
Procedure for CODIS Hits

1.0 Purpose – To outline the procedures for the CODIS hit confirmation process of the DNA Database Section.

2.0 Scope – The procedures in this document apply to the DNA Database Section at the State Crime Laboratory.

3.0 Definitions – See Section Definitions List

4.0 Equipment

- Comparator or magnifier
- Computer with the most current version of the DNA Database specimen manager software
- Photoshop Elements (or equivalent software to perform comparisons on screen)

5.0 Procedure – CODIS hits may arise due to a match of the autosomal profile in CODIS or a familial search. CODIS hits due to an autosomal profile match shall have confirmatory analysis of the autosomal loci. CODIS hits due to a familial search shall have confirmatory analysis of either the autosomal loci or, if possible, the Y loci.

5.1 CODIS Hit Assignment

5.1.1 For each CODIS hit, the CODIS Administrator, Assistant CODIS Administrator, Forensic Scientist Manager, or designee shall request that a subject information assessment be generated (see the Generation of Subject Information Assessments section of this procedure). The assessment may include a complete criminal history on the individual.

5.1.1.1 If it is determined during the generation of the subject information assessment that the individual may not have a qualifying conviction or arrest, follow the Subject Information Assessments Requiring Legal Review section of this procedure.

5.1.2 The CODIS Administrator, Assistant CODIS Administrator, Forensic Scientist Manager, or designee shall create a new CODIS hit record in SpecMan and input the pertinent information. This information may include but is not limited to: specimen (if known), type of hit (offender or forensic), specimen reason (offender or arrestee), SBI search warrant (yes/no), level of hit (NDIS/SDIS), the hit date, the evidence agency, the date of crime, indication of in-state vs. out-of-state, the crime type, and the Match ID. The status shall be changed to “Pending Assignment.”

5.1.3 Upon assignment in SpecMan, the DNA Database Forensic Scientist shall update the CODIS Hit status to “Hit Confirmation Pending.”

5.1.4 The DNA Database Forensic Scientist shall check to see if the sample has been previously confirmed. If so, see the Previously Confirmed CODIS Hits section of this procedure.

5.1.5 All confirmation analysis and review documentation shall be retained.

5.2 CODIS Hit Sample Processing

- 5.2.1** For CODIS hit confirmations worked as part of task-oriented analysis, the primary Forensic Scientist shall perform the lab work portion of the confirmation. A secondary (reporting) Forensic Scientist may analyze the data and report results. The primary Forensic Scientist or designee shall retrieve the database sample from the DNA Databank.
- 5.2.2** The primary Forensic Scientist shall perform laboratory work following standard section procedures. Analysis shall be documented in the DNA Database Forensic Scientist's notes as it is conducted. A CODIS hit batch number shall be used on the associated paperwork.
- 5.2.3** Batches with a secondary Forensic Scientist shall have a preliminary review of data (a post PCR review) completed by the primary Forensic Scientist. The primary Forensic Scientist shall view the data to ensure no samples need to be reworked. After the post PCR review is complete, the primary Forensic Scientist shall add the following note to the 3500xL worksheet.
 - 5.2.3.1** "A post PCR review was performed."
- 5.2.4** The primary Forensic Scientist shall place a copy of the 3500xL run data and a PDF copy of the bench notes into the CODIS Hit Documentation folder located on the shared drive.

5.3 DNA Analysis CODIS Hit Documentation

- 5.3.1** DNA Database Forensic Scientists shall use section worksheets to document analysis.
- 5.3.2** For each CODIS hit, electronic versions of all notes or data generated during analysis of the hit confirmation including, but not limited to, the following information shall be retained.
 - 5.3.2.1** Primary DNA Database Forensic Scientist's current curriculum vitae
 - 5.3.2.2** Secondary DNA Database Forensic Scientist's current curriculum vitae (if applicable)
 - 5.3.2.3** Scan of DNA Database card
 - 5.3.2.4** Individual Specimen report
 - 5.3.2.5** Match Detail Report
 - 5.3.2.6** Documentation generated during analysis (to include any corrections made to examination documentation, as well as the original electronic copy)
- 5.3.3** NOTE: All documents shall be in a non-editable format. All analyzed projects shall be exported from GeneMapper® ID-X and retained.

