

# FORENSIC BIOLOGY EVIDENCE AND CASE MANAGEMENT MANUAL

Technical Review		
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## Technical Review

### 1 Guiding Principles and Scope

- 1.1 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.
- 1.2 This document describes the technical review procedure of the Department.
- 1.3 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.

### 2 Procedure

- 2.1 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).
- 2.2 The case record contains all of the case documentation needed for technical review. Prior to submitting a case for technical review, the reporting analyst will ensure that all necessary technical and administrative records have been compiled. See the “Case File” procedure for further details on the technical and administrative records that are required.

### 3 Technical Reviewer Requirements

- 3.1 The reporting analyst may not 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.
- 3.2 The technical reviewer must be or have been an analyst qualified in the methodology being reviewed.
  - 3.2.1 “Analyst” includes those whose sole analytical responsibility is technical review.

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**3.3 Criminalist II or above may technically review Simple Cases:** Serology cases; DNA cases where no DNA testing past the quantitation step is attempted.

**3.4 Criminalist III or above may technically review Moderately Complex Cases:** Cases containing simple interpretation of STR typing results and do not require STRmix™ analyses or calculations (e.g. cases with only single source profiles, mixtures amplified with less than 75 pg of total input DNA, or mixtures of four or more contributors), and suspect cases without cross-referenced evidence

**3.5 Criminalist IV or above may technically review Highly Complex Cases:** All of the above, as well as cases that contain complex interpretation of STR typing results and/or require STRmix™ analysis or calculations (e.g. deconvolutions of DNA mixtures, comparisons to exemplars requiring the use of STRmix™, and likelihood ratio calculations)

## 4 Elements of Technical Review

4.1 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 record be subject to two full technical reviews.

4.2 **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.

4.2.1 The case report and the case record are reviewed to ensure that:

4.2.1.1 Testing conforms to proper technical procedures and applicable laboratory policies and procedures.

4.2.1.2 The reported results and conclusions are accurate and supported by the technical records:

4.2.1.2.1 DNA profiles are consistent with the raw or analyzed data (e.g., electropherograms, sample sequences).

4.2.1.2.2 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:

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internal lane standards are considered to have yielded expected results unless otherwise noted on the Rerun Table.)

- 4.2.1.2.3 Inclusions, exclusions, and results reported as inconclusive comply with Department guidelines.
- 4.2.1.2.4 Associations must be properly qualified in the case report with either a quantitative or qualitative statement as appropriate.
- 4.2.1.2.5 When no definitive conclusions can be reached, the case report must clearly communicate the reason(s).
- 4.2.1.2.6 Examination notes and supplemental records meet Department requirements with respect to dates of examination and analyst and case identifiers.
- 4.2.1.3 The following elements are verified as present in the report:
  - 4.2.1.3.1 Description of the DNA technology
  - 4.2.1.3.2 Description of the DNA loci or amplification system
  - 4.2.1.3.3 The results and conclusions
  - 4.2.1.3.4 A quantitative or qualitative interpretative statement
  - 4.2.1.3.5 The signature and title of the analyst of record
- 4.2.1.4 A database review is completed if not already done (See [Section 8 Database Review](#))
- 4.2.1.5 The following three checklists detail the specific items which will be checked as part of the full technical review. Each list applies to one of three categories of file: positive cases (any sample is amplified in any system), negative cases (results up to and including quantitation which results in all samples insufficient for amplification), and suspect cases. Not all items will apply to every case and will be checked as necessary. These checklists may be printed out by the analyst and/or tech reviewer to facilitate the tech review process via hand-checking the boxes; however, they will not be retained in the case record and will be discarded after use. Printed checklists are an aid only and are not formal documentation of technical review. See [Section 7](#) for Documentation of Technical Review.
  - 4.2.1.5.1 [Case Management Checklist – Positive Cases](#)

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4.2.1.5.2 [Case Management Checklist – Negative Cases](#)

4.2.1.5.3 [Case Management Checklist – Suspect Cases](#)

4.3 **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:

4.3.1 The informative DNA typing results, including review of controls

4.3.2 Deconvolutions of mixed DNA profiles and/or STRmix analysis documentation

4.3.3 Statistical calculations

4.3.4 The comparisons made

4.3.5 The conclusions which are relayed in the case report

4.4 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. The following list contains corrections that the tech reviewer may make without having the reporting analyst make the changes. If any other corrections are needed, the technical review must be rejected and the reporting analyst must make the corrections.

