statement that "If drop-in occurs then approximately 1 to 3 alleles are expected in addition to the main profile(s)."	Include a citation for this assertion.	Reject- Citations are inappropriate for a definition.
100	3.6	3.5	T	The definition is not clear, and appears inconsistent with ISFG	The drop-in phenomenon is the presence of 1 or 2 alleles in a sample that are assumed to come from different individuals. We differentiate between drop-in and contamination in that the latter describes more than two alleles that come from a single individual. The distinction is important because the assumption of independence enables the use of the product rule to multiply drop-in probabilities, whereas this is not valid if the events are dependent. (P. Gill et al. / Forensic Science International: Genetics 6 (2012) p. 682)	Accept with modification- Definition was modified.
115	3.6	3.5	T	some critical language seems to be missing from the definition that is present in the OSAC terminology document. It is not possible to know what is a "spurious" allele without knowing the true contributor(s) to a DNA extract. The meaning of the second sentence is unclear. We cannot know if 3 alleles are due to contamination or drop-in. Not sure that part of the definition is helpful and seems wordy.	Recommend substituting: (1) Allelic peak(s) in an electropherogram that are not reproducible across multiple independent amplification events. (2) A hypothesis/postulate for the observation of one or more allelic peaks in an electropherogram that are inconsistent with the assumed/known contributor(s) to a sample not likely to be due to the presence of DNA from an additional contributor. The number of alleles that can reasonably be assumed to be drop-in as opposed to contamination in a DNA profile can be evaluated using negative control data, which may also be used to inform probabilistic genotyping models that take this phenomenon into account.	Accept with modification- Definition was modified.
101	3.7	3.6	T	What makes this process rapid is not the hands free process, it's the truncated testing time to develop a profile.	The time to develop the profile using "rapid" DNA seems relevant here, consider adding language about what time is defined as "rapid"	Reject with modification: Definition was modified for clarification, though defining what "rapid" is, is outside the scope of this document.
48	4.1		E	A DNA technical leader can ensure that the laboratory protocols and procedures address these standards, but they are not necessarily the individuals responsible for ensuring compliance.	The laboratory shall have and follow standard operating procedures addressing the requirements of this standard which are approved by the technical leader.	Reject with modification: alternate roles to the technical leader added for clarification, refer to section 4.3 of this document for the procedural requirements.
116	4.1		T	1) Some laboratories may not have a person designated as a "technical leader," but have personnel with other titles appropriate to fulfill the role. The roles of the technical leader are specified in the QAS document for use in the US. 2) Not sure how one would audit to this requirement as written.	Recommend: The laboratory shall develop and follow appropriate documented laboratory procedures and policies to address each of the requirements in this standard.	Accept with modification-Sentence was modified.
107	4.1.7	4.2.7	E	4.1.7 Laboratory work area surfaces and furnishings shall be able to withstand frequent cleaning and/or decontamination (e.g., bleaching).	This is a good example of considerations that should be made under 4.2.6	Reject- Cleaning is not the same as the physical arrangement and work flow of a DNA laboratory.

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50	4.2.1		T	The laboratory areas cannot be restricted to only individuals involved with the laboratory procedures. This is not a practical expectation in an operational forensic laboratory. For instance, laboratory supervisory staff and/or janitorial staff may have legitimate access to these spaces. The laboratory employs precautions to mitigate potential contamination risks from anyone with authorized access to laboratory work areas.	Access to laboratory areas shall be restricted to individuals authorized by the laboratory to reduce the risk of introducing extraneous DNA into work areas and samples.	Accept
71	4.2.1		T	What about custodial staff, repair personnel, etc.? This is not practical as written.	"…restricted to appropriate personnel to reduce the risk…"	Accept with modification- Sentence was modified.
102	4.2.1		T	"Access to laboratory areas shall be restricted to individuals actively involved with laboratory procedures to reduce the risk of the introducing extraneous DNA into work areas and samples." Building maintenance personnel, HVAC technicals, emergency medical/fire personnel, field service technicians, etc. may all have to access the laboratory at some time or another performing functions not described by any laboratory procedure or sample test. This language is overly specific, I suspect for a reason. There are accredited laboratories whose justice systems require testing observation by defense experts. This standard should not be an attempt to exclude them.	"Access to laboratory areas shall be restricted to reduce the risk of introducing extraneous DNA into work areas and samples." Ambiguous words like "actively involved" and "laboratory procedures" should be removed.	Accept with modification- Sentence was modified.
103	4.2.1		T/E	May be beneficial to include language describing best practices recommended to restrict access (logs, key fobs, biometrics, sign in/out).	Add language further describing what is being required/recommended.	Reject- This is at laboratory discretion and is audited by the accreditation body.
117	4.2.2		E	word seems to be missing	add "the" before "PCR"; "Post-PCR includes the PCR…"	Reject- It does not appear any words are missing.
14	4.2.2.1	appears to be a comment on 4.2.1 or 4.2.1.1	E	Typographical	Add a space between "pre-" and "and"	Accept
80	4.2.2.2	appears to be a comment on 4.2.1.2	E	Why cleaned *and* decontaminated? Isn't decontamination a form of cleaning? The use of the word and imply that they are two separate steps.	remove "cleaned and" so the sentence reads "...without first being decontaminated."	Accept
118	4.2.2.2	appears to be a comment on 4.2.1.2	T	the deleted sentence seem to suggest a requirement to use a method appropriate to the item being moved. That requirement seems to be lost now.	Suggest adding a qualifying phrase to maintain the requirement such as: "…cleaned and decontaminated using appropriate methods"	Reject- It is up to the laboratory to decide what are appropriate methods.
104	4.2.3		T	Evidence packaging is an important aspect of mitigating contamination. More language should be included to describe what is being required by this standard with regard to proper evidence packaging	Add language further describing what is being required/recommended for best practice for storing evidence (lockers, separate packaging requirements etc.)	Reject- It is up to the laboratory to decide what are appropriate storage conditions.
119	4.2.4 (& 4.3.3, 4.3.3 b, 4.5.2)	appears to also be a comment on 4.2.3, 4.5.2 b), 4.3.3 c)	T	Unclear what the difference is between "evidence" and "samples" and how that relates to the requirement to be "packaged and handled."	Clarify what is evidence vs. samples so the laboratory personnel and an auditor can correctly differentiate what is needed for each separately to meet this requirement (and the others listed).	Accept with modification: "sample" was removed and replaced with "evidence derivative"
15	4.2.5	4.2.4	E	Although it is not part of the red-line, suggested revision. The sentence can be misconstrued to not realize that reagents and consumables are separate from extracts and PCR products.	Change to, "Separate storage areas shall exist for reagents/consumables, DNA extracts, and PCR products.	Accept with modification- A "," was added instead of a"/"

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
16	4.2.5.1	4.2.4.1	E	Although it is not part of the red-line, suggested revision. Since reagents and consumables are combined in 4.2.5, add consumables here.	Change to, "Applicable reagents/consumables and DNA extracts shall be stored separately in pre-PCR areas."	Accept with modification- A "," was added instead of a"/"
17	4.2.5.2	4.2.4.2	E	Although it is not part of the red-line, suggested revision. Since reagents and consumables are combined in 4.2.5, add consumables here.	Change to, "Applicable reagents/consumables and PCR product shall be stored in post-PCR areas."	Accept with modification- A "," was added instead of a"/"
2	4.2.6	4.2.5	T	this requirement is vague and does not give clear direction to accomplish it; it is redundant to the rest of the standard	remove 4.2.6	Reject-The topic is important for consideration and it is up to the laboratory to apply based upon local workspace conditions.
49	4.2.6	4.2.5	E	word *The* needed at start of standard to make sentence read smoothly.	Add *The* to the start of the sentence	Accept
105	4.2.6	4.2.5	T	"Laboratory shall arrange the working environment to mitigate potential contamination."	Please explain **how** these standards recommend this be accomplished? What are the best practices recognized by this body that a lab should implement to do this?	Reject-The topic is important for consideration and it is up to the laboratory to apply based upon local workspace conditions.
120	4.2.6	4.2.5	E	Add "The"	The laboratory shall…	Accept
81	4.2.7	4.2.6	E	"… frequency of The cleaning."	make "The" lowercase.	Accept with modification- section was modified.
122	4.2.7	4.2.6	E	suggestion of word with more clarity perhaps	Substitute "defined" or "established" or other appropriate word in place of "determined"; "The cleaning schedule shall be defined/established by the…"	Accept with modification- section was modified.
121	4.2.7	4.2.6	E	words missing and extra commas that may be confusing	May have better clarity in the meaning by changing to: "…a written and regularly scheduled cleaning procedure to include the laboratory areas and items to be cleaned, and the frequency of cleaning."	Accept with modification- section was modified.
31	4.2.8	4.2.7	T	The laboratory shall have and follow a written, regularly scheduled DNA laboratory monitoring program and the results from the program shall be documented and made available for inspection.	This seems vague, does it mean a regularly scheduled contamination monitoring program? That can take many forms (i.e.. random substrate controls, staff comparison databases, searching batch profiles against each other).	Reject- See definition 3.5.4 for a clearer description.
35	4.2.8	4.2.7	T	It is important that the monitoring program and results be made available for external stakeholders. As written ("made available for inspection") is not clear as to who may review these materials.	Revise 4.2.8 to state: The laboratory shall have and follow a written, regularly scheduled DNA laboratory monitoring program and the results from the program shall be documented and made available for inspection [and shall be posted online or made available upon request].	Accept with modification- "upon request" was added to 4.2.7 (old 4.2.8).
106	4.2.8	4.2.7	T	"The laboratory shall have and follow a written, regularly scheduled DNA laboratory monitoring program and the results from the program shall be documented and made available for inspection."	Please add language to whom these documents should be "made available for inspection." I believe these should be publicly available as a best transparent practice, as should all quality documents in the spirit of the NCFS recommendations.	Accept with modification- "upon request" was added to 4.2.7 (old 4.2.8).
123	4.2.8	4.2.7	E	minor editorial edits for ease of flow and aid for auditing	…follow a written and regularly scheduled DNA laboratory monitoring program. The results from the program shall be documented….	Accept
18	4.2.9	4.2.8	T	Making this a "shall" now may be excessive, especially if the laboratory has implemented processes to decontaminate consumables into their procedures. If you leave this as a "shall", ISO 18385:2016 is now a Normative Reference.	Change "shall" to "should". You may want to add a caveat that if they don't purchase ISO 18385 items, they "shall" implement a decontamination process similar to 4.2.10.	Reject- Flexibility is already provided with the words "when possible".
82	4.2.9	4.2.8	T	It may be possible for a laboratory to purchase ISO 18385 consumables but it may not be practical for them to do so. They may not have validated the consumable, the consumable may be cost prohibitive, etc.	Change "possible" to "practicable"	Reject- When possible is stronger than when practicable.
19	4.2.10	4.2.9	T	If a laboratory does buy ISO 18385 consumables, do they still also have to use a decontamination process to those consumables?	If you add the proposed caveat to 4.2.9, remove consumables from this list.	Reject- Purchasing items from ISO 18385 minimizes the contamination risk. It does not eliminate it or eliminate the risk after a laboratory receives an item.