5.4 CODIS Hit Fingerprint Comparisons - Comparisons for CODIS hits shall be performed by Forensic Scientists who have completed training through the Latent Section.

- 5.4.1** Retrieve fingerprint exemplars via the SAFIS Database or by contacting CIIS.
 - 5.4.1.1** Scan the front of the card at a minimum of 600dpi and save as a .tif file.

- 5.4.2** Retrieve the DNA Database card.
 - 5.4.2.1** Scan the card at a minimum of 600dpi and save as a .tif file. Be sure to include the specimen number and both thumb prints.
- 5.4.3** Perform the fingerprint comparison.
- 5.4.4** Documentation of the fingerprint comparison must be recorded by the Forensic Scientist performing the fingerprint comparison.
- 5.4.5** The Forensic Scientist who performed the fingerprint comparison shall include his/her current CV along with the notated scans of the DNA Database card and the known exemplars.
- 5.4.6** The Forensic Scientist who performed the fingerprint comparison shall include one of the following statements in their documentation.
 - 5.4.6.1** The fingerprint associated with the DNA Database card has been compared and was identified to known prints on file.
 - 5.4.6.2** The fingerprints associated with the DNA Database card were determined to be insufficient for comparison.
 - 5.4.6.3** The fingerprint associated with the DNA Database card has been compared to the known prints on file and was eliminated as having originated from the same source.
 - 5.4.6.4** A fingerprint comparison could not be completed due to:
 - 5.4.6.4.1** No thumb prints on the DNA Database card.
 - 5.4.6.4.2** No known exemplars on file.
- 5.4.7** A Combined Latent Verification and Technical Review shall be assigned to a Forensic Scientist in the Latent Section of the Laboratory. The review shall be documented with the CODIS hit.
- 5.4.8** If it is determined after the Combined Latent Verification and Technical Review that the fingerprints associated with the DNA Database card are eliminated as being the same donor as the known exemplars on file, then the Forensic Scientist shall notify both the Forensic Scientist Manager and the CODIS Administrator who shall determine the correct course of action.
- 5.4.9** The known exemplars shall be shred once the CODIS hit has been completed.

5.5 Reporting Forensic Scientist Review of the Fingerprint Comparison

- 5.5.1** If the DNA Database Forensic Scientist performing the DNA analysis is not the Forensic Scientist performing the fingerprint comparison, the DNA Database Forensic Scientist must verify completion of the fingerprint comparison prior to putting the CODIS hit into the CODIS Hit Combined Technical and Administrative review.

5.5.1.1 The DNA Database Forensic Scientist shall:

5.5.1.1.1 Verify that the CV for the Forensic Scientist performing the fingerprint comparison is present.

5.5.1.1.2 Verify that the fingerprint(s) from the DNA Database Card are present as a .tif scan. The specimen number listed on the DNA Database Card shall be the same as the specimen number listed on the Match Detail report.

5.5.1.1.3 Verify that the known exemplar fingerprint(s) are present as a .tif scan. The SID number listed on the known exemplars shall be the same as the SID number listed on the Individual Specimen report.

5.5.1.1.4 Open the fingerprint comparison verification and technical review sheet, verify that the review has been completed, and review the comments.

5.5.1.1.5 Verify that a fingerprint comparison note has been listed.

5.5.1.1.6 Ensure that the review comments are in agreement with the fingerprint comparison note listed.

5.5.1.1.7 Add the following comment to the CODIS hit documentation.

5.5.1.1.7.1 “The fingerprint comparison and review are complete.”

5.5.1.1.8 If no fingerprint comparison was completed (no prints available), the DNA Database Forensic Scientist shall add the following comment to the CODIS hit documentation.

