

TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division



CODIS Standard Operating Procedures Manual

12.0 - Match Management

12.0 – MATCH MANAGEMENT FOR TBI SAMPLES

12.1 A match occurs when an association has been made between two or more DNA profiles. After an LDIS, SDIS, or NDIS search, the CODIS administrator with help from the casework analyst (in some cases) will evaluate the possible matches for a true hit. The start date for a CODIS match (includes offender, arrestee, and case to case hits) or no match packet is defined as the beginning of notetaking. The stop date is defined as the initial draft report or the creation of a memo for out of state hits. The start and stop dates for a database re-analysis packet is defined in 12.3.2.1 of this manual.

12.2 Match disposition

12.2.1 A partial match is a moderate stringency match of two single source profiles having at least one allele at each locus in common that shows a potential family relationship. These are two profiles that are not an exact match and cannot be confirmed. The TBI considers a partial match to be a **No Match** and does not release any information associated with it.

12.2.2 Alleles present in one profile and not in the other are usually determined as a **No Match**. However, all factors must be considered (i.e. profile from a mixture or is a one locus mismatch) before utilizing this disposition.

12.2.3 A convicted offender/arrestee profile to a convicted offender/arrestee profile is often a repeated sample from same individual. Names and personal identifiable information must be checked to determine if the profiles came from the same individual or possibly identical twins. Disposition for this type of match is **Offender Duplicate, Duplicate, or Twins**. If the profiles are not determined to come from the same individual or are not determined to be identical twins, then the difference must be resolved and the profiles must either be unmarked for upload or taken out of CODIS until the problem has been resolved. If an offender or arrestee sample duplicate hits a case, the disposition between the offender/arrestee sample and the casework sample is dispositioned **Duplicate**.

12.2.4 If a casework profile matches to another casework profile, the match must be evaluated to determine if either one or both of the profiles are from solved cases. If both are solved cases and have been linked externally (independent of a CODIS match), then it can be dispositioned as a **Benchmark Match** and a TBI Report shall be issued for the agencies involved.



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- 12.2.5 If both cases are solved and worked by different analysts, the agencies must be informed by issuance of a TBI Report. The disposition is **Investigative Information**.
- 12.2.6 If one case is solved and one is not, the agencies will need to be informed of the TBI Laboratory number and individual's name and date of birth (if available) by issuance of a TBI Report. The analyst must request that a new reference standard be obtained from the agency with the unsolved case. The disposition will be **Forensic Hit**.
- 12.2.7 If both cases are unsolved, information shall be shared between analysts and the affected agencies must be informed by issuance of a TBI Report. The disposition will be **Forensic Hit**.
- 12.2.8 If a casework profile matches to a convicted offender/arrestee, the CODIS administrator, with the help of the case analyst, must determine if the case is still unsolved. If the case is solved, the disposition will be **Conviction Match**. It is the casework lab's responsibility that has the casework/forensic profile entered to determine if the offender/arrestee matched is the same individual identified in the case. If the case is unsolved, the match must be verified and the disposition will be **Offender Hit or Arrestee Hit (see section 12.3)**.
- 12.2.9 For an SDIS Conviction Match, the name of the offender/arrestee must match the subject's name from the solved case. It may become necessary for the state administrator or their designee to consult the Computerized Criminal History (CCH) to check for aliases. If these are the same, the match should be dispositioned as a **Conviction Match**. If the match is NDIS-generated, then the two affected labs must contact each other and compare names and other identifying information to ensure they are the same individual. If these are the same, the match should be dispositioned as a **Conviction Match**. In this instance, the out-of-state contact person and the date contacted must be documented in the "Notes" section of "Disposition" in Match Details.
- 12.2.10 The TBI may take ownership of forensic profiles which do not have an assigned TBI lab number (e.g. a profile generated by an approved private laboratory contracted by an in-state law enforcement agency). For CODIS hits involving these samples, an official TBI CODIS report shall be issued to the submitting officer/agency along with a documented telephone call and/or email notifying of the available TBI report.

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12.2.11 Relating to the following subsections: 12.2.4, 12.2.5, 12.2.6, and 12.2.7, in addition to the issuance of an official TBI CODIS Report detailing match information, the analyst must have a documented telephone call and/or e-mail to inform the submitting officer/agency of the available TBI report.

