

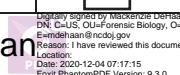

## Deviation Request Form (DRF)

Directions: The Initiator will complete Sections A through C. Additional continuation pages can be included if necessary.

<b>Initiator</b>	MJ DeHaan	<b>Date</b>	2/8/2021
<b>A. Requested deviation applies to (Technical Procedure – include specific section):</b>			
Procedure for CODIS - DNA Casework Section 6.2.4.1.2 (update previous DRF wording)			
<b>B. Requested deviation:</b>			
Update to STRmix CODIS report may be generated			
<b>C. Necessity for the deviation:</b>			
After implementation of the STRmix software it was noted that the STRmix interpretation report could be used in a similar manner as the CODIS report. Analysts were utilizing multiple methods for improvement of the workflow in casework.			
<b>D. Technical review and Authorization (to be completed by the Quality Manager and/or Technical Leader)</b>			
<b>Comments(to include merits and impacts):</b>			
No impact of casework is noted. This deviation allows for all cases worked after the implementation of STRmix to use either the CODIS report or Interpretation Report to assist in the determination of genotype entry for CODIS purposes. The genotypes were reviewed prior to entry and/or search.			
<b>Approved</b>	<input checked="" type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/> <b>No</b>
<b>Signature</b>	Mackenzie DeHaan		<b>Date</b>
		2/16/21	
<b>E. Quality Assurance Authorization (to be completed by the Quality Manager, Forensic Scientist Manager or designee)</b>			
Acceptable within general QA guidelines and good laboratory practice?		<input checked="" type="checkbox"/>	<b>Yes</b>
Significant negative impact to Crime Laboratory Quality System?		<input type="checkbox"/>	<b>Yes</b>
		<input checked="" type="checkbox"/>	<b>No</b>
<b>Restrictions/limitations:</b>			
Documents the alternate ways to allow CODIS profiles for review. Not limited to cases worked on or after 2/8/2021			
<input checked="" type="checkbox"/>	<b>Authorized</b>	<input type="checkbox"/>	<b>Rejected</b>
<b>Signature</b>	Jody H. West		<b>Date</b>
		2-8-21	

## Deviation Request Form (DRF)

Directions: The Initiator will complete Sections A through C. Additional continuation pages can be included if necessary.

<b>Initiator</b>	Amanda Overman			<b>Date</b>	12/3/2020			
<b>A. Requested deviation applies to (Technical Procedure – include specific section):</b>								
Procedure for CODIS - DNA Casework								
<b>B. Requested deviation:</b>								
See attached								
<b>C. Necessity for the deviation:</b>								
Clarify that employee searches need to be performed on all interpretable profiles (not just those from a single contributor) for Quality Control Purposes.								
<b>D. Technical review and Authorization (to be completed by the Quality Manager and/or Technical Leader)</b>								
<b>Comments(to include merits and impacts):</b>								
Approved	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	Duration	until next version		
Signature	 Mackenzie DeHaan <small>Digitally signed by Mackenzie DeHaan DN: c=US, ou=Forensic Biology, o=NCSC, CN=Mackenzie DeHaan, E=mdehaan@ncdoj.gov Reason: I have reviewed this document Location: Date: 2020-12-04 07:17:15 Post-PhantomPDF Version: 9.3.0</small>				Date	12/04/2020		
<b>E. Quality Assurance Authorization (to be completed by the Quality Manager, Forensic Scientist Manager or designee)</b>								
Acceptable within general QA guidelines and good laboratory practice?					<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No	
Significant negative impact to Crime Laboratory Quality System?					<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No	
<b>Restrictions/limitations:</b>								
<input checked="" type="checkbox"/>	Authorized	<input type="checkbox"/>	Rejected	Signature	 Jody H. West <small>Digitally signed by Jody H. West DN: cn=Jody H. West, o=DOJ, ou=State Crime Laboratory, email=jwest@ncdoj.gov, c=US Date: 2020.12.04 08:24:35 -0500</small>		Date	12-4-20

## **DRF\_Procedure for CODIS – DNA Casework**

**Note: numbering will be updated with procedure revisions due to multiple additions/deletions**

### **6.2.7 Procedure for Comparison and Searching of Unknown DNA Profiles ~~from a Single Contributor~~**

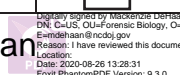

6.2.7.1 Prior to technical review, all interpretable unknown DNA profiles ~~from a single contributor~~ shall be manually compared to the Casework Forensic Scientist's DNA profile, the DNA profile of any Forensic Biology employee involved in the case, and any DNA profiles generated in cases that were batched with the case in question.

