

FORENSIC BIOLOGY EVIDENCE AND CASE MANAGEMENT MANUAL

TECHNICAL REVIEW		
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Technical Review

GUIDING PRINCIPLES AND SCOPE

Technical review is an evaluation of reports, notes, data, and other documents to ensure that there is an appropriate and sufficient basis for the scientific conclusions. The Department of Forensic Biology uses a program of technical review for case reports issued by the Department in order to ensure that all appropriate testing was conducted, that reports accurately reflect the results of testing, and that all opinions are based upon objective scientific observations.

This document describes the technical review procedure of the Department.

Managers may establish additional requirements for technical review within their work groups; however, such requirements may not be less stringent than the requirements described in this procedure.

If differences of opinion arise during the technical review process and cannot be resolved by the analyst, reviewer, their supervisor(s), and/or manager(s), the “Discrepancies in Interpreted Results” procedure in the Administrative Manual must be followed.

PROCEDURE

During technical review, the functional reports, notes, data, and other documents are checked to verify that the Department’s analytical, case management and QA/QC procedures were followed; data was interpreted correctly; and the final case report accurately reflects the supporting data. Technical review is performed on all cases prior to the release of the report, except for those that are eligible for Administrative Completion (see the “Administrative Completion of Cases” procedure).

The hard copy case file pulls together the case documentation needed for technical review. Prior to submitting a case for technical review, the reporting analyst should ensure that all necessary technical and administrative records have been printed and placed into the hard copy case file. See the “Case File” procedure for further details on the technical and administrative records that are needed.

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A. Technical Reviewer Requirements

1. The reporting analyst cannot perform a technical review of their own case. Technical reviews may not be performed by the author or co-author of any examination records within the associated case record.
2. The technical reviewer must be or have been an analyst qualified in the methodology being reviewed.
 - a. "Analyst" includes those whose sole analytical responsibility is technical review.
3. **Criminalist II or above may technically review:** Serology cases; DNA cases where no DNA testing past the quantitation step is attempted.
4. **Criminalist III or above may technically review:** All of the above, as well as cases that proceed to DNA amplification and typing.

B. Elements of Technical Review

There are two basic types of case technical review, full technical review and limited scope technical review. Within LIMS, there are two technical review designations: "Tech1" and "Tech2". If both "Tech1" and "Tech2" are performed, it is expected that the full technical review is designated by the "Tech1" notation and a limited scope review is designated by the "Tech 2" notation. It is not the intention that a case file be subject to two full technical reviews.

1. **Full technical review.** At a minimum, a full technical review includes the following steps. Some steps will not be applicable to technical review of serology cases or DNA cases that do not proceed past the quantitation step.
 - a. The case report and records in the case file are reviewed to ensure that:
 - i. All submitted items are accounted for in the case report and testing conforms to proper technical procedures and applicable laboratory policies and procedures.

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- ii. The reported results and conclusions are accurate and supported by the technical records:
1. DNA profiles are consistent with the raw or analyzed data (e.g., electropherograms, sample sequences).
 2. All required controls, such as Positive Controls, Negative Controls, Extraction Negative Controls, Amplification Negative Controls, Internal Lane Standards and Allelic Ladders (including appropriate controls from reworked samples) are accounted for and yielded expected results per the STR Control Review Sheet, Edit Table and Rerun Table. (Note: Internal Lane Standards are considered to have yielded expected results unless otherwise noted on the Rerun Table.) Inclusions, exclusions, and results reported as inconclusive comply with Department guidelines
 - a) Associations must be properly qualified in the case report with either a quantitative or qualitative statement as appropriate.
 - b) When no definitive conclusions can be reached, the case report must clearly communicate the reason(s).
 3. Examination notes and supplemental records meet Department requirements with respect to dates of examination and analyst and case identifiers.
- b. The case report is reviewed for accuracy of spelling and grammar.
(**Note:** This step is a part of the Administrative Review process that has been incorporated into the Technical Review process)
- c. The following elements are verified as present in the report:
- FB case number
 - Description of the evidence
 - Description of the DNA technology
 - Description of the DNA loci or amplification system
 - The results and conclusions
 - A quantitative or qualitative interpretative statement
 - The disposition of evidence
 - The signature and title of the analyst of record

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- Other pertinent case information as applicable, e.g., name of victim, NYPD complaint number
 - A location for documentation of administrative review
- d. The chain of custody is reviewed
 - e. The statistical analysis (if applicable) is reviewed
 - f. A database review is completed if not already done (**See Section E**)
2. **Limited scope technical review.** A technical review is of limited scope if it follows a full technical review. The intent is to verify the most critical elements of a case, including:
- a. The informative DNA typing results, including review of controls
 - b. Deconvolutions of mixed DNA profiles
 - c. Statistical calculations
 - d. The comparisons made
 - e. The conclusions which are relayed in the case report
3. Problems identified during technical review must be corrected. The majority of corrections are the responsibility of the reporting analyst; however, technical reviewers have discretion to make minor administrative corrections that do not alter the results and/or conclusions (e.g., writing an FB number on a page).

C. Update NYPD DEMP (DNA Evidence Management Program)

The Department of Forensic Biology has agreed with the NYPD to check their DNA Evidence Management Program (DEMP) for additional evidence that may exist pertaining to a sexual assault case currently undergoing technical review by the Department of Forensic Biology. It has been further agreed that DEMP will be updated before completion of the technical review of that case. This is the only situation where a tech reviewer must check and update DEMP.

1. If the goals of the case have not been met by testing the kit (e.g. no semen has been found or no male profile has been developed), the technical reviewer needs to check DEMP for the existence of additional evidence pertaining to that case.