12.2.12 All other dispositions will follow the NDIS Operational Procedures and the CODIS Administrator's Handbook if necessary.

12.3 Verification of an Offender/Arrestee Hit

Verification is required when a possible match has been determined between a casework profile and a convicted offender/arrestee profile.

12.3.1 The CODIS administrator or designee may contact the casework analyst involved in the CODIS match in order to determine if the database sample and forensic specimen match is valid and requires confirmation or wait for out-of-state notification to verify an NDIS-generated match. If the analyst is contacted, he or she will email or call the CODIS Administrator or designee to verify the sample. The CODIS administrator or designee shall be a qualified casework DNA analyst in order to make match determinations on behalf of the casework analyst. Match determinations that require technical data (e.g. electropherograms) for interpretation will be forwarded to the casework analyst for analysis.

12.3.2 Database sample re-analysis

12.3.2.1 The original convicted offender/arrestee sample shall be re-analyzed by a DNA analyst to confirm the match. For convenience, multiple offender and arrestee samples may be batched for DNA analysis. A second DNA analyst must technically review the re-analysis paperwork. An administrative review of this confirmation DNA analysis packet shall also be conducted. In regards to the re-analysis process, the start date shall be the date on which the processing of samples begins. The stop date will be the date the allele table(s) is completed. The stop date is not the date of the technical review.

12.3.2.2 The technical reviewer shall be a current or previously qualified analyst in the methodology being reviewed having completed a competency test prior to participating in the

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technical review of DNA data. Each technical reviewer will participate in an external proficiency testing program on the same technology, platform and typing amplification kit used to generate the DNA data being reviewed.

- 12.3.2.3 The technical review of the re-analysis packet shall include the following elements and the review noted on the first page of the re-analysis packet with the reviewer's initials and date of review:
- 12.3.2.3.1 A review of all notes, worksheets and electronic data or printed electropherograms that support the conclusions for conformance between re-analyzed samples and the existing profiles in the CODIS database.
 - 12.3.2.3.2 A review of all DNA types to verify that they are supported by the raw or analyzed data (electropherograms or images).
 - 12.3.2.3.3 A review of all controls, internal lane standards, and allelic ladders to verify that the expected results were obtained.
 - 12.3.2.3.4 A review of the conformance between all profiles listed as "Expected Profiles" and the existing DNA profiles from the CODIS database, as they are listed on the relevant Match Detail Reports.
 - 12.3.2.3.5 A review of the conformance between all profiles obtained from re-analysis and the existing DNA profiles from the CODIS database, as they are listed on the relevant Match Detail Reports.
- 12.3.2.4 The administrative review of the re-analysis packet shall include the following elements, any or all of which may be included within the technical review:
- 12.3.2.4.1 A review of the re-analysis packet for clerical errors including spelling and grammatical accuracy and that information is present and accurate.

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- 12.3.2.4.2 A review of all re-analysis records to ensure that the records are uniquely identified with the confirmation DNA analysis packet name and analyst's initials.
- 12.3.2.4.3 The completion of the administrative review is documented on the first page of the re-analysis packet with the reviewer's initials and date of review.
- 12.3.2.5 The profiles from the re-analysis batch set must match the profiles on record in the CODIS database before any offender/arrestee information can be released.
- 12.3.2.6 Re-analysis of all database samples will follow the TBI Forensic Biology Policy and Procedures, STR Typing Manual, and QA Manual.
- 12.3.2.7 Methods for reagent documentation, in-house reagent formulation, the identification of critical reagents, and all quality control measures are listed in the Forensic Biology Policy and Procedures, STR Typing Manual, and QA Manual. Scientists in the CODIS unit performing database sample re-analysis will follow the Forensic Biology Policy and Procedures, STR Typing Manual, and QA Manual. Scientists will also follow all Forensic Biology and TBI QA policies regarding annual proficiency testing.
- 12.3.2.8 All equipment is housed in the Forensic Biology unit and maintained according to that unit's policies and procedures. If specialized equipment is purchased for CODIS use only, that equipment and its method of operation will be maintained in the CODIS unit policies and procedures.
- 12.3.3 Confirmation process paperwork and reporting
- 12.3.3.1 For the confirmation process, the individual's name from the database associated with the profile may be captured on the Match Detail Report by the CODIS technician or analyst that retrieves the sample. This paperwork will accompany the sample during the confirmation process.