6.2.7.2 After technical review, all interpretable unknown DNA profiles ~~from a single contributor~~ shall be subject to a keyboard search of the Employee/QC Index using the Searcher Program. See 6.2.9.2.5 regarding search parameters. The results of this search shall be printed and saved to the FA case record object repository.

6.2.7.2.1 Profiles must be interpretable and meet at least state level quality eligibility requirements in order to be searched in the Employee/QC index.

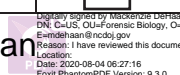
## Deviation Request Form (DRF)

Directions: The Initiator will complete Sections A through C. Additional continuation pages can be included if necessary.

<b>Initiator</b>	Amanda Overman			<b>Date</b>	8/26/2020			
<b>A. Requested deviation applies to (Technical Procedure – include specific section):</b>								
Procedure for CODIS - DNA Casework								
<b>B. Requested deviation:</b>								
Update CMF Version from 3.2 to 3.3:  <b>6.2.4.1.1.3</b> Choose CMF 3.3 (.xml) from the drop down menu for Export File As.								
<b>C. Necessity for the deviation:</b>								
CODIS version 9.0 requires CMF 3.3 files								
<b>D. Technical review and Authorization (to be completed by the Quality Manager and/or Technical Leader)</b>								
<b>Comments(to include merits and impacts):</b>								
Approved	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	Duration	until next version		
Signature	 Mackenzie DeHaan <small>Digitally signed by Mackenzie DeHaan DN: c=US, ou=Forensic Biology, o=NCSC, CN=Mackenzie DeHaan, E=mdehaan@ncdoj.gov Reason: I have reviewed this document Location: Date: 2020-08-26 13:28:31 Post PhantomPDF Version: 9.3.0</small>				Date	08/26/2020		
<b>E. Quality Assurance Authorization (to be completed by the Quality Manager, Forensic Scientist Manager or designee)</b>								
Acceptable within general QA guidelines and good laboratory practice?					<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No	
Significant negative impact to Crime Laboratory Quality System?					<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No	
<b>Restrictions/limitations:</b>								
<input checked="" type="checkbox"/>	Authorized	<input type="checkbox"/>	Rejected	Signature	 Jody H. West <small>Digitally signed by Jody H. West DN: cn=Jody H. West, o=DOJ, ou=State Crime Laboratory, email=jwest@ncdoj.gov, c=US Date: 2020.08.26 13:48:17 -0400</small>		Date	8-26-20

## Deviation Request Form (DRF)

Directions: The Initiator will complete Sections A through C. Additional continuation pages can be included if necessary.

<b>Initiator</b>	Amanda Overman	<b>Date</b>	8/3/2020
<b>A. Requested deviation applies to (Technical Procedure – include specific section):</b>			
Procedure for CODIS - DNA Casework - multiple sections throughout document			
<b>B. Requested deviation:</b>			
See attached			
<b>C. Necessity for the deviation:</b>			
Addition of DRF previously unincorporated into procedure, updates for QAS 2020 compliance, updates after implementation of STRMix			
<b>D. Technical review and Authorization (to be completed by the Quality Manager and/or Technical Leader)</b>			
<b>Comments(to include merits and impacts):</b>			
Approved	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Duration until next version
Signature	 Mackenzie DeHaan <small>Digitally signed by Mackenzie DeHaan DN: c=US, ou=Forensic Biology, o=NCSC, CN=Mackenzie DeHaan, E=mdehaan@ncdoj.gov Reason: I have reviewed this document Location: Date: 2020-08-04 06:27:16 Post PhantomPDF Version: 9.3.0</small>		Date 08/04/2020
<b>E. Quality Assurance Authorization (to be completed by the Quality Manager, Forensic Scientist Manager or designee)</b>			
Acceptable within general QA guidelines and good laboratory practice?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Significant negative impact to Crime Laboratory Quality System?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<b>Restrictions/limitations:</b>			
<input checked="" type="checkbox"/>	Authorized	<input type="checkbox"/> Rejected	Signature Jody H. West <small>Digitally signed by Jody H. West DN: cn=Jody H. West, o=DOJ, ou=State Crime Laboratory, email=jwest@ncdoj.gov, c=US Date: 2020.08.04 11:14:23 -0400</small>