5.5.1.1.8.1 “A fingerprint comparison was not performed.”

5.5.2 If the DNA Database Forensic Scientist is the Forensic Scientist performing the fingerprint comparison, verify that the fingerprint comparison, Verification, and Technical Review is complete and that the review comments are in agreement with the fingerprint comparison conclusions. No additional note is needed.

5.6 CODIS Hit Technical Review

5.6.1 The CODIS hit shall be scheduled for technical review. The technical review shall include at a minimum:

5.6.1.1 A review to ensure that all required documentation listed in the CODIS Hit Documentation section is included.

5.6.1.2 A review of all worksheets to include verification of completion and the use of proper lot numbers.

- 5.6.1.3** A review of all electronic data (used and unused) including all controls, internal lane standards, and allelic ladders to verify that the scientifically expected results were obtained.
 - 5.6.1.4** A review of any reworked samples to confirm that the samples have the required controls.
 - 5.6.1.5** A review of the reported allele calls and the allele call table to verify that they are supported by the electropherograms.
- 5.6.2** Technical Issues: If during the course of a review of the DNA analysis the reviewer and reporting scientist are unable to resolve a technical issue, the Technical Leader shall be notified of the issue. The Technical Leader shall then determine and/or approve the appropriate course of action.

5.7 CODIS Hit Confirmation

- 5.7.1** After the technical review is complete, perform the confirmation keyboard search of the profile in CODIS. The confirmation keyboard search shall allow verification of concordant profiles from the original analysis of the profile and secondary reanalysis due to the hit confirmation. The confirmation keyboard search of CODIS shall be included with the CODIS hit documentation in a non-editable format.
- 5.7.1.1** If the confirmation keyboard search of the convicted offender/arrestee profile returns anything other than a high stringency match at all loci searched or the original convicted offender/arrestee profile is incomplete in CODIS, then the Forensic Scientist shall notify a Forensic Scientist Supervisor or Forensic Scientist Manager before proceeding with the confirmation. The Forensic Scientist Supervisor or Forensic Scientist Manager shall review the results and determine the correct course of action.
 - 5.7.1.2** If the confirmation keyboard search of the convicted offender/arrestee profile does not match the original convicted offender/arrestee profile within CODIS, then the Forensic Scientist shall notify both the Forensic Scientist Manager and the CODIS Administrator who shall determine the correct course of action. The CODIS Hit record status shall be changed to “CODIS Hit Not a Match” in SpecMan as determined by the CODIS Administrator and Forensic Scientist Manager.
 - 5.7.1.3** If the confirmation keyboard search of the convicted offender/arrestee profile returns more than one match, then the Forensic Scientist shall notify a Forensic Scientist Supervisor or Forensic Scientist Manager before proceeding with the confirmation. The Forensic Scientist Supervisor or Forensic Scientist Manager shall review the results and determine the correct course of action.
 - 5.7.1.4** If the CODIS hit is to a sample determined not to have a qualifying offense and the profile has been removed from CODIS, the confirmation will ensure the keyboard search does not match another convicted offender/arrestee profile.

5.7.2 After the confirmation keyboard search is complete, the DNA Database Forensic Scientist shall update the profile in CODIS with additional loci data obtained from the CODIS hit analysis(if necessary).

5.7.2.1 If a sample cannot be updated via .xml, the allele calls shall be manually updated by the DNA Database Forensic Scientist. This shall be witnessed by a DNA Database Forensic Scientist, Supervisor, or Manager and noted in CODIS.

5.8 Reporting CODIS Hit Results

5.8.1 Before reporting CODIS hit results, the following items must be completed.

5.8.1.1 Technical review of the CODIS hit.

5.8.1.2 CODIS hit confirmation documentation has been added to the CODIS hit.

5.8.1.3 The DNA Database Forensic Scientist shall verify that the Fingerprint Comparison/Verification and Technical Review is complete.