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- 12.3.3.2 For an arrestee match, a copy of the submittal form, or information from the submittal form, may accompany the sample. For an offender match, information from the TOMIS computer system is consulted to determine whether the individual is deceased. If the offender is deceased, that information is noted on the Match Detail Report. Additionally, for both arrestee and offender matches, the individual's name and Social Security number (when available) may be recorded on the Match Detail Report.
- 12.3.3.3 A screen capture will be taken and printed which contains the offender or arrestee's entry record from the relevant TBI SQL database ("DB Search"). The state administrator or their designee will initial and date this screen capture or record a comment in the entry record with initials and date. A screen capture is required for each database sample involved in a match (e.g. a match with one offender sample would require one screen capture, while a match with one offender and two arrestee samples would result in three screen captures).
- 12.3.3.4 Personal identifying information (e.g. SSN, State ID number, or a name) of the arrestee or offender is entered into the CCH to verify that the name and birth date are the same. The entire CCH record is saved electronically and the first page of the individual's criminal history is printed and retained with the match confirmation file. If the information does not match, then a name search must be conducted. Thumbprints may be used to aid in the identification and a phone call to the collecting agency may be needed as well.
- 12.3.3.5 Using information from the first page of the criminal history, an authorized individual will perform a NCIC national search. The name, date of birth, SSN, and any other available information are compared between CCH and NCIC. If the information found in the NCIC search differs from the TBI database (e.g. aliases or spelling of first or last name), the information from NCIC is reported. The authorized individual then initials and dates the page or corresponding stamp and maintains the original with the confirmation file.
- 12.3.3.6 A DNA Analysis Batch Process Sheet is created for each database sample's paperwork set. This sheet is a listing of

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all database samples batched together for re-analysis and can also be used to reference which verification packet a sample was included in.

- 12.3.3.7 The verification data from the DNA re-analysis batch set must match the DNA profiles on record in the CODIS database before any information is released.
- 12.3.3.8 After information has been gathered from the SQL database, CCH and NCIC, all relevant personally identifiable information for the offender or arrestee is recorded in a LIMS CODIS Match report. This report is written under the laboratory number associated with the forensic specimen.
- 12.3.3.9 All paperwork associated with the CODIS match confirmation letter and LIMS generated CODIS Match report shall be technically and administratively reviewed. The elements to be checked during a technical and administrative review are contained on the CODIS Match Checklist and Confirmation Review form (see form Appendix K for an example). This form and all generated confirmation paperwork and notes will be maintained with the forensic specimen case file. Each packet of confirmation paperwork should include the following pages:
- CODIS LIMS report
 - CODIS Match Checklist and Confirmation Review form
 - Match Detail Report
 - SQL database screen capture(s)
 - First page of CCH record, with NCIC check
 - DNA Analysis Batch Process sheet (optional)
- 12.3.4 After the CODIS match confirmation report has been marked report releasable in LIMS, the CODIS administrator or designee will notify the casework analyst that a hit has been verified. The submitting agency shall be notified of the match confirmation via the CODIS report in i-Results. All CODIS match confirmation paperwork shall be sent to the casework analyst to be kept in the forensic specimen case file.
- 12.3.5 Upon receipt of the match confirmation packet from the CODIS unit, the analyst shall contact the submitting agency via email or documented phone call as a follow up communication to the CODIS report.



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12.4 Forensic Match Reporting

12.4.1 When a forensic match occurs at any level (LDIS, SDIS or NDIS), the CODIS Administrator or designee may contact the casework analyst(s) involved in the match in order to determine if the match between the forensic specimens is valid. The CODIS administrator or designee shall be a qualified casework DNA analyst in order to make match determinations on behalf of the casework analyst. Match determinations that require technical data (e.g. electropherograms) for interpretation will be forwarded to the casework analyst for analysis.

12.4.2 When information for cases has been received, the CODIS unit will then enter the relevant information into a CODIS match report in LIMS. This report shall state the association and include the relevant Lab number or Specimen ID, submitting agency, case number and officer. Once the report has been administratively reviewed and marked releasable, the CODIS unit shall notify the submitting agencies via i-Results of the forensic match.