## **DRF\_Procedure for CODIS – DNA Casework**

**Note: numbering will be updated with procedure revisions due to multiple additions/deletions**

**Unreviewed Casework Pending** – A DNA profile that is generated during casework and is pending technical review and verification of CODIS eligibility. The DNA record for this specimen category is stored in the Unreviewed Casework Index and shall not be uploaded or searched until technical review is approved.

**4.0 Equipment, Materials, and Reagents** – computers with CODIS software, CODIS server, external media storage device, Forensic Advantage (FA) system, SpecMan, Armed Xpert, STRMix software.

### **5.0 CODIS Responsibilities**

**5.2.9** The Casework CODIS Administrator shall be responsible for ensuring that the quality of data stored in CODIS is in accordance with state and/or federal law and NDIS operational procedures.

**5.2.9.1** This is accomplished through the review process, **review of internal and external audit documents, and any non-conformities that impact DNA records entered into CODIS.**

**5.2.9.2** The Casework CODIS Administrator shall have the authority to remove any profiles that do not meet NDIS requirements.

### **5.4 Access to Data and Information**

**5.4.1** Access to information in the Database and Databank is permitted only as specified in Article 13 of Chapter 15A of the North Carolina General Statutes. All other requests for information shall be denied. Requests for information shall be accepted only from law enforcement or criminal justice agencies, or governmental forensic science laboratories. Requests from private forensic laboratories shall not be honored.

**5.4.2** Analysts with access to SpecMan, may respond to requests from criminal justice/governmental agencies regarding Database information and release information only as specified in Article 13 of Chapter 15A of the North Carolina General Statutes.

**5.4.3** The identity of any person/agency making a request for information shall be verified prior to the release of any information. To verify the identity of the person requesting the information, the analyst shall obtain the individual's name and agency name.

## **6.2.1 Procedure for Acceptance of DNA Records at SDIS and NDIS**

**6.2.1.5.1** When using a binary approach for interpretation, any loci with a homozygote allele below stochastic threshold shall be considered partial for CODIS purposes.

**6.2.1.5.2** When using STRMix for interpretation, genotypes that meet the  $\geq 99\%$  genotype weight threshold will be uploaded. If the 99% includes a genotype with the potential for dropout (Q), the locus will be marked as partial in CODIS.

**6.2.1.6** Forensic mixture and forensic partial DNA records submitted to SDIS shall be reviewed to ensure that the DNA records have profiles are fully represented at a minimum of 5 of the original CODIS Core Loci and satisfy a MME value of fifteen thousand (1.5000E004).

## **6.2.4 Procedure for Entering Casework Profiles into CODIS**

**6.2.4.1** DNA profiles may be imported into CODIS directly from GeneMapper ID-X, **STRMix**, or ArmedXpert.

**6.2.4.1.1.1** Under Specimen Category, select ~~“Unreviewed Casework”~~ “Pending” for export.

**6.2.4.1.2** In STRMix, generate a CODIS report using the mixture interpretation/deconvolution.

**6.2.4.1.2.1** STRMix will create an xml file that can be imported into the CODIS software. A separate file will be created for each contributor (C1, C2, etc.).

**6.2.4.1.2.1.1** Open each CODIS file prior to upload.

**6.2.4.1.2.1.2** Ensure the Destination/Source Lab IDs are set to NCBCI0094 (Raleigh) and NCJUS0081 (Western).

**6.2.4.1.2.1.3** Enter in your CODIS user ID.

**6.2.4.1.2.1.4** Ensure “Pending? Y” is selected as the specimen category.

**6.2.4.1.2.1.5** Verify the profiles for upload for each contributor against the STRMix report. Check any marked obligate alleles.