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
124	4.2.10	4.2.9	E	should "for" be "from"?	…contamination from laboratory equipment...	Accept
51	4.2.11	4.2.10	T	Not all consumables have lot numbers, the addition of this statement would restrict the tracking to only items with lot numbers and not necessarily all reagents/consumables used during a process.	Suggest elimination of the added text "the lot numbers of".	Accept with modification- "lot numbers" was moved after reagent.
61	4.2.11	4.2.10	Technical	Unsure of what consumables are in this context (scalpels, Kimwipes, tips, plates, etc.)	Define consumables and/or add qualifier critical consumables	Reject-Consumable is a generic term left to laboratory discretion.
108	4.3.3		T	"The handling and packaging of evidence and samples to limit the possibility of contamination"	Please explain **how** these standards recommend this be accomplished? What are the best practices recognized by this body that a lab should implement to do this?	Reject- It is up to the laboratory to decide what are appropriate procedures.
109	4.3.3	4.3.3 d	E	The laboratory shall limit the opening and examining of no more than one item of evidence at a time.	The laboratory shall limit the opening and **examination to** one item of evidence at a time.	Accept
110	4.3.3	4.3.3 b	E	The cleaning of work surfaces and examination tools with DNA destroying reagents or processes before new evidentiary items are examined.	**The laboratory shall require** the cleaning of work surfaces and examination tools with DNA destroying reagents or processes before new evidentiary items are examined.	Accept
6	4.3.3.a-f		E	these sections are worded in different styles: a, b, and f are sentence fragments that go with the 4.3.3 sentence (which should end in a ":" if this style is kept), but c, d, and e start with "The laboratory shall"	adjust for style	Accept
135	4.3.3 - C	4.3.3 e		4.3.3 (c) should include separation for evidence collected from a crime scene or victim and evidence collected from a suspect to avoid cross contamination. 		Reject- See 4.3.3e. Only 1 item is open and examined at a time.
137	4.3.3 - C	4.3.3 g		Laboratories with automated pathways may not be able to guarantee that 4.3.3 c or d are met nor should they be required to if the automated pathway is validated.		Accept with modification. Section 4.3.3 d was modified to delete "during the entirety of processing....". For 4.3.3 c, was changed to require validated procedures to mitigate.
32	4.3.3 c	4.3.3 f	T	The laboratory shall examine and extract high template evidence (e.g., blood, semen, saliva) separately in time or space and independently from low-template evidence (e.g., epithelial cells/touch DNA).	Not all labs can do this and many items have both types of evidence, robotics help at extraction. Remove?	Accept with modification- The standard was modified and the word potential was added.
72	4.3.3 c	4.3.3 f	T	How does the lab know what is high and what is low?	"Efforts should be made to examine and extract high/low separately...."	Accept with modification- The standard was modified and the word potential was added.
83	4.3.3 c	4.3.3 f	T	This is not practical for a working forensic laboratory. Many labs employ robotics that are validated and capable of manipulating high and low template samples simultaneously or in sequence without contamination. It may not be apparent until after quantitation whether the evidence was high or low template; therefore, a lab could unintentionally violate the standard as written.	Remove 4.3.3 c entirely	Accept with modification- Section 4.3.3 c, was changed to require validated procedures to mitigate any risk of concurrent extraction.
4	4.3.3.c	4.3.3 f	T	this requirement is unneeded. Labs with high throughput systems/robots/ procedures have validated them to handle high and low template samples together on an extraction robot. If validation shows that no contamination occurs, there is no reason to implement a second stream of evidence	remove 4.3.3.c	Accept with modification- Section 4.3.3 c, was changed to require validated procedures to mitigate any risk of concurrent extraction.
53	4.3.3c	4.3.3 f	T	It is not always possible to recognize high template vs low template samples and is unreasonably restrictive.	Delete requirement	Accept with modification- The standard was modified and the word potential was added.
62	4.3.3c	4.3.3 f	Technical	Very little screening (especially with sexual assault kits that may contain semen or saliva) is still done prior to extraction and therefore we are unable to estimate the amount of DNA present. This is also not conducive with automation.	Remove the words "The laboratory shall examine high template separately in time in space" or delete high template and low template from the discussion.	Accept with modification- The standard was modified and the word potential was added.
69	4.3.3 c + d	4.3.3 e & f	T	I know this has been raised in the meeting, but this should read time *and* space.	time and space (in both c) and d))	Reject-The DNA CB already decided this point at a meeting.

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
125	4.3.3 c), d) and e)		E	"The laboratory shall" is duplicated since it is included in 4.3.3	Delete "the laboratory shall" and modify the first word(s) appropriately for the context of 4.3.3 (e.g., The examination and extraction of…)	Reject- All sections were modified to include "the laboratory shall".
5	4.3.3.d	4.3.3 g	T	same comment as above	remove 4.3.3.d	Accept with modification- Section 4.3.3 c, was changed to require validated procedures to mitigate any risk of concurrent extraction.
20	4.3.3 d	4.3.3 e	T	Currently this reads as if you cannot load reference samples and evidence on the same CE plate for genetic analysis.	Change to, "The laboratory shall separate in time or space the processing of reference samples from evidentiary items during the entirety of laboratory processing from screening through PCR amplification."	Accept with modification- requirement deleted "during the entirety of processing…"
136	4.3.3 -D	4.3.3 e		4.3.3 (d) should include a requirement for separation in time and space for reference and evidence items. There have been documented contamination events between reference and evidence samples even when handled at different times within a laboratory. To allow the same space to be used for both types of samples is inviting contamination.		Reject-The DNA CB already decided this point at a meeting.
52	4.3.3d	4.3.3 e	T	It is not practical or possible for a laboratory to separate in time/space the processing of known and unknown samples during the entirety of the testing process. For instance, MPS combines samples into a single tube for analysis and automated platforms are specifically designed to run large numbers of batched samples. Laboratory validation should identify the steps in the process where the separation of K/Q samples is essential and when batching is allowed.	Delete requirement	Accept with modification- requirement deleted "during the entirety of processing…"
84	4.3.3d	4.3.3 e	T	As mentioned in the previous comment, many labs use robotics that can co-process evidence and reference samples simultaneously without contamination. This substandard is not necessary for a lab that has validated robotic tools.	Remove 4.3.3 d entirely or add exceptions for laboratories using validated robotic workflows.	Accept with modification- Section 4.3.3 c, was changed to require validated procedures to mitigate any risk of concurrent extraction.
133	4.3.3-D	4.3.3 e		4.3.3 (d) should be separate in time AND space for reference and evidence items. Should also be separate in time and space when examining items from suspects, items from victims, and items from crime scene in the one case . It is unacceptable to examine items from different suspects/victims on the one bench one after another, or worse at the same time, as this does not mitigate contamination.		Reject-The DNA CB already decided this point at a meeting.
21	4.3.3 e	4.3.3 d	E	Sentence reads awkwardly	Change "examining" to "examination"	Accept
73	4.3.3 e	4.3.3 d	T	Any though given to what happens in other lab disciplines before it ever gets to DNA in the first place? What's the point of DNA examiner having only 1 item open at a time when latent print branch fumed them all at the same time?	Address this at the laboratory level.	Reject- Outside the scope of the document.
126	4.3.3 e)	4.3.3 d	T	should this include the opening of only one tube containing DNA at a time? Limiting cross contamination of DNA on plates?	Expand this language to include steps during the DNA testing process, and not just limit to the initial handling of evidence	Reject- Plates which are used for most of the processing have all wells open.
54	4.3.3e	4.3.3 d	T	This standard seems to restrict laboratories to the examination of only one item even if the laboratory is composed of multiple examiners that could be working on separate cases simultaneously in separate work areas.	Delete requirement	Accept with modification- "at each workstation" was added to the requirement.
55	4.3.3f		E	The note addressing the SWGDAM Contamination document should be moved to the bibliography	move reference to the bibliography	Reject- The note was added to highlight specific procedures. It is also in the bibliography.
22	4.3.4		E	As it reads the lab has to document "when" item of evidence is packaged together, but timing is not something the lab might know. Further expand the description of what is to be documented.	Change to, "The laboratory shall document in the casefile when items of evidence are packaged together and how they were packaged."	Accept

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
111	4.3.4		E	"The laboratory shall document when and how items of evidence are packaged together and include such information in the casefile." Unclear language	The laboratory shall document when and how items of evidence are packaged together by laboratory personnel and include such information in the casefile, as well as what steps shall be taken when items of evidence are received by the laboratory packaged together.	Accept with modification- The requirement was clarified.
127	4.3.4		T	It seems the intent of this is to document when evidence is received packaged together and to document how it was packaged, but the current wording seems to suggest that the laboratory needs a policy for packaging evidence together - not something typically needed by a laboratory.	Suggested edit: If evidence items are received packaged together, the laboratory casefile documentation shall include what items were packaged together and specify how they were packaged. (or detail how they were packaged)	Accept with modification- The requirement was clarified.
23	4.3.5		E	Provide more specific information concerning what you mean by use.	Add "evidentiary items" after "testing"	Accept with modification- Requirement was clarified.
24	4.3.6		T	Allelic drop-in is a analytical by-product (stochastic amplification artifact) and not exogenous DNA.	Remove the "(contamination and drop-in)"	Reject- See definitions for contamination and drop-in. Drop-in is exogenous DNA.
36	4.3.6		T	The laboratory should include in the log the source of the contamination (lab personnel, law enforcement, etc.) and document other information that would inform procedures to prevent future contamination events.	Revise 4.3.6 to state: The laboratory shall document, maintain, and periodically evaluate a log containing exogenous DNA (contamination and drop-in) found in any sample or control. [This log shall include the source of the contamination (if known), stage of contamination, individuals involved, and other information that would inform procedures to prevent future contamination events.]	Accept with modification- Part of the proposed change was accepted.
56	4.3.6		E	The added sentence requiring the availability of the log for audit purposes seems unnecessary since all documentation retained by a laboratory should be available for review	Delete added sentence	Reject- The log is crucial for audit review.
7	4.3.7		T	The addition is too far reaching, and many labs don't have the ability to do this type of search and will not be able to meet this requirement. Nor is it needed in many cases where there are no unknown profiles. DNA analysts should be able to select appropriate samples to compare to the database.	Remove "These searches shall occur for every comparable DNA profile obtained and"	Reject-Searching comparable profiles is essential to the Quality System.
37	4.3.7		T	The laboratory should search the DNA elimination database before comparing the evidence results to a suspect.	Revise 4.3.7 to state: The laboratory shall…These searches shall occur for every comparable DNA profile obtained **[before comparing the evidence results to suspects]** and all results shall be documented in the case file.	Reject- Overly prescriptive when the search is done is not as important as the fact that it is done.
63	4.3.7	4.3.6	Technical	Unclear on what OSAC means by the word "comparable." Unclear if this would include when there is no probative value to a sample (e.g. an assumed donor is the only contributor to the sample). We have determined what DNA profiles are comparable in our lab and require STRmix.	This is a broad term. Please define or provide additional information.	Accept with modification- "comparable" changed to "interpretable/comparable".
67	4.3.7		T	In 4.3.7, it seems that "These searches shall occur for every comparable DNA profile obtained and all results shall be documented in the case file." appears to contradict 4.3.10a "Comparing all mixtures, SS profiles, or deduced profiles to profiles contained within the DNA elimination database." For 4.3.7, does comparable mean interpretable (not inconclusive)? Does this mean one needs to search known DNA standards or an single source F1 (female fraction) from a vaginal swab differential extraction that matches the victim?	These statements should be consistent and the types of samples needs to be reasonable so as to not do unnecessary searches.	Accept with modification- "comparable" changed to "interpretable/comparable".