12.4.3 All paperwork associated with the CODIS forensic match and the LIMS-generated CODIS Match report shall be technically and administratively reviewed and maintained with the forensic specimen case file. The elements to be checked during a technical and administrative review are contained on the CODIS Forensic Match Checklist and Process Review form (see form Appendix R for an example). Each packet of paperwork should include the following pages:

- CODIS LIMS report
- CODIS Forensic Match Checklist and Process Review form
- Match Detail Report(s)

12.4.4 Upon receipt of the forensic match packet from the CODIS unit, the analyst shall contact the submitting agency via email or documented phone call as a follow up communication to the CODIS report.

12.5 No Match Reports

12.5.1 The CODIS Administrator or designee track all forensic specimens entered into the CODIS databases through all levels of searches (LDIS, SDIS and NDIS). Results of these searches are documented on the CODIS Entry form or a copy of the CODIS entry form given by the casework analysts to the CODIS unit.

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- 12.5.2 The completed CODIS Entry forms will be returned with their respective LIMS reports and any associated paperwork. Forensic specimens found to not match at any level, or to have matches at any level of searching, will be reported by the CODIS unit appropriate to the type of match.
- 12.5.3 All paperwork associated with the CODIS no matches LIMS report shall be technically and administratively reviewed. The elements to be checked during a technical and administrative review are contained on the CODIS No Match Checklist and Process Review form (see form Appendix S for an example). All associated paperwork will be maintained with the forensic specimen case file. Each packet of paperwork should include the following pages:
- CODIS LIMS report
 - CODIS No Match Checklist and Process Review form
 - CODIS Entry form (this form is not included in CODIS page numbering)

12.6 Verification of Tennessee Casework to NDIS Offender/Arrestee Hit

Verification is required when a possible match has been determined between a TBI casework profile and a convicted offender/arrestee profile from another state.

- 12.6.1 The CODIS administrator or designee will verify if the TBI case is still active and unsolved.
- 12.6.2 The CODIS administrator will inform the state administrator or contact person from the offender/arrestee lab with the status of the case and request the profile be confirmed if active and unsolved. Requests are usually sent via email. Any written request needed by the offender/arrestee lab will be forwarded as necessary.
- 12.6.3 Upon receipt of a match confirmation from an outside NDIS lab, the CODIS unit will enter the putative perpetrator's information into a CODIS match confirmation report. After technical and administrative review, the CODIS unit shall notify the submitting agency of the association via the CODIS match report in i-Results. The NDIS match confirmation report notes shall be sent to the casework analyst to be kept in the forensic specimen case file.
- 12.6.4 All paperwork associated with the LIMS generated CODIS Match report shall be technically and administratively reviewed. The elements to be checked during a technical and administrative review are contained on

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the CODIS Match Checklist and Confirmation Review form (see form Appendix K for an example). This form and all generated confirmation paperwork and notes will be maintained with the forensic specimen case file. Each packet of confirmation paperwork should include the following pages:

- CODIS LIMS report
- CODIS Match Checklist and Confirmation Review form
- Match Detail Report
- NDIS Offender Confirmation Letter
- Communications with NDIS Lab
- TBI CODIS Confirmation Request to NDIS Lab

12.6.5 Upon receipt of the confirmation match packet from the CODIS unit, the analyst shall contact the submitting agency via email or documented phone call as a follow up communication to the CODIS report.

12.7 Verification of a Missing Person Profile to another Database Sample

Verification is required when a possible match has been determined between a Missing Person, Relatives of a Missing Person or Unidentified Human (Remains) profile and any other database sample.

12.7.1 The CODIS administrator or designee may contact the DNA analyst(s) that entered the matching profile(s), if necessary. The CODIS administrator or designee shall be a qualified casework DNA analyst in order to make match determinations on behalf of the casework analyst. Match determinations that require technical data (e.g. electropherograms) for interpretation will be forwarded to the casework analyst for analysis.

12.7.2 If more than one analyst is involved, the DNA analyst(s) will contact each other and compare data and information. This type of sample may be hard to re-analyze. Care should be given in the determining this type of match as a hit.

12.7.3 The DNA analyst(s) will notify the CODIS administrator of the results of this potential match, if further interpretation from technical data is needed.