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- a. If there is additional evidence, select ***“send to OCME if the case is still active”*** and update the LIMS communication log for that case to indicate that this request was made.

For kits, if there is a listed suspect, attempt to contact the assigned ADA to determine if additional evidence still warrants testing.

- b. If DEMP indicates that there is no additional evidence for that case, update the LIMS communication log for that case to indicate that DEMP was checked and no additional evidence exists.
2. If the goals of the case have been met by testing the kit (e.g., a male profile was developed), the technical reviewer still needs to check DEMP for the existence of additional evidence pertaining to that case.
 - a. If there is additional evidence, select ***“do not send to OCME”*** and update the LIMS communication log for that case to indicate that this request was made..
 - b. If DEMP indicates that there is no additional evidence for that case, update the LIMS communication log for that case to indicate that DEMP was checked and no additional evidence exists.

D. Number of Technical Reviews

1. One full technical review is sufficient for most cases; however, heightened scrutiny is required in some circumstances. Heightened scrutiny is:
 - a. One full technical review conducted by a manager OR
 - b. One full technical review and one limited scope technical review, conducted by Criminalist Level IIIs or above.
2. Heightened scrutiny is required for:
 - a. Cases that require kinship analysis or paternity analysis
 - b. Cases that require partial match analysis (suspect to case only, not within a case)

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- c. Cases that require the calculation of a likelihood ratio, except when an identical likelihood ratio was previously calculated (e.g. for a pseudo-exemplar)
- d. Cases where a comparison of the DNA profile of a suspect, victim, elimination sample, or other known/deduced donor to a sample results in an inconclusive result (“no conclusion can be drawn”).
- e. Cases containing mixtures that exhibit more than one “Z” or “INC” in the deconvoluted profile (unless the “Z” or “INC” is due to dropout/degradation rather than ambiguity in the deconvolution)

The requirement for heightened scrutiny technical review does not apply to cases that contain only mixtures where the DNA profile of the deconvoluted contributor is unambiguous. Characteristics of simple DNA mixtures may include:

- The presence of a clear major contributor with the addition of just a few other called alleles
- A completely deconvoluted major contributor with no more than one “Z” or “INC”
- A completely deconvoluted major or minor contributor, with no more than one “Z” or “INC”, obtained by assuming a contributor to the mixture

Note: An analyst or technical reviewer may request an heightened scrutiny for review of any case.

E. Documentation of Technical Review

1. Technical review is officially documented either (1) on the applicable Scheduled Analysis sheet with the reviewer’s initials and the date (pre-LIMS cases) or (2) within the LIMS.
 - a. Pre-LIMS cases: The technical review completion dates should also be entered into the electronic case logbook.
 - i. The “Tech review III/IV” field should be used for the first technical review completion date.

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- ii. The “Review AD” field should be used for the second technical review completion date (if applicable).
2. Full technical review approval/disapproval and limited scope technical review approval/disapproval must always be documented in LIMS. When corrections need to be made to any part of the case record (notes, database profiles, statistical calculations, reports, etc.), the disapproval must be documented in LIMS. When corrections, if any, have been made following a review disapproval, once the reviewer completes the review, the subsequent approval must also be documented in LIMS.
3. DNA cases with completed technical reviews are ready for administrative review.

F. Database Review

1. DNA profiles that are eligible for CODIS and/or LINKAGE must undergo a database review by a Criminalist III or above. One database review by a Criminalist III or IV is sufficient in most circumstances; however, one review by a manager or two reviews by Criminalist III/IV’s or above are required for:
 - a. Mixture profiles resulting from complex mixtures, and
 - b. Single-source (complete or partial) profiles deduced from complex mixtures
2. Database review can be included as part of a full or limited-scope technical review or it can be conducted as a stand-alone review in order to expedite profile entry into a database.
3. Database review of LINKAGE-eligible profiles may be completed before or after their entry into LINKAGE.
4. At a minimum, a database profile review includes:
 - a. A review of the database profile and interpretation (LIMS) or the “DNA Profile Evaluation Form” or “Missing Persons DNA Profile Evaluation Form” (pre-LIMS, as applicable) and supporting documentation to ensure that:
 - i. All required fields within the form have been completed

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- ii. The DNA profile(s) is accurate
 - iii. The specimen identification number is correct
 - iv. The positive and negative control results are acceptable
 - v. The DNA profile(s) is eligible for entry into the applicable database(s)
 - b. Verification that profiles were correctly entered into LINKAGE (if applicable)
- 5. The database review is documented with the reviewer's password-verified electronic signature (post-LIMS evidence) or on the Scheduled Analysis form (pre-LIMS evidence).
 - a. Pre-LIMS evidence: The Access database contains fields named "Database review" (in the Suspect Logbook) and "CODIS review" (in the Case Logbook). These fields are not used for official documentation of database reviews; however, dates entered into the fields (e.g., Suspect log book—date profile entered into LDIS; Case log book—date of database review) can be useful for casework metrics as a close approximation of the date that the profile is entered into LDIS:
- 6. **Corrections to DNA Profile Evaluation Forms prior to entry into CODIS.**
 - a. Corrections to database profiles are shown to the reporting analyst, who verifies the changes prior to entry into LDIS.
 - b. If the profile is needed for immediate upload and the reporting analyst is not available, the corrections can be approved by a Criminalist III or above. The corrected database profile is later shown to the reporting analyst.
- 7. **Corrections to DNA Profile Evaluation Forms after CODIS entry.**
 - a. Corrections are made by the CODIS group.
 - b. The CODIS group will involve the reporting analyst as necessary, particularly if doing so provides training value to the reporting analyst.