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
74	4.3.7		T	So every profile suitable for comparison must be checked against the elimination database? Even those that match/include/accounted for by the references submitted in the case? That is not needed nor practical. Turing's rule says that we absolutely know we will get "results" for elimination databases randomly. As databases grow, there will be more "hits". This is expected, and offers nothing of value to the case file. Furthermore, if this required for every sample (seems to be current language) there will be numerous "hits" to the elimination database over time in the lab, even in samples where all DNA is accounted for by the references in the case.	Re-word this to address when it matters: "Unaccounted for profiles, no-suspect cases, alleles/genotypes/profiles not found in references" or similar. The only time something needs to be documented is when a contamination event was determined to have occurred and some corrective action was taken. Remove the part about checking every "comparable" profile. Remove the part about "all results shall be documented" as this is not realistic and only confuses things.	Reject- This documents supports comparing every interpretable DNA profile is searched and all elimination database search results should be documented.
25	4.3.7.1		T	During Round 1 of comment adjudication #110 proposed resolution states "delete laboratory visitors or move to a different list" and the comment is "Accept". But the red-line version appears to have "DNA laboratory visitors and" added. Including visitors is excessive and may cause privacy concerns outside the scope of the lab's control. It might be included as an option, but currently it's under a "shall" requirement. The "Where possible" starting the sentence doesn't address this because it is possible to get samples from all visitors, it may not be realistic.	Remove "DNA laboratory visitors and". You may consider a separate sentence to state, "When visitors are present in the DNA laboratory during analysis of evidence, elimination samples shall/should be collected and included in the database." Your choose between "shall" and "should".	Reject- It is important to collect DNA from anyone who is in the lab. The word "where possible" gives the laboratory some flexibility.
85	4.3.7.1		T	It is not feasible to include every partial low-level consumable contamination profile detected in a laboratory within an elimination database without generating a large volume of spurious matches. Reword this section to either remove that example or add a clarifying note.	At a minimum, this database shall include biology staff and positive control samples from donors and kits. A laboratory may also include contamination elimination profiles, such as unknown DNA profiles obtained from controls or profiles that have been putatively assigned as possible contamination profiles (e.g., from consumables), when these profiles have been determined to the extent that warrants inclusion in a searchable database.	Reject- Section 4.3.7.1 states profiles and not alleles from a variety of sources shall me included in the elimination database.
38	4.3.8		T	If a contamination result occurs in a intra-batch comparison, the results of these comparisons should be made available in every case file impacted.	Add to 4.3.8: If a contamination event occurs, it should be documented in every case file for the samples that were run in that batch.	Reject-Assessing the source of the contamination, and subsequently documenting the contamination event should at a minimum be in the affected casefiles.
64	4.3.8		Technical	Unclear how "Batch" is defined. When does this guideline attach in the process? How is this to be completed? This is too vague. We currently have many controls in place to detect contamination and have a process to document.	Further clarification on what is needed and the process to complete this task or remove the guideline all together.	Reject- Batch is defined in the parenthesis.
86	4.3.8		T	Many labs have workflows that involve samples coming together for a single quantitation plate that are then subsequently distributed to multiple (combined with other samples) amplification plates. With respect to "samples processed concurrently," is the intent to apply to all of those different analytical steps? That is not feasible in most high volume forensic laboratories.	Narrow the definition of "concurrently" or reword to "Intra-batch comparisons to detect contamination shall be conducted as practicable to the laboratory's established workflow"	Reject- Batch is defined in the parenthesis.
39	4.3.9.1		T	Transparency is critical and thus, the contamination assessment and underlying data should be available to the public.	Revise 4.3.9.1 to state: The laboratory shall include the contamination assessment and underlying data in the validation documentation **[and shall be posted online or made available upon request]**.	Reject- This is more appropriate for inclusion in a validation standard. This is a bigger issue than just contamination.
87	4.3.9.2		T	Not every procedural modification will require a contamination assessment. Adding an extra 15 minutes onto a PCR adenylation step, or doing a performance check of a new subversion of genotyping software (where no threshold changes are made) would not warrant a new contamination assessment.	Edit to be more focused on when a contamination assessment is warranted.	Reject- An assessment may mean that nothing needs to be done but it at least needs to be thought about.

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88	4.3.10		T	Not all labs are going to validate all aspects of a software program, so although a software tool may have the capability to do something, the lab may find, in validation, that is a feature that is not appropriate to use.	"… shall use such software within its validated capabilities to detect contamination…"	Accept
89	4.3.10 a		T	4.3.7 requires the that "comparable DNA profile[s]" be compared to the elimination database, 4.3.10 a requires ALL profiles.	Edit 4.3.10 a to cover interpretable samples, not all samples	Accept with modification- "comparable" changed to "interpretable/comparable".
8	4.3.10.a		T	not all profiles need to be checked - there is no need to check every profile against the elimination database	remove "all" and "single source profiles"	Accept with modification- "comparable" changed to "interpretable/comparable".
90	4.3.10 b		T	Mixture to mixture comparisons are not always feasible and detection of common sources does not necessarily support the investigation of contamination.	Remove this substandard.	Accept with modification- "comparable" changed to "interpretable/comparable".
66	4.3.10 b.c.d		Technical	Unclear on what OSAC means by these three.	Provide additional clarification on what this means and how to perform.	Reject- This is a laboratory dependent decision.
75	4.3.10 e		T	Remove e	There can be numerous random person LRs > 1 if enough profiles are compared to any samples. This is a fundamental tenant of DNA, and is described as Turing's rule. A small lab with only a 10-20 persons in an elimination database may only rarely see LRs >1. If a large lab system successfully gets profiles of first responders, investigators and so on (I know a lab with >1000 elimination profiles) they will get LRs >1 one in many, many mixtures. Often this has no meaning in the case whatsoever, as the submitted references account for the number of contributors to the mixture, and each reference has an LR >>>> than elimination database LRs.	Accept with modification- The LR threshold was changed to be determined by each laboratory.
91	4.3.10 e		T	This is not practical. A 4 person mixture may generate many likelihood ratios >1 that are simply spurious and not contamination. Laboratory thresholds MUST be used in order to filter out these matches so that a laboratory is not chasing down non-contamination incidents.	Remove this substandard.	Accept with modification- The LR threshold was changed to be determined by each laboratory
30	4.3.10 e		T	This requirement seems overly burdensome and potentially misleading to the customer and the courts. Some laboratory's have several hundred samples in their staff databases to monitor for contamination. The calculation of a LR >1 in a 4 person mixture does not indicate that the person is necessarily a source of contamination.	Change to "relevant" staff, individuals that actually had contact with the item. Additionally, an LR greater than 1,000 may provide more support for contamination than an incidental inclusion.	Accept with modification- The LR threshold was changed to be determined by each laboratory
9	4.3.10.e		T	this started out as a great way for labs to use their elimination database to detect contamination and improve their lab environment. These additional requirements have added an impossible burden on labs. A complex mixture has value in the calculated LR. If my elimination database is large, I can also expect to get additional fortuitous hits (if there is a low level contributor that would produce a low LR if compared). This does not implicate my lab in 10s or 100s of contamination events, it simply reflects the limited nature of the results. There is no benefit to the lab to detect and report these results. To suggest that a lab is "hiding" behind an LR threshold is absurd. Those labs are trying to focus on true contamination events and protect the resources required to track down true, damaging contamination. Tabulating these meaningless results in a report is also worthless, as it just adds confusion to an already complex report.	remove 4.3.10 e	Accept with modification- The LR threshold was changed to be determined by each laboratory

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
57	4.3.10e		T	This requirement to report an LR>1 is arbitrary, discounts laboratory validation, and does not allow for troubleshooting or re-working samples. Adventitious LR>1 are known to occur with low level data and are not necessarily indicative of contamination. Requirement for tabulating in case report is inconsistent with 4.3.11 which requires documentation in the case record.	Amend requirement to: establishing a likelihood ratio threshold via internal validation studies for determining possible contamination events based on searching the elimination database.	Accept with modification- The LR threshold was changed to be determined by each laboratory
65	4.3.10e		Technical	"(greater than 1)" We have a higher number that we have established through a rigorous internal validation. This should supersede any arbitrary number established by these guidelines. Published data indicates that a low likelihood ratio value can produce adventitious inclusions. The larger the database, the more likely an adventitious inclusion can occur. Providing potentially adventitious inclusions in the report would be misleading.	Each lab should determine a likelihood ratio threshold value to report for comparisons to an elimination database. This should be documented in the casefile.	Accept with modification.- The last sentence of the suggestion was expanded
68	4.3.10e		T	Why do any LRs greater than 1 need to be tabulated in a report? Does report mean the report sent to the submitting agency with the DNA results? This is impractical because the more complex a mixture is, the more known non-contributors will have LRs >1. This does not mean they are actually contributors. A better check would be to see what the LRs are of true known non-contributors and compare the LRs >1 from the elimination database. An LR that is greater than the LRs from the known non-contributors would need to be investigated as possible contamination.	Remove "and tabulate them in the report".	Reject- A summary sentence is all that is required in the report as long as the data is maintained in the casefile.
76	4.3.10 f		T	Remove f or narrowly define this	It seems like the criteria for "potential" contamination is any LR>1 from an elimination data base. This would be a misuse of the elimination database and a misunderstanding of the LR and adventitious inclusions. When an actual contamination even is deemed to have occurred, then the case file needs to reflect it. But putting all LR>1 into a case file from an elimination database, and calling those "potential" contamination is incorrect. However, I may be misunderstanding this entire section.	Accept
92	4.3.10 f		T	Is a non-contributor test a check for contamination? How does this play into the detection of contamination?	Remove this substandard.	Accept
128	4.3.10 f)		T	possible word missing at the end - unclear what "non-contributor" is being referred to. Many individuals in a case may be non-contributors to a DNA profile, but that has nothing to do with elimination databases.	add appropriate missing word(s)	Accept with modification- the subsection was deleted.
10	4.3.10.f		T	this requirement is conflating an elimination database with a non-contributor database search. It doesn't belong here, and it should be recognized that using a non-contributor database as another/separate metric for the value of the evidence is not a universally accepted approach. The value of the evidence is best represented by the LR.	remove 4.3.10 e	Accept
58	4.3.10f		T	redundant with subpoint f	delete requirement	Accept
40	4.3.11		T	Transparency is critical and thus, the results of the root cause analysis should be available to the public.	Revise 4.3.11 to state: Potential contamination events shall be investigated and referenced or documented within the case record. When contamination is identified, a root cause analysis shall be conducted and documented [and shall be posted online or made available upon request].	Accept with modification- The language was partially modified.

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
77	4.3.11		T	If any elimination LR>1 is a "potential" contamination, and requires an investigation, this will be a massive task for labs.	Find a different criteria than LR>1 from the elimination database for "potential" contamination. If that is NOT what the document is using as the main criterion, the document needs to be re-written to make the actual criteria more clear to the reader.	Accept- 4.3.10 e was modified to remove the requirement for an LR>1.
26	4.3.12		E	You don't need the word "also"	Remove "also"	Accept
11	4.3.13		T	there is not always a legal party assigned/available at the time of the testing and reporting. The customer of the laboratory is the investigator, and the laboratory should not be accountable to report contamination to the legal parties. These records are maintained in the case file and available during discovery.	change back to customer	Accept with modification- Customers were added and legal parties modified if known.
59	4.3.13		E	Laboratories should determine the parties authorized to receive the results of testing performed.	Suggest deleting all text following communicating contamination events.	Accept with modification- Customers were added and legal parties modified if known.
129	4.3.13		T	also add "clients" or other designation for individuals who submitted the evidence and are the receivers/users of the reports initially (e.g., other crime labs, law enforcement, private individuals, court); on another note, isn't this requirement outside the scope of this document since this is not preventing, monitoring or mitigating contamination	expand the list of individuals who need to be notified of any contamination event beyond attorneys or delete the requirement all together since it is outside the scope of this document	Accept with modification- Customers were added and legal parties modified if known.
27	4.3.14		E	The use of the word "health" is strange here and doesn't match the definition of the word.	Replace "health" with "suitability", "robustness", or "appropriateness".	Accept
3	4.3.2.2		E	i.e. should be e.g. - this is an example, not the only way it can be accomplished	change to e.g.	Accept
130	4.4.2		T	suspension for the whole laboratory or for an individual?	clarify what suspension is being referred to	Reject- The laboratory has to define when suspension refers to an individual or the whole laboratory.
28	4.4.2 c		T	Using just "review of casework" does not indicate that the review may require additional cases.	Change to, "the extent of review of other casework"	Reject- The laboratory's policy would include the extent of the review of casework.
131	4.4.2 f)		T	unclear what "post-contamination review" means and what is being reviewed	Provide more information or definition for this	Accept with modification- The term was removed.
41	4.5.1		T	There should be a timeframe for when trainings will occur.	Add that trainings should occur yearly or at the beginning of employment.	Reject- It is laboratory discretion for the training.
29	4.5.2		E	Can this be made into a list because when contained in this sentence the individual requirements get lost in the "ands" within each clause.	Reorganize list	Accept
132	4.5.2		E	flow is awkward	maybe add a ":" after "include" to prevent associating "the use of" with the later items in the list	Accept with modification- Was reorganized as a list.
33	Bibliography		E	link for footnote c does not work	update link	Accept with modification - link and reference was updated to Version 2 instead of keeping the link for Version 1
134	Bibliography			Reference 12 should not have "NIST" as the author. This is a National Commission on Forensic Science document, so NCFS should be the listed author. The footnote URL is correct.		Accept with modification - reference was updated to remove NIST as the author. Link listed in footnote h was verified to work.