5.8.2 A letter shall be generated using the SpecMan reports function. All letters shall include:

5.8.2.1 Match ID.

5.8.2.2 Correct CODIS level search.

5.8.2.3 Sample number examined.

5.8.2.4 DNA and fingerprint comparison results.

5.8.2.5 Date Report is generated.

5.9 CODIS Hit Combined Technical and Administrative Review

5.9.1 The CODIS hit shall be scheduled for a Combined Technical and Administrative Review. The Combined Technical and Administrative Review shall include at a minimum:

5.9.1.1 DNA Analysis Review

5.9.1.1.1 Verification that examination documentation, a confirmation keyboard search, and any additional supporting documentation are present and accurate.

5.9.1.1.2 The confirmation keyboard search page shall be reviewed to verify concordance between the profile generated during reanalysis and the convicted offender/arrestee's profile in CODIS (if the profile remains in CODIS).

5.9.1.1.3 A review of the CODIS hit SpecMan record to ensure the subject information assessment is present and reviewed.

5.9.1.1.4 Verification that a technical review was completed and all corrections were incorporated.

5.9.1.2 Fingerprint Comparison Review

5.9.1.2.1 Verification that the CV for the Forensic Scientist performing the fingerprint comparison is present.

5.9.1.2.2 Verification that the fingerprint(s) from the DNA Database Card are present as a .tif scan. The specimen number listed on the DNA Database Card shall be the same as the specimen number listed on the Match Detail report.

5.9.1.2.3 Verification that the known exemplar fingerprint(s) are present as a .tif scan. The SID number listed on the known exemplars shall be the same as the SID number listed on the Individual Specimen report.

5.9.1.2.4 Verification that a fingerprint comparison Verification and Technical Review was completed.

5.9.1.3 Review of Reported Results

5.9.1.3.1 The letter shall be reviewed to ensure that the information pertaining to the individual associated with the hit is documented appropriately. The review shall include the following.

5.9.1.3.1.1 A review of the supporting administrative documentation and the correspondence for clerical errors, accuracy of information, and adherence to agency policy.

5.9.1.3.1.2 A review of the individual's biographical data, qualifying offense, and DNA profile generated from re-analysis.

5.9.1.3.1.3 A review to ensure that the fingerprint comparison note is also listed.

5.10 Completing a CODIS Hit

5.10.1 Completing a CODIS hit shall occur after the Combined Technical and Administrative Review is complete.

5.10.2 For hits occurring within the laboratory system of the North Carolina State Crime Laboratory (NCSCCL), the SpecMan CODIS Hit record status shall be updated to "CODIS Hit Confirmed." The "Date Confirmation Completed" field shall be filled in with the date the Combined Technical and Administrative Review was completed and the SpecMan CODIS Hit record shall be unassigned. Further processing of hits within the laboratory

system (including notification of investigating agency), is completed by the Forensic Biology section of the NCSCL.

5.10.2.1 The CODIS Administrator or designee shall issue a CODIS HIT notification report to the investigating agency.

5.10.2.2 If it is determined during the subject information assessment that there is no qualifying offense for the sample and the DNA Database is not entitled to a sample for a subsequent qualifying offense, the CODIS Administrator or designee shall notify the DNA Database Forensic Scientist to terminate the CODIS hit after all analysis and reviews are completed. The CODIS Administrator or designee shall change the hit status in SpecMan to “CODIS Hit Terminated- Confirmed.” The record shall be released at the direction of the CODIS Administrator or designee pursuant to an approved court order.

5.10.2.3 For other instances, process the confirmation as instructed by laboratory legal counsel.

5.10.3 For hits occurring outside the laboratory system of the NCSCL, the Forensic Scientist shall change the hit status to “CODIS Hit Confirmed” in SpecMan. The letter shall be added to the notes section of the SpecMan CODIS Hit record. The Forensic Scientist shall unassign the SpecMan CODIS hit record. The CODIS Administrator or designee shall send the letter to the appropriate laboratory.