## Corrections that the Tech Reviewer can fix

Updating printed paperwork on lefthand side of case file

Top Block of Report

Minor report fixes/typos that don't affect conclusions or statistics

Order of sections on report

Consumption footnote (\*)

Deleting extraneous sections left in or blank pages/spacing in the report

Bolding or Unbolding in the report

Add in headers if missing

Typos in DB profile Spec ID, matching cases, etc.

DNA HITS fixes

Distribution list updates in LIMS - wrong borough, missing ECMS, CMS, etc.

Delete unnecessary attachments in LIMS

Numbering pages & Setting priority status in LIMS

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## 5 Update NYPD DEMP (DNA Evidence Management Program)

- 5.1 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.
- 5.2 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 will check DEMP for the existence of additional evidence pertaining to that case.
- 5.2.1 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.
- 5.2.1.1 For kits, if there is a listed suspect, attempt to contact the assigned ADA to determine if additional evidence still warrants testing.
- 5.2.2 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.
- 5.3 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.
- 5.3.1 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.
- 5.3.2 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.

## 6 Number of Technical Reviews

- 6.1 One full technical review is sufficient for most cases; however, heightened scrutiny is required in some circumstances. Heightened scrutiny is:
- 6.1.1 One full technical review conducted by a manager OR
- 6.1.2 One full technical review conducted by a Criminalist Level III or IV and **one limited scope technical review conducted by a Criminalist Level IV or above.**

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## 6.2 Heightened scrutiny is required:

6.2.1 For cases that were tested using Identifiler or Fusion, the following requirements apply:

6.2.1.1 Cases that require kinship analysis or paternity analysis

6.2.1.2 Cases that require partial match analysis (suspect to case only, not within a case)

6.2.2 For cases that were tested using Identifiler, the following legacy requirements apply:

6.2.2.1 Cases that require the calculation of a likelihood ratio using FST, except when an identical likelihood ratio was previously calculated (e.g. for an abandonment sample profile)

6.2.2.2 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”).

6.2.2.3 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:

6.2.2.3.1 The presence of a clear major contributor with the addition of just a few other called alleles

6.2.2.3.2 A completely deconvoluted major contributor with no more than one “Z” or “INC”

6.2.2.3.3 A completely deconvoluted major or minor contributor, with no more than one “Z” or “INC”, obtained by assuming a contributor to the mixture

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

## 7 Documentation of Technical Review

7.1 Technical review is documented within the LIMS.

7.2 Each stage of full technical review accept/reject, and limited scope technical review accept/reject must be documented in LIMS.

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- 7.2.1 If a case record and report are accurate and complete, approve by selecting “accept” in LIMS.
- 7.2.2 If a case requires analyst corrections to any part of the case record (notes, database profiles, statistical calculations, reports, etc.), disapprove by selecting “reject” in LIMS. The reason for the rejection shall be included in the comments section when rejecting the technical review in LIMS. The reporting analyst is responsible for checking LIMS to determine if corrections are needed.
- 7.2.3 Once corrections have been made following a rejection in LIMS, the technical reviewer completes the review and approves as described above.
- 7.3 Cases with completed technical review are ready for administrative review.

### 8 Database Review

- 8.1 DNA profiles that are eligible for LDIS, SDIS and/or NDIS must undergo a database review by a Criminalist III or above.
  - 8.1.1 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.
  - 8.1.2 At a minimum, a database profile review includes:
    - 8.1.2.1 A review of the database profile and interpretation (LIMS) and supporting documentation to ensure that:
      - 8.1.2.1.1 All required fields within the form have been completed
      - 8.1.2.1.2 The DNA profile(s) is accurate
      - 8.1.2.1.3 The specimen identification number and specimen categories are correct
      - 8.1.2.1.4 The positive and negative control results are acceptable
      - 8.1.2.1.5 The DNA profile(s) is eligible for entry into the applicable database(s)
- 8.2 Database review is documented within the LIMS.

### 9 Corrections to DNA Profile Evaluation Forms prior to entry into CODIS.

- 9.1 Corrections to database profiles are shown to the reporting analyst, who verifies the changes prior to entry into LDIS.

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- 9.2 If the profile is needed for immediate upload and the reporting analyst is not available, the corrections can be approved by a Criminalist IV or above. The corrected database profile is later shown to the reporting analyst.

## **10 Corrections to DNA Profile Evaluation Forms after CODIS entry.**

- 10.1 Modifications may be made by the reporting analyst or the CODIS group.
- 10.2 If modifications have been made by the CODIS group, they will involve the reporting analyst as necessary, particularly if doing so provides training value to the reporting analyst.

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