Deadline For Public Comments: October 3, 2022

ASB Std 136, Forensic Laboratory Standards for Prevention, Monitoring, and Mitigation of DNA Contamination

#	Section	Type of Comment (E-Editorial, T-Technical)	Comments	Proposed Resolution	Final Resolution
39	Foreward	E	Remove 'the' between 'to' and 'evidence' (2nd paragraph, line 3)	remove unnecessary word	Accept
40	Foreward	E	Remove 'the' between 'to' and 'evidence' (2nd paragraph, line 4)	remove unnecessary word	Accept
41	Foreward	T	"Contamination can also occur when objects transfer DNA…". I believe that 'surfaces' should be added here as well. Additionally, other 'evidence' can contaminate 'evidence' (e.g., packaging evidence together) which I believe is a concept missing here.	insert 'surfaces' to 'objects' and add in concept of evidence packaging.	Accept
42	Foreward	E	Comma needed between 'personnel' and 'or' (2nd paragraph, line 2)	insert necessary comma	Accept
43	Foreward	E	Remove comma between 'searches' and 'and' (3rd paragraph, line 2)	remove unnecessary comma	Accept
44	Foreward	E	Add '(AAFS)' between 'Sciences' and 'established' (5th paragraph, line 1)	insert necessary abbreviation	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
45	Foreward	E	5th paragraph should read "safegaurding justice, integrity, and fairness through consensus-based American National Standards.'	adapt wording to match what I have written in the left column	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
46	Foreward	E	consensus based' needs a hyphen (5th paragraph, line 3)	insert hyphen	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
47	Foreward	E	Comma needed between 'diversityl' and 'and' (5th paragraph, line 6)	insert necessary comma	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
48	Foreward	E	-based' needed after 'consensus' (5th paragraph, line 7)	insert necessary hyphen and word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
49	Foreward	E	Insert 'Academy' between 'AAFS' and 'Standards' (6th paragraph, line 2)	insert necessary word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
50	Foreward	E	Insert 'the' between 'to' and 'AAFS-ASB' (7th paragraph, lines 1-2)	insert necessary word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
88	Last Page	E	Remove 'Academy Standards Board' under the logo to match what was done in the front matter pages	remove unnecessary words	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
34	N/A	E	Space needed between '410' and 'North'	insert necessary space	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
35	N/A	E	Insert 'Academy' between 'AAFS' and 'Standards' (paragraph under bullets, lines 4-5)	insert necessary word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
36	N/A	E	Comma needed between 'associates' and 'and' (paragraph under bullets, line 5)	insert necessary comma	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
37	N/A	E	Insert 'Academy' between 'AAFS' and 'Standards' (sentence under paragraph mentioned above)	insert necessary word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
38	N/A	E	Insert 'Academy' between 'AAFS' and 'Standards' (last paragraph, line 3)	insert necessary word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.

#	Section	Type of Comment (E-Editorial, T-Technical)	Comments	Proposed Resolution	Final Resolution
51	1	E	Change 'a forensic laboratory' to 'an accredited forensic laboratory' to match language used in the Forward.	adapt wording to match what I have written in the left column	Reject. This standard can be used non-accredited forensic laboratories outside the U.S. or by universites
52	3	E	Insert 'the' between 'For' and 'Purposes'	insert necessary word	Reject. This paragraph is template language approved by the ASB Board and cannot be modified.
11	3.1	E	This definition is not used in the requirements	delete the definition for background DNA	Not applicable. There is no definition for background DNA in the standard
53	3.1	E	Change 'difference' to 'dissimilarity'	adapt wording to match what I have written in the left column	Reject. Consensus Body prefers difference, and this keeps the document in line with existing published ASB DNA standards. They are synonyms.
12	3.2	T	this definition is too limited in scope. Contamination may be introduced into the evidence by anyone on the scene after commission of the crime and prior to first responders arrival. It may also be introduced at any step during laboratory testing to the evidence item or into any of the DNA containing tubes (e.g., the DNA extract or PCR amplification or CE set up) from contaminated solutions or other direct or indirect mechanisms. It needs to encompass any DNA introduced by any means that is not directly related to what was on an evidence item at the time of the crime and any subsequent introduction to any evidence derivatives or subitems, such as extracts, etc. in the laboratory.	Substitute modification of OSAC glossary "Exogenous DNA present in a DNA sample, PCR reaction, or item of evidence; the exogenous DNA or biological material could be present before the sample is collected, or introduced during collection or testing of the sample."	Reject. The consensus body prefers the definition as written, and feels it is appropriate for how the term is used in the document. The recommended change does not provide additional clarification.
54	3.3	T	I believe 'performed as expected' is more appropriate than 'properly' as that is the intention of a control	adapt wording to match what I have written in the left column	Accept
55	3.3	E	Insert 'a' between 'of' and 'sample' (negative control definition)	insert necessary word	Reject- a sample implies a single profile while sample allows for an unkonw number of profiles
56	3.3	E	Insert 'e.g.,' before the examples of negative controls	insert necessary word	Accept
57	3.3	T	"…no results are expected from a negative control." The lack of a result is still a result.	remove this part of the sentence	Reject- More consistent with the positive control definition.
13	3.4	T	evaluate for consistency with other documents in circulation regarding elimination database	Recommend having a consistent definition across various documents using this term, if feasible. If, however, the term is used differently in different documents, the definition should clearly reflect what the difference is as it relates to each specific document.	Reject- This definition is specific for this document
58	3.4	E	Remove 'and/'. 'Or' includes both 'and' as well as 'or'.	remove unnecessary word	Accept
59	3.4	E	Add 'events' between 'contamination' and 'can'.	insert necessary word	Accept
6	3.6	T	The way the definition is now it is not clear exactly what is meant by assumed. It just doesn't read right. Are you meaning that it is "interpreted" as coming from different individuals? Or "may be interpreted as coming"? Or "may have come from multiple individuals"?	"Presence of approximately 1 to 3 nonreproducible alleles in DNA data where each allele may be interpreted has coming from different individuals whereas contamination consists of multiple alleles from one or more individuals"	Accept with modification- "1 to 3" was replaced with "a low number"

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14	3.6	T	some critical language seems to be missing from the definition that is present in the OSAC terminology document. It is not possible to know what is a "spurious" allele without knowing the true contributor(s) to a DNA extract. The meaning of the second sentence is unclear. We cannot know if 3 alleles are due to contamination or drop-in. Not sure that part of the definition is helpful and seems wordy.	Recommend substituting: (1) Allelic peak(s) in an electropherogram that are not reproducible across multiple independent amplification events. (2) A hypothesis/postulate for the observation of one or more allelic peaks in an electropherogram that are inconsistent with the assumed/known contributor(s) to a sample not likely to be due to the presence of DNA from an additional contributor. The number of alleles that can reasonably be assumed to be drop-in as opposed to contamination in a DNA profile can be evaluated using negative control data, which may also be used to inform probabilistic genotyping models that take this phenomenon into account.	Accept with modification- "1 to 3" was replaced with "a low number"
60	3.6	E	"…whereas contamination consists of multiple alleles from one or more individuals." This portion is not necessary to understand the definition of drop-in	remove this part of the sentence	Reject- Needed to distinguish drop-in from contamination
61	3.7	E	but not limited to' is not needed because 'including' encompasses this concept that the list following is not exhaustive.	remove these words	Accept
15	4.1	T	1) Some laboratories may not have a person designated as a "technical leader," but have personnel with other titles appropriate to fulfill the role. The roles of the technical leader are specified in the QAS document for use in the US. 2) Not sure how one would audit to this requirement as written.	Recommend: The laboratory shall develop and follow appropriate documented laboratory procedures and policies to address each of the requirements in this standard.	Accept with modification. Recommended sentence added before the existing sentence.
16	4.2.2	E	word seems to be missing	add "the" before "PCR"; "Post-PCR includes the PCR…"	Reject- Reference not found in noted section.
17	4.2.2.2	T	the deleted sentence seem to suggest a requirement to use a method appropriate to the item being moved. That requirement seems to be lost now.	Suggest adding a qualifying phrase to maintain the requirement such as: "…cleaned and decontaminated using appropriate methods"	Reject- Section does not exist in this document.
62	4.2.3	T	Why is there not a recommended way to accomplish packaging and handling of evidence items and derivatives to minimize potential DNA transfer? A recommendation for separating pre- and post-PCR areas is given so I feel tht it would be appropriate a recommendation for accomplishment is given here.	add information/subsections on best practices for packaging and handling to avoid potential DNA transfer	Accept with modification. Additional information was added to the section, and a bibliographical reference to NIST IR 7928 was added for additional information.
63	4.2.3	E	Is the word 'unwanted' truly needed here? I don't think DNA transfer is ever wanted.	remove unnecessary word	Accept
9	4.2.3, 4.3.3, 4.3.3c, 4.5.2	E	evidence derivatives	Should this be expanded to evidence derivatives and/or work product, as all need to be packaged and handled to reduce contamination. Plus, derivatives and work product are in the QAS, but neither are defined in this standard's glossary	Accept with modification- Definitions for derivatives and work product are not needed. However, work product was added to 4.2.3.

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18	4.2.4 (& 4.3.3, 4.3.3 b, 4.5.2)	T	Unclear what the difference is between "evidence" and "samples" and how that relates to the requirement to be "packaged and handled."	Clarify what is evidence vs. samples so the laboratory personnel and an auditor can correctly differentiate what is needed for each separately to meet this requirement (and the others listed).	Reject- This should be defined by the laboratory and not by the standard
64	4.2.4.1	E	Comma needed between 'consumables' and 'and'	insert necessary comma	Accept
65	4.2.4.2	E	Comma needed between 'consumables' and 'and'	insert necessary comma	Accept
66	4.2.4.2	E	Insert 'separately' before between 'stored' and 'in'	insert necessary word	Accept
67	4.2.5	T	I feel as though recommendations should be given as to how to achieve arranging a working environment to mitigate potential contamination	add information/subsections on best practices for arranging the lab working environment to mitigate potential contamination	Reject with modification- This is more appropriate in a best practices document. For additional information, a weblink for DNA Analysis Process Map was added to the bibliography.
2	4.2.6	E/T?	the terms 'cleaning' 'clean' are used here, whereas in 4.2.1.2, for example, 'decomtamination' is used.	Unsure - should the wording be consistent throughout? Are 'cleaning' and 'decomtamination' the same definition and used the same throughout? Should they be defined in section 3?	Accept with modification- Cleaning changed to decontamination
68	4.2.6	E	Remove comma between 'scheduled' and 'cleaning'	remove unnecessary comma	Accept
19	4.2.6	E	Add "The"	The laboratory shall…	Reject- Already corrected in a previous version
21	4.2.7	E	suggestion of word with more clarity perhaps	Substitute "defined" or "established" or other appropriate word in place of "determined"; "The cleaning schedule shall be defined/established by the…"	Reject- The suggestions are synonyms (it appears this comment is on section 4.2.6)
20	4.2.7	E	words missing and extra commas that may be confusing	May have better clarity in the meaning by changing to: "...a written and regularly scheduled cleaning procedure to include the laboratory areas and items to be cleaned, and the frequency of cleaning."	Accept
22	4.2.8	E	minor editorial edits for ease of flow and aid for auditing	…follow a written and regularly scheduled DNA laboratory monitoring program. The results from the program shall be documented….	Reject with modification- The words "DNA contamination" were added for clarity (it appears this comment is on section 4.2.7)
69	4.2.8	E	Remove 'forensic' between 'the' and 'laboratory'	remove unnecessary word	Accept
70	4.2.9	E	Remove 'etc.' as this is already a given since the word 'include' is used before the start of the list showing it is not exhaustive	remove unnecessary word	Accept
23	4.2.10	E	should "for" be "from"?	…contamination from laboratory equipment...	Reject- Already corrected in a previous version
1	4.3.3	T	May not be possible to know what is high template vs. low template EVIDENCE prior to analysis; labs that perform batching at various stages could need major workflow changes that would slow production	Limit language to evidence vs. references	Reject- The language includes the word "potential". The analyst will asses the likelihood of template amount. Not all evidence samples are low template and not all reference samples are high template.
89	4.3.3		I believe the group has wrongly resolved the "space and time" comment (see 4.3.3), and that laboratories that cannot provide complete physical and temporal separation of suspected high-template and low-template samples should be entreated to maximize the physical and temporal separation of the samples.	CB Member Comment on Ballot	Reject- No proposed resolution. Space or time is an industry standard practice.