5.11 Stop Work Requests for CODIS Hits

5.11.1 If a stop work request is received on a CODIS hit confirmation, the DNA Database Forensic Scientist shall terminate the CODIS hit. The reason for the CODIS hit termination shall be cited. The status of the CODIS Hit shall be changed to “CODIS Hit Terminated – Confirmed” in SpecMan if confirmed or changed to “CODIS Hit Terminated – Not Confirmed” if it was terminated before analysis was complete.

5.12 Previously Confirmed CODIS Hits

5.12.1 Previous CODIS hit documentation may be used in lieu of completing a new set of lab work.

5.12.1.1 Copy all required documentation from the original CODIS hit into the new CODIS hit documentation location. The match detail report from the original CODIS hit shall not be included in the new CODIS hit documentation.

5.12.1.2 A new confirmation keyboard search, subject information assessment, and CODIS letter shall be created.

5.12.2 Previous latent verification/fingerprint comparison documentation may be used in lieu of completing a new fingerprint comparison

5.12.2.1 Copy all required documentation from the original latent verification/fingerprint comparison into the new CODIS hit documentation location. At a minimum this shall include the latent verification/fingerprint

comparison documentation and the curriculum vitae (if available). In addition, include a PDF of the original latent verification/fingerprint comparison worksheets and a PDF of the original latent verification/fingerprint comparison memo (if applicable).

5.13 Generation of Subject Information Assessments - A Subject Information Assessment may be requested as part of a CODIS hit confirmation.

5.13.1 Only the Criminal Justice Specialist (CJS) or designated DNA Database employees who have completed the required Omnixx, CJLEADS and NCAWARE training shall generate a Subject Information Assessment.

5.13.2 The request to generate a Subject Information Assessment (SIA) shall be sent via email to the CJS by the Forensic Scientist Manager or designee. The email may contain, but is not limited to, the following information:

5.13.2.1 Offender or Arrestee Specimen ID number.

5.13.2.2 Name, Race and Sex of the Offender/Arrestee.

5.13.2.3 Date, Place, and Offense of the crime to which the hit occurred.

5.13.2.4 Forensic Scientist to whom the SIA should be provided (in SpecMan CODIS hit record).

5.13.3 To create the SIA the CJS shall:

5.13.3.1 Ensure a current copy of the DNA Database Collection Card has been scanned into the specimen record.

5.13.3.2 Access the Department of Public Safety/Division of Adult Correction website, Omnixx, CJLEADS, and NCAWARE as needed to verify the individual's qualifying event and ensure the card prepared date for the sample corresponds to the arrest or conviction date of the individual. Any information obtained on the individual shall be printed to PDF and retained within the SIA file and attached to the Specman CODIS Hit record. A note shall be added to the SpecMan CODIS hit record indicating whether there is a qualifying offense.

5.13.4 The CJS shall perform a review of the individual's DPS/Division of Adult Correction (if applicable) and CCH records to verify the individual was not incarcerated on the date of crime to which the hit occurred. If needed, request the individual's movement record through DPS/Division of Adult Correction. For CODIS hits due to an autosomal match, a note shall be added to the SpecMan CODIS record indicating whether the individual was incarcerated on the date of offense. The SIA shall be peer reviewed and a note added to the SpecMan CODIS hit record indicating agreement with the SIA. The SIA shall be reviewed subsequently by the Forensic Scientist Manager or designee and a note added to the SpecMan CODIS Hit record.