12.7.4 The CODIS Unit will generate an official TBI report relating to the match of a database sample to the Missing Person or Unidentified Human



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(Remains) profile. Once the report has been technically and administratively reviewed and marked releasable, the CODIS unit shall notify the submitting agency via a CODIS report in i-Results.

12.7.5 All paperwork associated with the LIMS generated CODIS Match report shall be technically and administratively reviewed. The elements to be checked during a technical and administrative review are contained on the CODIS Match Checklist and Confirmation Review form (see form Appendix K for an example). This form and all generated confirmation paperwork and notes will be maintained with the forensic specimen case file. Each packet of confirmation paperwork should include the following pages:

- CODIS LIMS report
- CODIS Match Checklist and Confirmation Review form
- Match Detail Report (optional)
- SQL database screen capture(s)
- First page of CCH record, with NCIC check
- DNA Analysis Batch Process sheet (optional)

12.7.6 The DNA analyst(s) shall contact the submitting agency via email or documented phone call as a follow up communication to the CODIS report.

12.8 Hit Reconciliation

12.8.1 Reconciliation of all possible matches should be concluded within 30 business days of notification from the CODIS administrator or designee. However, this is a best effort attempt. There may be circumstances where such a timeframe is not feasible.

12.8.2 The CODIS unit and DNA analyst shall complete the appropriate sections of the CODIS Match Checklist and Confirmation Review form in order to monitor all stages of hit reconciliation. This form, along with all relevant paperwork, shall be maintained in the case file.

12.8.3 During the verification process, a situation may arise where insufficient sample remains or a complete profile cannot be obtained. A best faith effort should be put forth to obtain as much of a profile as possible. In these circumstances, the name associated with a potential hit may be released.

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12.8.4 During the verification process, a situation may arise where it is found that an offender or arrestee profile is in the database but it should not be there. It is the CODIS administrator's or their designee's responsibility to inform the casework analyst or lab of this situation and that no investigative lead information can be provided.

12.9 Reporting a Hit

12.9.1 When a hit has been verified on a case and the LIMS report generated, the CODIS unit shall notify the submitting agency via a report in i-Results. The analyst involved with the hit must contact the submitting agency as a follow up communication of the CODIS report in i-Results. This may be accomplished by e-mail or a documented phone call.

12.9.2 The Official TBI Report will be issued and may utilize the following standardized statement: "This association is an investigative lead only. In order to confirm this association, a blood or buccal standard from (Name) (DOB) must be submitted for comparison to the unknown DNA profile."

12.9.3 If the case is several years old, the LIMS administrator will either create a new submission request or recover the electronic file from archives. Either way, the original exhibit number(s) will be maintained in the new report. The test category in LIMS for the hit report will be "CODIS Report".

12.9.4 When the hit involves a convicted offender/arrestee, a new sample must be requested for the case. The samples from the convicted offender/arrestee database are not to be used as evidentiary samples.

12.9.5 If an identification of a missing person is confirmed, the information shall be provided to the submitting agency by way of an official TBI report.

12.9.6 If a forensic profile is from a case that has passed the statute of limitations and is a match to another forensic profile or arrestee or offender sample, the match is dispositioned like any another hit profile and the information concerning the investigative lead shall be reported to the submitting officer/agency by official TBI Report.

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12.10 Reporting Hit Statistics

12.10.1 The TBI local CODIS administrator will assist the state CODIS administrator, when required, to accurately determine the number of verified hits and/or investigations aided during the previous month.

12.10.2 The state CODIS administrator will notify NDIS by the 10th of each month of any hits or verified hits and/or investigations aided during the previous month.

12.11 Samples offered to SDIS from the Metro Nashville PD shall be subject their own policies and procedures and NDIS policies and procedures. All CODIS statistics generated by MNPDP will be reported to the state CODIS administrator or his/her designee. The MNPDP local CODIS administrator or his/her designee will be responsible for dispositioning their own matches with NDIS labs and requesting for offender or arrestee samples to be verified by TBI if necessary. MNPDP will also be responsible for exchanging case information with TBI in the event of a forensic hit, forensic match, or conviction match. TBI will provide offender or arrestee hit information via a memo to MNPDP.