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90	4.3.3		While I was not a CB member for previous discussions of this Standard, I will abstain because I believe that the places where the Standard allows for separation in "time or space," should require separation in "time and space." I also am concerned by 4.3.3(g).	CB Member Comment on Ballot	Reject- No proposed resolution. Space or time is an industry standard practice.
24	4.3.3 c), d) and e)	E	"The laboratory shall" is duplicated since it is included in 4.3.3	Delete "the laboratory shall" and modify the first word(s) appropriately for the context of 4.3.3 (e.g., The examination and extraction of…)	Accept
3	4.3.3 d, e	E	period needed at the end of these sentences		Reject with modification - all items in this section have been modified to sentence fragments and all periods have been replaced with semi colons.
25	4.3.3 e)	T	should this include the opening of only one tube containing DNA at a time? Limiting cross contamination of DNA on plates?	Expand this language to include steps during the DNA testing process, and not just limit to the initial handling of evidence	Reject- All samples are open during high throughput, robotic, or plate processing
7	4.3.3b	T	It might be interpreted if you use "single use"/sterile tools they need to be cleaned also. Not sure exactly how to get the thought across that you don't have to clean those also.	"b) The laboratory shall require the cleaning of work surfaces and examination tools that are not single use with DNA destroying reagents or processes before new evidentiary items are examined."	Accept
10	4.3.3f	clarification/edit	If working on an item that has both high template and potential touch DNA evidence, there is not a way to separate the item itself during the exam	The laboratory shall examine potential high template evidence items (e.g., blood, semen, saliva) separately in time or space and independently from potential low-template evidence when possible (e.g., epithelial cells/touch DNA). During examination of a single item, it may not be feasible to seperate these two different sources of DNA, and analysts are encouraged to collect possible low-template evidence first.	Accept with modification- The words "when possible" were added and "epithelial cells/touch DNA" was revised to "trace amounts of DNA". The rest of the comment is a note not a standard.
26	4.3.4	T	It seems the intent of this is to document when evidence is received packaged together and to document how it was packaged, but the current wording seems to suggest that the laboratory needs a policy for packaging evidence together - not something typically needed by a laboratory.	Suggested edit: If evidence items are received packaged together, the laboratory casefile documentation shall include what items were packaged together and specify how they were packaged. (or detail how they were packaged)	Accept with modification- The word "received" was added.
71	4.3.4	E	Casefile' should be 'case file' to match other wording used throughout	unconjoin words	Accept with modification- all incidences of "case file" or "casefile" have been replace with "case record"
72	4.3.4	E	Add 'and which' between 'when' and 'items'	insert necessary words	Reject- And which is implicit in documenting the items together
5	4.3.6	T	"stage of contamination" - there are no defined stages in the document for contamination; I think this means which stage in the DNA process the contamination occurred, but I am not sure - it can also read that there are stages for how severe contamination is	unsure - but consider rewording for clarity	Accept
73	4.3.6	T	What is meant by 'stage of contamination'? Do you mean 'the stage during the forensic DNA analysis at which the contamination event was recognized?	add clarity to this/adapt wording as needed	Accept
74	4.3.7.1	E	utilized' should be changed to 'used'	replace word	Reject- They are synonyms.

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75	4.3.7.1	E	law enfrcement' is not a person but 'law enforcement personnel'	insert necessary word	Reject- Personnel is implied
76	4.3.7.3	T	What is a 'tmely manner'? Does this also depend on applicable laws and regulations?	add clarity to this/adapt wording as needed	Accept with modification- Section was clarified by changing to "defined timeframe"
4	4.3.8	T	This line does not provide a time frame, frequency, or a when the intra-batch comparisons should be conducted.		Accept with modification- Section was clarified by changing to "defined timeframe"
77	4.3.8	E	This is missing an actor to match typical recommendation X should/shall action organization.	add in the appropriate actor (the laboratory or laboratory personnel to personify it)	Accept
78	4.3.9	E	Remove '/cleaning' as was done above where is is solely said decontamination	remove unnecessary word	Reject- Cleaning and decontamination are separate and both need to be done
79	4.3.9.2	E	This is missing an actor to match typical recommendation X should/shall action organization.	add in the appropriate actor (the laboratory or laboratory personnel to personify it)	Accept
80	4.3.10	E	Remove 'and/'. 'Or' includes both 'and' as well as 'or'.	remove unnecessary word	Accept
27	4.3.10 f)	T	possible word missing at the end - unclear what "non-contributor" is being referred to. Many individuals in a case may be non-contributors to a DNA profile, but that has nothing to do with elimination databases.	add appropriate missing word(s)	Reject- Section f is not in the document.
81	4.3.10e	E	Write out 'laboratory' instead of 'lab'	adapt wording	Accept
8	4.3.11	T	Is there a difference between "case record" and "casefile"? If so, then it needs to be explained, many people use those terms interchangably.	"When contamination is identified, a root cause analysis [12] shall be conducted and documented. The root cause analysis and supporting documentation shall be retained."	Accept with modification- The section was reworded for clarification. All instances of "casefile" have been revised to "case record". The section was split into two sections.
32	4.3.11	T	Referencing or documentating potential contamination events in the casefile is sufficient for transparency purposes. Requiring the documentation of the root cause investigation in the casefile, which may include personnel matters, may not be allowed (per HR regulations) or appropriate.	remove the added requirement to include the root cause analysis in the casefile. Requiring it to be conducting and documenting it should suffice.	Reject- The name of the staff member could be redacted or not named.
28	4.3.13 (now 4.3.14)	T	also add "clients" or other designation for individuals who submitted the evidence and are the receivers/users of the reports initially (e.g., other crime labs, law enforcement, private individuals, court); on another note, isn't this requirement outside the scope of this document since this is not preventing, monitoring or mitigating contaminaion	expand the list of individuals who need to be notified of any contamination event beyond attorneys or delete the requirement all together since it is outside the scope of this document	Reject- Customers include clients and others
82	4.4.1	E	Add 'event' after 'contamination'	insert necessary word	Accept
29	4.4.2	T	suspension for the whole laboratory or for an individual?	clarify what suspension is being referred to	Reject- Suspension depends on the type and severity. This is up to the laboratory.
30	4.4.2 f)	T	unclear what "post-contamination review" means and what is being reviewed	Provide more information or definition for this	Reject- Section f is not in the document.
31	4.5.2	E	flow is awkward	maybe add a ":" after "include" to prevent associating "the use of" with the later items in the list	Accept
83	4.5.2c	E	Remove 'cleaning' as was done above where is is solely said decontamination	remove unnecessary word	Reject- Cleaning and decontamination are separate and both need to be done

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84	4.5.2e	E	Replace 'incidents' with 'events' as incident is never used in this document but event is	replace word	Accept
85	4.6	E	Remove 'in a Laboratory' as the scope makes it clear this standard is for accredited forensic laboratories	remove unnecessary words	Reject- This emphasizes that the standard only applies to laboratories and not police department/medical examiner rapid DNA testing.
33	4.6.2	Technical	Since the Rapid instrument runs amplification I think this statement should be modified - Rapid DNA instrumentation shall be maintained in a pre-amplification room.	Make it similar to what is said in QAS 7.1.3.1 A Rapid DNA instrument/System used for processing casework reference samples shall be maintained in rooms outside of evidence examination areas or those containing amplified DNA.	Accept
86	4.6.3	E	remove 'sample' after 'positive' and after 'negative' as this should just be a positive control and a negative control	remove unnecessary words	Accept
87	Annex A	E	Replace 'all-inclusive' with 'exhaustive'	replace word	Reject- They are synonyms.

Deadline of Submission of Comments: 9-Sep-24
Document Number: ANSI/ASB Std 136
Document Title: Forensic Laboratory Standard for Prevention, Monitoring, and Mitigation of Human DNA Contamination

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1		General		T	Thoughout the document, there are calls for documentation of processes, procedures, and decisions. However, it does not identify when the documentation should occur. Retrospective justifications of decisions are generally unreliable and will not reflect what a person was thinking at the time of the decision accurately. A preference should be indicated here for using and creating documentation that occurred relatively contemporaneous with the decision processes.	We have suggested a specific change for 4.3.12 that is a redlined section, but it might be better to provide a general statement or instruction about a preference to contemporaneous documentation rather than attempting to retrospectively figure out what was experienced, thought, or decided, and why, later on.		Reject- Comment is not specific enough. Investigations take time and cannot be contemporaneous
2				Ballot Comment	I continue to object to the language time or space.			Reject with modification-Small labs do not have adequate space. Notes have been added 4.3.3 e) and 4.3.3 f) to suggest separation in time and space when feasible.
3		new		E	none	add definition from BPR 171 for elimination profile	to maintain consistency between closely related documents from ANSI/ASB; this retains the information suggested to be deleted from "DNA elimination database" in comment above.	Accept
4	General	Foreword & some individual requiremen ts		E		Should additional language be added in relevant places (where not already included) to assist with understanding which issue of *limiting, detecting, assessing & mitigating* is addressed by the requirement? [e.g., 4.2.8 - add at the end something like "to ensure human DNA-free materials are being used during testing"]	While it is likely clear to most lab personnel which of these standards assists with limiting, detecting, assessing and mitigating contamination, it may not be clear to non-lab personnel and some quality assurance personnal, and the organization of the requirements does not aid in providing clarity.	Reject- Not necessary because the overall goal of the document is to prevent, monitor and mitigate contamination
5	1st sentence	Foreword, Scope		E	PCR-based	polymerase chain reaction (PCR)-	does PCR need to be defined (per ASB)? It's obviously a well-known abbreviation in DNA. (perhaps this was addressed with the NWP initially)	Accept with modification- PCR defined in its first use in the Foreword and the Scope.
6	2nd paragraph 2nd sentence	Foreword		E	Contamination can occur…	Contamination can occur from items or from individuals external to the DNA testing laboratory, including first responders, crime scene technicians and laboratory personnel from other sections. Contamination may also occur within the biology/DNA testing laboratory from individuals, supplies and reagents used in the testing, and/or from cross-contamination from other items, DNA extracts or amplified products being processed or tested at the same or later time.	There seems to be some confusion re: the definition of contamination in different standards. Making it clear that this document pertains to the detection of contamination that arises outside of the DNA lab at the crime scene or within other sections of the lab (both from reagents/supplies and personnel), as well as contamination that occurs within the DNA testing laboratory may be helpful. The second paragraph seems to only address people contamination and not contamination that comes into the testing lab via reagents and supplies. Tried to add some clarifying information.	Accept with modification- and/or changed to or
7	N/A	Forward (2nd paragraph)		T	It can never be known with certainty that a casework or database sample is contamination-free, but detection and tracing efforts facilitated through the use of elimination databases which contain the DNA profiles of laboratory personnel, first responders, law enforcement, and medical personnel can assist in the identification of contamination.	It can never be known with certainty that a casework or database sample is contamination-free, but detection and tracing efforts facilitated through the use of elimination databases which may contain the DNA profiles of laboratory personnel, first responders, law enforcement, and medical personnel can assist in the identification of contamination.	Beyond laboratory personnel it will be laboratory-dependent whether the other individuals will be included and we don't want to give the impression that having DNA profiles from all of those individuals in the elimination database is a forgone conclusion.	Reject with modification- the paragraph was expanded for clarification based on other comments.
8	N/A	Forward (2nd paragraph)		T	It can never be known with certainty that a casework or database sample is contamination-free, but detection and tracing efforts facilitated through the use of elimination databases which contain the DNA profiles of laboratory personnel, first responders, law enforcement, and medical personnel can assist in the identification of contamination.	It can never be known with certainty that a casework or database sample is contamination-free, but detection and tracing efforts facilitated through the use of elimination databases which contain the DNA profiles of laboratory personnel, first responders, law enforcement, and medical personnel can assist in the identification of contamination. There are additional considerations and concerns when applying these standards to post-conviction cases and the additional complications of obtaining appropriate elimination samples.	Laboratories should also critically think through how this standard applies to post-conviction cases.	Accept with modification- the paragraph was expanded for clarification. Additional information was added to 4.3.8.1 in regards to post-conviction cases.