5.14 Subject Information Assessments Requiring Legal Review

- 5.14.1** The CJS responsible for generation of the SIA shall notify the Forensic Scientist Manager if a sample may not have a qualifying offense.
- 5.14.2** The Forensic Scientist Manager (or designee) shall notify Laboratory legal counsel.
- 5.14.3** Laboratory legal counsel shall review the subject information assessment and supporting documentation.
- 5.14.4** Legal counsel shall forward any recommendation to the Forensic Scientist Manager or CODIS administrator for final resolution.
 - 5.14.4.1** If the determination is made that the sample does not have a qualifying offense
 - 5.14.4.1.1** The hit will be reported with limited information and a court order will be required for any personal identifying information.
 - 5.14.4.1.2** The CODIS Administrator shall delete the profile from CODIS as described in the Procedure for CODIS-DNA Database and a note shall be added to the specimen record in SpecMan explaining the reason for deletion and the CODIS Administrator's initials. In addition, the same note shall be made in the NDIS Specimen Manager Module.
 - 5.14.4.1.3** The CODIS Administrator shall change the specimen status to "Stored – Removed from CODIS" in SpecMan. The Forensic Scientist Manager shall be notified of the profile removal from CODIS.
 - 5.14.4.1.4** The Forensic Scientist Manager/or designee notifies the designated Database employee who changes the specimen status in SpecMan to "Stored – Rejected."
 - 5.14.4.2** If the determination is made that the sample was ineligible at collection but the sample would be eligible for collection as of when the CODIS hit occurs
 - 5.14.4.2.1** Report the hit.
 - 5.14.4.2.2** Retain the profile in CODIS
 - 5.14.4.2.3** Retain the sample.
 - 5.14.4.3** If the determination is made that the sample was eligible for expunction at the time the CODIS hit occurs, the subject's charge was dismissed prior to June 1, 2012, or if the conviction for a convicted sample was overturned
 - 5.14.4.3.1** Report the hit.
 - 5.14.4.3.2** Remove the profile from CODIS.
 - 5.14.4.3.3** Place the sample in "Stored-Rejected" in SpecMan.

6.0 Limitations – N/A

7.0 Safety - N/A

8.0 References

DNA Database Administrative Policy and Procedure

DNA Database Administrative Procedure for Safety and Hazardous Waste Disposal

DNA Database Section Procedure for DNA Reagent Quality Control

DNA Database Section Procedure for GeneMapper® ID-X and STR Interpretation with PowerPlex® Fusion

DNA Database Section Procedure for GeneMapper® ID-X and STR Interpretation with PowerPlex® Y23

DNA Database Section Procedure for Instrument and Equipment Quality Control

DNA Database Section Procedure for PCR Amplification with PowerPlex® Fusion

DNA Database Section Procedure for PCR Amplification with PowerPlex® Y23

DNA Database Section Procedure for Qiagen BioRobot® Universal Using PowerPlex® Fusion

DNA Database Section Procedure for Sample Accessioning and Processing

DNA Database Section Procedure for Sample Processing Quality Control

DNA Database Section Procedure for Use of the 3500xL Genetic Analyzer

Procedure for CODIS-DNA Database

State Crime Laboratory Quality Manual

State Crime Laboratory Safety Manual

9.0 Records – N/A

10.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
07/01/2020	4	5.0-Added sources and actions for types of CODIS hits; 5.1.2-Removed in-state hit reference; 5.2.2-Incorporated DRF; 5.2.3-Clarified post PCR review only needed if there is a secondary FS; 5.5.1-Incorporated DRF; 5.6.1.5-Incorporated DRF; 5.6.16-5.6.1.7-Removed due to DRF; 5.7.1.1- Rephrased “produces” to “returns;” Added 5.7.1.3; 5.7.2-Clarified what should be updated; 5.8.1.3-Incorporated DRF; 5.9.1.3.1 and subsections- Added specific letter review requirements; 5.10.2-Updated in-state hit naming convention, Updated SpecMan workflow; 5.10.3-Updated out of state hit naming convention, Updated SpecMan workflow; 5.13- Removed reference to familial search; 5.13.3 subsections-Updated database use workflow; 5.13.4-Clarified SpecMan note only needed for autosomal matches; 15.3.4-15.3.5-Combined; 5.14.2-Removed SpecMan status changes; 5.14.4-Added FSM as option