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9	2nd paragraph 3rd sentence	Foreword		E	It can never be known with certainty…	that a casework or database sample, or DNA extract and other test products, is contamination-free	insert "or DNA extract or other test products," to be more inclusive of what does get contaminated within the lab and for which a contaminant may be detected	Reject- Sample is expansive to include extract and other test products
10	2nd paragarph 3rd sentence	Foreword		E	, but detection and tracing efforts facilitated	through the use of appropriate controls and quality assurance measures, including the use of elimination databases, which contain the DNA profiles...(and add comma after medical personnel)	the use of controls is a requirement in this document but they are not mentioned in the foreword; makes clear these are critical QA measures	Accept
11	N/A	Foreward (3rd paragraph)		T	Certain probabilistic genotyping software capabilities may be useful to detect contamination events…	Certain probabilistic genotyping software and analysis software capabilities may be useful to detect contamination events	Incorporation of analysis software (e.g. GeneMapper IDX) since it also has capabilities that may be useful to detect contamination events.	Accept with modification- Paragraph was reworded for clarification
12	3rd paragraph, 2nd sentence	Foreword		E	…and performing comparisons between unknown mixtures to assess	…between mixed DNA profiles from unidentified contributors to assess the likelihood of a common donor.	clarify language used	Accept with modification- "unknown" removed from sentence.
13	4th paragraph	Foreword		E	4th paragraph	Since first implemented in the 1980s, all PCR testing has involved risks of contamination; this risk increases as the sensitivity of the testing and the ability to detect contaminating DNA increases. As the sensitivity of assays to continue to increase in forensic DNA testing laboratories, it is increasingly important to continue limiting, detecting, assessing and mitigating contamination to better ensure reliable interpretation and comparison of DNA data.	reword sentences to make it clear that this risk is for all types of PCR testing, not just unique or new to forensic testing. The last sentence can also be more accurately stated. Don't think there is any reason to mention drop-in since it is unknown if that has happened in a particular profile except when testing known samples with known profiles. As it regards to this standard, the methods used to prevent, limit and detect contamination is basically the same for overt contamination & drop-in.	Reject with modification- A sentence was added to the end of the paragraph for clarification
14	4th paragraph	Foreword		E	add to end	Increased vigilance throughout all phases of evidence collection, storage, preservation, handling and testing, and the monitoring for and detection of contamination in the DNA test results, is critical.	Perhaps add, at the end of this paragraph, a statement of caution and reinforce the importance of care throughout ALL phases of evidence handling.	Accept
15		Scope		E		add from Foreword 1st paragraph, 2nd sentence (and shorten it as the last part is probably not necessary): "This standard includes provisions for Rapid DNA analysis performed in accredited forensic DNA laboratorys."	the Foreword (1st paragraph) mentions this standard also pertains to Rapid DNA conducted in accredited labs only. Don't we usually include that clarifying and limiting information in the Scope? (or was it deleted in a previous version)	Accept with modification- Rapid DNA was added to the scope.
16		Scope		T	This standard provides requirements for limiting, detecting, assessing the source of, and mitigating the effect of DNA contamination as applied to PCR-based human DNA analysis conducted within a forensic laboratory (i.e., casework and DNA database).	N/A	There are places where this standard doesn't seem to account for all types of PCR testing (e.g., mtDNA, Y-STRs, X-STRs) and additional considerations may be necessary. Suggestions to consider revising the scope and specifically include all PCR-based testing that was intended to fall under this standard.	Reject-By not listing all the techniques, the standard is all encompassing.
17				Ballot Comment	Formatting Edit: I believe you lost the "3.6" in the terms and definition section			Accept
18	17-21	3.2		T	Exogenous DNA or other biological material in a DNA sample, PCR reaction, or item of evidence, which may be present before the sample is collected or introduced during collection or testing of the sample	Contamination can be defined as DNA that is introduced into a forensic biology sample during and/or after its collection by responsible personnel. This is distinguished from DNA or biological material that might be present on an item or in a sample, but not connected to the crime event.	Definition is incorrect. Several published sources provide the correct definition: Van Oorschot, R.A.H. et al., Forensic Sci. Int. Genetics, DNA transfer in forensic science: A review, 2019 ; Forensic Science Regulator, Guidance: Contamination controls – Scene of crime, 2023 ; Inman, K. and Rudin, N. Principles and Practice of Criminalistics: The Profession of Forensic Science, CRC Press Inc., Boca Raton, FL, 2000	Reject. This definition is used also in Standard 171 so it has had editorial modifications for consistency.
19		3.2		E	…in a DNA sample,	in a DNA extract,	extract is the more appropriate term and used in other ANSI/ASB standards definitions	Reject. This definition is used also in Standard 171 so it has had editorial modifications for consistency.
20		3.3		E	positive and negative control definitions as written	change the format (and minimally the definitions) to those used in the recently published Standard 175	for consistency in wording and format between published ANSI/ASB standards when the definitions have essentially the same meaning in both documents	Accept

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21	22-31	3.3		T	**3.3** **controls** Samples of known type, run in parallel with experimental, reference, or evidence samples that are used to evaluate whether a procedure is working correctly. A **positive control** is a sample that is used to determine if a test performed as expected. This control consists of the test reagents and a known DNA sample that will provide a known DNA profile as a result of the test. A **negative contro**l (e.g., extraction blanks, reagent blanks and amplification blanks) consists of the reagents used in various stages of testing without the introduction of sample; no results are expected from a negative control.	**negative control** An analytical control that consists of the reagents used in various stages of testing without the introduction of sample; no results are expected from a negative control. **NOTE** For DNA testing, negative controls include extraction blanks/reagent blanks and amplification blanks. A negative control in DNA testing is used to detect contamination introduced into the assay during the testing process via reagents, disposables, or handling errors (which may impact the results observed from samples tested at the same time).	Revise for consistency with ASB Standard 175	Accept
22	22-31	3.3		T	**3.3** **controls** Samples of known type, run in parallel with experimental, reference, or evidence samples that are used to evaluate whether a procedure is working correctly. A **positive control** is a sample that is used to determine if a test performed as expected. This control consists of the test reagents and a known DNA sample that will provide a known DNA profile as a result of the test. A **negative contro**l (e.g., extraction blanks, reagent blanks and amplification blanks) consists of the reagents used in various stages of testing without the introduction of sample; no results are expected from a negative control.	**positive control** An analytical control sample that is used to determine if a test performed properly; this control consists of the test reagents and a known sample that will provide an expected positive response with the test. **NOTE** For DNA testing, positive controls include positive amplification controls and may include extraction positive controls.	Revise for consistency with ASB Standard 175	Accept
23		3.4		E	entire definition as written	Change to: Searchable collection of elimination profiles.	Recommend changing definition to that in published BPR 171 for consistency. And add the extra information under a new definition as in BPR 171 for "elimination profile."	Accept
24	34-36	3.4		T	**DNA elimination database** Collection of DNA profiles, held in a searchable format, from individuals whose access, role, or activities present a potential DNA contamination risk including possible contamination DNA profiles recognized by the laboratory.	**elimination database** Searchable collection of elimination profiles **elimination profile** DNA profile from an individual whose access, role, or activities might result in DNA contamination; includes profiles associated with consumables and positive controls; but not case-specific known DNA reference standards or exemplars	Revise for consistency with ASB BPR 171	Accept
25	41	3.5		E	DNA laboratory monitoring	DNA laboratory contamination monitoring	Revise for consistency with standard 4.2.7	Accept with modification- term revised to "DNA contamination monitoring program" section 4.2.8 also revised for consisency.
26	46-48	3.6		T	Presence of a low number of nonreproducible alleles (as determined by validation) in DNA data where each allele may be interpreted as coming from different individuals whereas contamination consists of multiple alleles from one or more individuals.	A drop-in allele is generally defined as the observation of a single low-level peak detected at a given locus that is not considered part of the profile in question (e.g. it most often attributed to random DNA found either in the laboratory environment, consumables or reagents used testing).	Unclear what "where each allele may be interpreted as coming from different individuals whereas contamination consists of multiple alleles from one or more individuals" means	Accept with modification- term removed from definitions and the document.

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27		3.6 drop-in		T	entire definition as written	peak(s) in an electropherogram that are not reproducible across multiple independent amplification events	Recommend changing to definition in draft 078 for consistency, simplicity and for accuracy. This definition as written does not aid in the understanding of how to use this standard. Parts of this definition are unhelpful and incorrect (e.g., "as determined by validation" provides NO information regarding drop-in events in a particular profile of unknown origin and has no meaning or use in terms of an elimination database). It would be impossible to know if there are truly 2-3 extra peaks and if that is due to one or more person's DNA being present in an actual case work sample that shouldn't be there due to drop-in or contamination. The drop-in rate determined during validation may not be consistent over the history of testing in the laboratory and provides no direct meaningful information during the interpretation of a particular profile.	Accept with modification- term removed from definitions and the document.
28		3.6 and requirements		T		Consider whether all mention of drop-in could just be deleted from the entire document. Is it helpful, meaningful or necessary anywhere in this document?	It is unclear if the term "drop-in" is necessary in this document and whether any mention of it in this standard is critical to meeting the requirements of this document. It should only be discussed and left in where it is: 1) *critical* (and possible) for the laboratory to distinguish between contamination vs. drop-in (totally unclear how that can ever be done for a profile of unknown origin in casework!) and 2) for the lab to do anything differently for limiting, detecting, assessing the source of and mitigating contamination while meeting the specific requirements of this standard.	Accept with modification- term removed from definitions and the document.
29		3.7 interpretation		E		retain "but not limited to"	The definition as originally in this document is consistent with the definition published in previous ANSI/ASB standards (040, 123, 175). Consistency seems important unless the change is meaningful and necessary.	Reject. This was removed in the previous round, and agreed to by the CB due to the comment: 'but not limited to' is not needed because 'including' encompasses this concept that the list following is not exhaustive.
30	N/A	3.7		T	Include the definition of first responders (from ASB BPR 171)	**first responders** Any individual responding to a crime scene, including but not limited to: law enforcement, investigative, medical, fire/paramedic, and laboratory personnel	Include the definition of first responders (from ASB BPR 171) since the term is utilized in ASB Standard 136	Reject- First Responders is not used in any of the requirements. It is only used in the Foreword.
31	48-49	3.8		E	**interpretation (interpretable DNA profile)** should be 3.8 assuming you opted to include the definition for first responders	interpretation (interpretable DNA profile) should be 3.8 assuming you opted to include the definition for first responders	Formatting issue	Reject- didn't include first reponders defintion Formatting issue of "interpretation" to be fixed by ASB staff.
32	48-49	3.8		E	The process of evaluating DNA data for purposes including defining assumptions related to mixtures and single source profiles, distinguishing between alleles and artifacts, assessing the possibility of degradation, inhibition, and stochastic effects, and determining whether the data are suitable for comparison.	The process of evaluating DNA data for purposes including, but not limited to, defining assumptions related to mixtures and single source profiles, distinguishing between alleles and artifacts, assessing the possibility of degradation, inhibition, and stochastic effects, and determining whether the data are suitable for comparison.	Added "but not limited to" to be consistent with ASB Standard 175	Reject- Not limiting to is implied by the word including
33		3.8 Rapid		E	developing a DNA profile from samples	either 1) developing DNA profiles from samples OR 2) developing a DNA profile from a sample	grammatical correction	Accept
34	54	3.9		E	**3.7** **Rapid DNA analysis**	**3.9** **Rapid DNA analysis**	Rapid DNA analysis should be 3.9 assuming you opted to include the definition of first responders	Reject- didn't include first reponders defintion Formatting issue of to be fixed by ASB staff.
35		4 Requirements General & Bibliography					recommendation for the working group to review more recent publications regarding contamination to see if any requirements should be modified, added, deleted, and additional documents be added to the Bibliography. (e.g., several Forensic Science Regulator publications; NIST Foundational Review draft; SWGDAM Guidelines/QAS; relevant new publications)	Accept. Additional documents added to the bibliography.

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36	66	4.2.1	now 4.2.2	T	Access to laboratory areas shall be restricted to authorized individuals to reduce the risk of introducing extraneous DNA into work areas and samples.	Access to laboratory areas shall be limited to specific individuals to reduce the risk of introducing extraneous DNA into work areas and samples.	"authorized" is a quality management term referring to someone who is authorized to perform particular laboratory activity and the revision is meant to prevent conflation of this term with the layman's understanding of the term	Reject- The layman's definition of authorize is used which means to get approval or permission.
37	77	4.2.2	now 4.2.3	E	Evidence shall be stored…	Evidence items shall be stored…	to be consistent with 4.2.3 (and also consider including derivatives and/or work products to be consistent)	Accept with modificatin- The word items was removied from 4.2.3 (now 4.2.4)
38	81	4.2.3	now 4.2.4	E	https://www.nist.gov/system/files/documents/forensics/NIST-IR-7928.pdf	The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers (https://www.nist.gov/system/files/documents/forensics/NIST-IR-7928.pdf)	Suggestion to include the document's name in case the link becomes defunct	Accept
39	89	4.2.5	now 4.2.6	T	The laboratory shall arrange the working environment to mitigate potential contamination.	omit	How will a laboratory be assessed for compliance to this standard? It is too broad to be able to demonstrate objective evidence of compliance.	Reject- There needs to be a catch all for when an assessor observes poor laboratory environment.
40	91	4.2.6	now 4.2.7	E	The laboratory shall have and follow a written, regularly scheduled decontamination procedure to include laboratory areas, items to bedecontaminated, and decontamination frequency.	The laboratory shall have and follow a written, regularly scheduled decontamination procedure to include laboratory areas, items to be decontaminated, and decontamination frequency.	missing space in "be decontaminated"	Accept
41	91	4.2.6	now 4.2.7	E	items to bedecontaminated	items to be decontaminated	add space between words	Accept
42	93-95	4.2.7	now 4.2.8	T	The laboratory shall have and follow a written, regularly scheduled laboratory DNA contamination monitoring program. The results from the program shall be documented and made available for inspection upon request.	N/A	After much discussion our group was unclear what this means. Would the reviewing of reagent blanks as a routine part of laboratory operations qualify for standard 4.2.7 or would there need to be a standalone event in order to comply?	Reject with modification- The policy is at laboratory discretion because there are many different laboratory environments. The important point is that there needs to be a policy and it must be followed. "laboratory" was removed for sentence structure.
43	97	4.2.8	now 4.2.9	T	ISO18385:2016	most current version of ISO 18385	To prevent ASB Standard 136 from needing revision upon revision of ISO 18385	Accept
44	105-106	4.3.1		T	The laboratory shall define and use appropriate decontamination and/or cleaning agents, or procedures for each method, technology, tool and instrument, and laboratory area. Decontamination agents or procedures known to destroy DNA shall be used as appropriate on the items and surfaces being cleaned.	Appropriate decontamination agents and/or procedures known to destroy DNA shall be used on applicable objects and surfaces being cleaned.	Entire first sentence is not needed. Second sentence was revised to be all inclusive.	Reject- Different surfaces need different decontamination procedures and they must be defined.
45	114-116	4.3.3		E	The laboratory shall have procedures and policies defined to reduce potential contamination events during evidence and evidence derivative/work product processing to include the following requirements:	The laboratory shall have procedures and policies designed to reduce potential contamination events during evidence and evidence derivative/work product processing to include the following requirements:	consistency with the verb structure	Accept with modification- the word "defined" was deleted.
46	117-128	4.3.3		E	a) the use of b) the decontamination of c) handle d) limit e) separate f) examine g) have	a) using b) decontaminaing c) handling d) limiting e) separating f) examining g) having	Revised for consistency with the verb structure	Reject- This is the grammatical preference of the Working Group
47	114-115	4.3.3 and 4.3.3 c)		E	during evidence and evidence derivative/work product processing to include	be consistent with 4.2.2 & 4.2.3	make consistent with 4.2.2 & 4.2.3	Accept with modification- 4.2.3 changed to be consistent with 4.3.3
48	118-119	4.3.3.b		T	the decontamination of work surfaces and examination tools that are not single use with DNA destroying reagents or processes before new evidentiary items are examined;	the decontamination of work surfaces and examination tools that are not single use with decontamination and/or cleaning agents or processes before new evidentiary items are examined;	Revised for consistency with standard 4.3.1	Accept
49	117-128	4.3.3 c-g		E	c) handle and package… d) limit the opening… e) separate in time or space… f) examine potential… g) have validated procedures…	c) the handling and packaging of… d) limiting the opening… e) separating in time and space… OR the separation in time and space... f) examining potential… OR the examination of…. g) having validated procedures… OR validating procedures...	sections a and b use a different verb tense(?) than c through g	Reject- This is the grammatical preference of the Working Group

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50	124-128	4.3.3 f) and g)		T		delete g) - Is there a good reason these cannot be separated to ensure high quality work? If delete g), also delete "when possible" from f)	these seem contradictory to each other - either the lab does the extraction separately or they don't; it seems impossible to audit for both of these statements	Reject with modification-Small labs do not have adequate space. Notes have been added 4.3.3 e) and 4.3.3 f) to suggest separation in time and space when feasible.
51	131-132	4.3.4		T	The laboratory shall document in the case record when items of evidence are received packaged together and how they were packaged.	Omit	This statement (albeit important) seems to fall outside the scope of this document in that although this information is relevant a laboratory will not be able to determine whether a contamination event occurred based solely on this infomation. In addition this information should be included on reports as part of ISO/IEC 17025:2017 7.8.2.1.g.	Reject- Assessing the source of contamnation which is in the scope, should include when items are packaged together.
52	137	4.3.6	Now 4.3.7.1	E	step of processing the contamination likely occurred	step of processing in which the contamination likely occurred	grammatical correction	Accept
53	141-143	4.3.7	now 4.3.8	T	These searches shall occur for every interpretable/comparable DNA profile obtained, and all results shall be documented in the case record.	These searches shall occur for every interpretable/comparable DNA profile obtained, and all results shall be documented in the case record. Exceptions can be made if a profile is associated with a known reference sample in the case.	The provided rephrasing may not be ideal but hopefully it's enough to explain the concern around needing to search profiles if they are conistent with a known reference from a complainant	Accept
54	148-152	4.3.7.1	now 4.3.8.1	T	Where possible, the laboratory shall include profiles from any DNA laboratory visitors and individuals who are involved in the collection and handling of evidence, work samples, reagents, equipment, or consumables (e.g., staff, agency personnel and other associated workers such as medical examiners, law enforcement, sexual assault nurses, service personnel, and laboratory vendors).	Where possible, the laboratory shall include profiles from any DNA laboratory visitors and individuals who are involved in the collection and handling of evidence, work samples, reagents, equipment, or consumables (e.g., staff, agency personnel and other associated workers such as medical examiners, law enforcement, sexual assault nurses, service personnel, laboratory vendors, and employees involved in any criminal proceedings who may have handled evidence in post-conviction cases).	Suggestion to include considerations around post-conviction cases as well.	Accept
55	144	4.3.7.1	now 4.3.8.1	T	biology staff	expand to include all individuals having access to evidence, laboratory working areas, and equipment and consider making this consistent with BPR 171 especially where the BPR has more stringent recommendations than requirements here	this seems too limited (e.g., may not include janitorial staff, QA staff, etc. with access to the laboratory), plus the term "biology" may not have the same meaning in different laboratories	Accept with modificatin- Biology changed to biology/DNA. Janitorial staff added.
56	153-154	4.3.7.2	now 4.3.8.2	T	Confidentiality of DNA profiles within the elimination database shall follow applicable laws and regulations.	Collection and confidentiality of DNA profiles within the elimination database shall follow applicable state and federal laws and regulations.	The collection event also needs to follow applicable state and federal laws and regulations.	Accept with modification- Collection added but federal and state not necessary. Applicable refers to federal, state and local.
57	155	4.3.7.3	now 4.3.8.3	T	DNA elimination database profiles shall be added in a defined timeframe.	DNA elimination database profiles shall be added in a defined timeframe in order to maximize the potential of detecting a contamination event.	Suggestion to provide context as to why the standard is requiring a defined timeframe.	Accept
58	162-163	4.3.9.1	now 4.3.10.1	T	The laboratory shall include the contamination assessment and underlying data in the validation documentation.	The laboratory shall include the contamination assessment and underlying data in the validation documentation for applicable validations.	Not all validations require a contamination assessment.	Reject- Assessment may be as simple as documenting contamination is not applicable for a validation. Assessment is not a contamination study.
59	164-165	4.3.9.2	now 4.3.10.2	T	The laboratory shall conduct a contamination assessment when a laboratory method/technology is modified.	The laboratory shall conduct a contamination assessment when an applicable laboratory method/technology is modified.	Not all method/technology modifications require a contamination assessment.	Reject- Assessment may be as simple as documenting contamination is not applicable for a validation. Assessment is not a contamination study.
60	166-168	4.3.10	now 4.3.11	T	If the laboratory uses probabilistic genotyping software (or other software),	If the laboratory uses probabilistic genotyping software or other software (e.g.,.....),	Suggestion to include examples of "other software". Would this apply to semi-continuous probabalistic genotyping software (ArmedExprt), databasing software (SmallPond), CODIS?	Reject- Specific examples of other software change over time. Other software includes whatever the laboratory uses
61	174-175	4.3.10.e	now 4.3.11 e	T	each laboratory should determine a likelihood ratio threshold value to report for comparisons to an elimination database. This should be documented in the case record and in the report.	N/A	Clarity is needed as to if this threshold is the same as a laboratory's validated uniformative threshold or if this is the same. And are the LR values (assuming they exceed the threshold) expected to be reported?	Accept with modification- It is up to the laboratory to define and validate the threshold being used. Reporting the thresholod has been clarified to be if applicable in the report.
62	175	4.3.10.e	now 4.3.11 e	T	This should be documented in the case record and in the report.	N/A	Suugestion to further clarify what "this" is specifically.	Accept- This is spelled out.
63	174-175	4.3.10.e	now 4.3.11 e	T	ach laboratory should determine a likelihood ratio threshold value to report for comparisons to an elimination database. This should be documented in the case record and in the report.	N/A	Is there a corollary for non-PG labs?	Accept- A corollary for non-PG labs was added
64	176-177	4.3.11	now 4.3.12	T	Potential contamination events shall be investigated and referenced or documented within the case record or sample record.	Confirmed contamination events shall be investigated and referenced or documented within the case record or sample record.	The current language is so broad that it is onerous.	Accept with modification- "Potential" changed to "suspected". A contamination event is not confirmed until after the investigation.

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65		4.3.12	4.3.13	T	"When contamination is identified, a root cause analysis shall be conducted and, documented, and included referenced within a case file, the case record or sample record." - this does not identify when the documentation should occur. Retrospective justifications of decisions are generally unreliable and will not reflect what a person was thinking at the time of the decision accurately. A preference should be indicated here for using and creating documentation that occurred relatively contemporaneous with the decision processes.	"When contamination is identified, a root cause analysis shall be conducted and, documented, and included referenced within a case file, the case record or sample record. The root cause analysis should favor documentation of processes and procedures during the analysis that were created at the time the evidence was processed or analyzed, rather than obtained retrospectively from memory. The persons conducting the root cause analysis should also document their judgments and considerations as they arise during the root cause analysis, as more information is gathered."		Reject- How to conduct a root cause analysis is out of scope and under the purview of the accreditation body.
66	180-181	4.3.13	4.3.14	T	Records of contamination events shall be maintained indefinitely in a centralized manner that allows such events to be tracked across cases/batches and over time.	Records of contamination events shall be maintained in accordance with the laboratory's documented retention schedule in a centralized manner that allows such events to be tracked across cases/batches and over time.	If a laboratory's retention schedule allows for the destruction of records (in accordance with applicable regulations), the laboratory should adhere to those.	Accept
67	186-191	4.3.15	4.3.6	E		move higher up in the requirements, perhaps as 4.3.6	seems illogical to have it tacked on at the end; perhaps fits better before requirements for elimination database	Accept
68	193-194	4.4.1		T		add "and shall be documented in the case record and along with the records required under 4.3.12."	seems this action should be documented and retained	Reject- See 4.3.12 for the standard requiring root cause analysis documentation
69	195-196	4.4.2		T		add "and how and where that information shall be documented, to include as appropriate: "	seems this action should be documented and retained. And a lead in into the subsections a), etc. is needed.	Accept with modification- "and documented" was added. The suggested language was simplified.
70	205	4.5.2		T		add at the end "training regarding:"	add training for clarity as without it, it seems duplicative of requirements above	Reject- The training requirement is in 4.5.1
71	207	4.5.2 b)		E	evidence and evidence derivatives handling and packaging;	handling and packaging of evidence and evidence derivatives	grammatical consistency with other items in the list	Accept
72	210	4.5.2 e)		T	documentation, investigation, and reporting	documentation, investigation (including root cause analysis), and reporting	needs to be added since included in the requirements above for process and documentation	Reject- It is not necessary. RCA is part of investigation.
73	214-215	4.6.2		E	rooms outside of evidence examination areas	rooms outside of evidence storage and examination areas	insert "storage and"	Accept with modification- Storage was added and reworded slightly not to have too many "and" in a row.
74	216-217	4.6.3		E	the use of a positive and negative controls	the use of appropriate positive and negative controls	delete "a" for grammatical correctness and insert "appropriate"	Accept with modification- The ''a' was deleted but appropriate was not included.
75				Ballot Comment	While the standard contains an important requirement to maintain a log of exogenous DNA--both drop in and contamination--events (4.3.6), there isn't sufficient guidance on the need to periodically analyze it for trends in the laboratory to mitigate the risk of contamination (see SWGDAM contamination document at 4.5; see ENFSI contamination document at section 5.10-https://enfsi.eu/wp-content/uploads/2023/10/ENFSI-GUIDELINE-FOR-DNA-CONTAMINATION-MINIMIZATION-IN-DNA-LABORATORIES.pdf). Should we update the bibliography to			Accept
76				Ballot Comment	In the citations for this standard, it may be useful for the reader to include some research publications by Dr. Roland van Oorschot's group if not cited in the other references. Here are a few to consider:Goray, M., Taylor, D., Bibbo, E., Patel, D., Fantinato, C., FonnelÃ¸p, A. E., ... & van Oorschot, R. A. (2024). Up in the air: Presence and collection of DNA from air and air conditioner units. Electrophoresis, 45(9-10), 933-947.			Reject. The documents show problems and not mitigations or prevention.
77	261	reference 16		E	Taylor D., Bright, McGovern J., C.,	Taylor D., Bright J.A., McGovern C.	correct names of co-authors	Accept

Deadline of Submission of Comments: 13-Oct-25
Document Number: ASB Std 136
Document Title: Forensic Laboratory Standard for Prevention, Monitoring, and Mitigation of Human DNA Contamination

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1	4	Forward		E	This document discusses the standards required for a laboratory conducting PCR-polymerase chain reaction (PCR)-based analysis to limit, detect, assess the source of, and mitigate contamination events as they pertain to human forensic DNA analysis	This document discusses the standards required for a laboratory conducting PCR-polymerase chain reaction (PCR)-based analysis to limit, detect, assess the source of, and mitigate contamination events as they pertain to human forensic DNA analysis.	period after analysis was missing	Accept	
2		Forward		E	It can never be known with certainty that a casework or database sample is contamination-free, but detection and tracing efforts facilitated through the use of appropriate controls and quality assurance measures, including the use of elimination databases which contain the DNA profiles of laboratory personnel, first responders, law enforcement, and medical personnel can assist in the identification of contamination.	It can never be known with certainty that a casework or database sample is contamination-free, but detection and tracing efforts facilitated through the use of appropriate controls and quality assurance measures, including the use of elimination databases which may contain the DNA profiles of laboratory personnel, first responders, law enforcement, and medical personnel can assist in the identification of contamination.	the insertion of the word, "may" is necessary since, as written, it implies that first responders, law enforcement, and medical personnel will be part of the elimination database, and those profiles are not always feasible or legal for labs to obtain.	Accept	
3		Foreword,4th paragraph; 4th line		E	This affects the interpretation of the sample, including comparisons to known individuals.	This affects the interpretation of DNA profile data and its comparison to DNA profiles from known individuals.	Correct the meaning - samples can't be interpreted and can't be compared to individuals	Accept	
4				Ballot Comment	minor comment #1: add the period after the first sentence of the foreword.			Accept	
5		1 Scope		grammatical	This standard provides requirements for limiting, detecting, assessing the source of, and mitigating the effect of DNA contamination as applied to polymerase chain reaction (PCR)-based human DNA analysis conducted within a forensic laboratory (i.e., casework including Rapid DNA and DNA analysis conducted within a forensic laboratory (i.e., casework, Rapid DNA, and DNA database).	This standard provides requirements for limiting, detecting, assessing the source of, and mitigating the effect of DNA contamination as applied to polymerase chain reaction (PCR)-based human DNA analysis conducted within a forensic laboratory (i.e., casework including Rapid DNA and DNA analysis conducted within a forensic laboratory (i.e., casework, Rapid DNA, and DNA database).	The change simplifies and clarifies the list in parentheses.	Reject- The suggested change is too wordy and complicated.	
6		4.2.4		E	( )	remove the extra set of ( )	typo	Accept	
7		4.2.4		E	4.2.4 Evidence and evidence derivative /work product shall be packaged and handled in a manner to minimize the transfer of biological material().	4.2.4 Evidence and evidence derivative/work product shall be packaged and handled in a manner to minimize the transfer of biological material().	removal of empty parentheses	Accept	
8		4.3.3 Note (both places)		T	NOTE: It is up to the laboratory to define the definition of “time” or “space” based upon validation	Note: It is incumbent upon the laboratory to define "time" and "space" based upon validation data.	Define the definition is redundant. Validation data is clearer than simply validation.	Accept with modification- The notes were made into separate requriements (4.3.4 and 4.3.5) and rewritten to: "4.3.4 For non-databasing laboratories, the separation by time or space used for requirements 4.3.3 e) and f) shall be defined in the laboratory protocol. 4.3.5 The choice of time or space shall be supported by validation data."	
9	128, 132	4.3.3 e&f Notes		T	NOTE It is up to the laboratory to define the definition of “time” or “space” based upon validation.	NOTE It is up to the laboratory to define the the scope of “time” and “space” based upon validation, when applicable (e.g., appropriate space between samples if concurrently run on a robotic system). OR NOTE The laboratory can define the scope of “time” and “space” when validation has demonstrated the risk of contamination is negligable.	"Define the defintion" is redundant. Not sure if 'scope' is the ideal word but I hope the intent isn't a measurement (e.g., 5 ft of space or 30 minutes of time). Also, it feels like these notes need a little more context. Is it expected that a lab validate the obvious? (e.g., completing a task then cleaning a bench before doing the task on the next item or doing the tasks in separate rooms/stations) I think the intent of the note is to define time and space when it can be a gray area or when there is a risk of contamination occuring during a process. If a lab never processes Evidence and Ref samples (or high and low samples) together, then there is not really anything to define. (This is a tough one)	Accept with modification- The notes were made into separate requriements (4.3.4 and 4.3.5) and rewritten to: "4.3.4 For non-databasing laboratories, the separation by time or space used for requirements 4.3.3 e) and f) shall be defined in the laboratory protocol. 4.3.5 The choice of time or space shall be supported by validation data."	

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10		4.3.6 Note	4.3.8	T	NOTE: A negative control in DNA testing is used to detect contamination introduced into the assay during the testing process via reagents, disposables or handling errors (which may impact the results observed from samples tested at the same time). The use of negative controls helps assess the overall robustness of the testing process but cannot be used to determine whether a particular sample is free from contamination.	Note: the use of negative controls assists in assessing wide-spread contamination events, but may not always detect isolated contamination events.	Simplifies and clarifies the meaning; a negative control may not always detect isolated contamination events. It is unclear what robustenss means in this context. Where the contaminate may originate from is already discussed elsewhere in the document.	Reject- The note provides additional information to help the laboratory.	
11		4.3.8	4.3.10	T	Exceptions can be made if a profile is associated with a known reference sample in the case (e.g., a DNA profile from a vaginal swab…)	delete	It's unclear what this statement has to do with elimination databases. Or maybe it goes under 4.3.9 (but doesn't seem necessary there either)?	Reject with modification- Sentence revised to "Exceptions can be made and shall be documented"	
12	165-166	4.3.8.1	4.3.10.1	E	…vendors, and employees involved in any criminal proceedings who may have handled evidence in post-conviction cases).	…vendors) and employees involved in any criminal proceedings who may have handled evidence prior to additional DNA testing (e.g., in post-conviction cases).	I'd remove employees involved in criminal procedings from the list of examples of "DNA laboratory visitors and individuals involved in ..." but keep it as an additional thought in the sentence.	Reject- The list is an e.g. Employees in the laboratory may not be DNA laboratory personnel.	
13		4.3.11 e)	4.3.13 e)	T	4.3.11 If the laboratory uses probabilistic genotyping software, or other software, the laboratory shall use such software within its validated capabilities to detect contamination in casework and database samples to include: e) determining a likelihood ratio threshold value (or defined threshold value for laboratories using non-probabilistic genotyping software) to report for comparisons to an elimination database.	e) determining a likelihood ratio threshold value (or defined threshold value for laboratories using non-probabilistic genotyping software) for further investigation (of suspect contamination).	Simplifies defined purpose	Reject- The comment is unclear. This section refers to an elimination database and not an investigation.	
14		4.3.12	4.3.14	T	The threshold value should be documented in the case record and in the report.	This should be removed	1. It is not standard practice for laboratories to report this for lab reports. 2. Reports are used to convey the results of any serological testing, the DNA profiling and statistical comparisons to references of interest. 3. The findings of such comparisons, if performed, would be available if the entire casefile is reviewed.	Accept with modification- "and report" was deleted.	
15	192	4.3.12	4.3.14	T	e) determining a likelihood ratio threshold value (or defined threshold value for laboratories using non-probabilistic genotyping software) to report for comparisons to an elimination database. 4.3.12 The threshold value should be documented in the case record and in the report.	4.3.12 Comparisons to an elimination database sample that surpass the threshold value should be documented in the case record and in the report.	I forsee a threshold value being documented in a procedure. I think the intent of the previously used "this" was that comparisons to an elimination database sample that surpass the threshold should be reported?	Accept with modification- "and report" was deleted.	
16		4.3.12	4.3.14	E	the entire recommendation	make as a note perhaps?	This statement is a subset of 4.3.11 e) and not a stand alone recommendation.	Accept with modification- "and report" was deleted. It cannot be a subset of the list, as the list are all requirements, and this statement is a recommendation.	
17	226	4.6.2		T	4.6.2 Rapid DNA instrumentation shall be maintained in rooms outside of evidence storage areas, evidence examination areas, and those containing amplified DNA.	Except as provided in Standard 4.6.2.1, Rapid DNA instrumention shall be maintained in areas outside of rooms containing amplified DNA. 4.6.2.1 If maintained inside a room containing amplified DNA, the sample cartridge/chip shall be loaded in an area that does not contain amplified DNA.	The standard this statement was based on was revised in QAS2025: [STANDARD 18.4 Except as provided in Standard 18.4.1, a Rapid DNA instrument/System used for processing casework reference samples and/or forensic samples shall be maintained in areas outside of rooms containing amplified DNA. 18.4.1 If maintained inside a room containing amplified DNA, the sample cartridge/chip shall be loaded in an area that does not contain amplified DNA.] Additional info from Guidance Doc: The amplified DNA generated by the Rapid DNA instrument/System is fully encapsulated in the Rapid DNA cartridge/chip and therefore does not contribute to a room being identified as containing amplified DNA.	Accept with modification. 4.6.2 revised to read: 4.6.2Except as provided in 4.6.3, Rapid DNA instrumentation and cartridges/chips shall be maintained in dedicated spaces away from other laboratory areas used for evidence and DNA extract storage, examination, and testing, including rooms containing amplified DNA.	
18	248-249	Annex A		E	5] FBI, Quality Assurance Standards for Forensic DNA Testing Laboratories g 248 . 2020. 6] FBI, Quality Assurance Standards for DNA Databasing Laboratoriesh 249 . 2020.	5] FBI, Quality Assurance Standards for Forensic DNA Testing Laboratories g 248 . 2025. 6] FBI, Quality Assurance Standards for DNA Databasing Laboratoriesh 249 . 2025.	New version of QAS issued 7/1/25	Accept with modification- Year was removed so the reference is always to the current version.	

Deadline of Submission of Comments: 12-Feb-26

Document Number: ASB Std 136

Document Title: Forensic Laboratory Standard for Prevention, Monitoring, and Mitigation of Human DNA Contamination

Comment #	Text Line # (s)	Document Section	Type of Comment E-Editorial T-Technical	Current Document Wording	Proposed Revision	Revision Justification	Final Resolution
1			Ballot Comment	Although I think the requirements in 4.3.4/5 and 4.3.10 could be stronger, this is an important and much-needed document and I vote to approve.			Comment noted. No resolution provided or needed.