**6.2.4.1.2.1.6** Save file to external media storage device.

**NOTE:** Analysts have the ability import profiles directly from the CODIS report or they may modify the profiles generated in the CODIS report based on their analysis and interpretation prior to import into CODIS. Profiles may also be modified in an attempt to meet the MME requirements. If data is obtained that indicates a single contributor at DYS391/DYS576/DYS570, those alleles should be manually entered into CODIS. If additional profile types or situations occur that are not covered in current procedures, these profiles may be approved for entry with written approval from the CODIS Casework Administrator.

## **Unincorporated DRF**

**Section 6.2.6.1.3 updated/inserted as Section 6.2.6.2. The remainder of the section will be renumbered.**

During the 2019 QAS Audit it was noted that profiles from several YSTR cases were uploaded/searched in CODIS prior to the completion of the technical review. This revised wording will ensure that analysts remember to change the specimen category for profiles where additional loci are being added after the technical review is completed.

## **6.2.6 Procedure for Changing/Deletion of Profiles**

**6.2.6.1** A Casework Forensic Scientist may change a specimen if they are considered to be the “Assigned To” user or owner of that specimen (See 6.2.4.1.5).

**6.2.6.1.1** Renaming - The specimen name may be changed unless it has already been uploaded (e.g. SDIS to NDIS). After upload, if a specimen needs to be renamed, the specimen will need to be deleted and re-entered.

**6.2.6.1.2** Source ID, Partial Flag, Specimen Category, Alleles – May be changed by the “Assigned To” user at any time by using Specimen Manager or STR Data Entry. Please note that changes to alleles may affect the MME value and/or the Specimen Category.

~~**6.2.6.1.3** If additional loci are developed, (e.g., re-testing of an older sample with a current amp kit or testing of a current sample with a Y-STR amp kit) those additional loci may be added to the specimen via import or STR Data Entry. Please note that the “Assigned To” user does not need to be the same. Each “Assigned To” user will be reflected in the specimen record.~~



**6.2.6.1.3** The Casework Forensic Scientist shall place a copy of the updated Specimen Detail Report in the FA case record object repository.

**6.2.6.2** A Casework Forensic Scientist may update a specimen if additional loci are developed (e.g. re-testing of an older sample with a current amp kit or testing of a current sample with a YSTR amp kit). Please note that the “Assigned To” user does not need to be the same. Each “Assigned To” user will be reflected in the specimen record.

**6.2.6.2.1** Additional loci may be added to the specimen via import or STR Data Entry.

**6.2.6.2.2** The specimen category shall remain as ~~“Unreviewed Casework”~~ “Pending” until the technical review is completed.

**6.2.6.2.3** Once the technical review has been approved, the Forensic Scientist shall set the DNA record to the appropriate specimen category.

## **9.0 References**

Forensic Biology Procedure for Analysis and Interpretation of STR DNA Profiles

~~Forensic Biology Section Procedure for Analysis and Interpretation of Promega PowerPlex® Fusion 6C~~

## Procedure for CODIS – DNA Casework

- 1.0 Purpose** – The purpose of this document is to define the responsibilities of CODIS Users, to provide procedures for profile management in CODIS, to explain CODIS systems operation, and to outline CODIS hit procedures. The goal of the CODIS system is to provide a means for known DNA profiles to be searched against unknown DNA profiles potentially providing investigative information that could solve a crime.
- 2.0 Scope** – The procedures in this document apply to all CODIS related functions performed by CODIS Users in the Forensic Biology Section of the State Crime Laboratory. In addition, the procedures contained herein are established to comply with the National DNA Index System (NDIS) Acceptance Standards Operational Procedures.
- 3.0 Definitions**
- **Arrestee** – A known sample from an individual ARRESTED for an offense in North Carolina that is specifically obtained pursuant to North Carolina law. The DNA record for this specimen category is stored in the Arrestee Index.
  - **Candidate Match** – A possible match between two or more DNA profiles discovered by CODIS software. A qualified Forensic Scientist must verify that the DNA profiles from a candidate match could possibly come from the same individual.
  - **CODIS** – Combined DNA Index System, the FBI's national DNA identification system that allows for the storage and exchange of DNA records submitted by federal, state, and local DNA forensic laboratories.
  - **CODIS User** – An individual employed by the State Crime Laboratory/NCDOJ IT who has passed an FBI background check and who has access to computers which have CODIS software installed.
  - **Composite Profile** – A DNA profile generated by combining typing results from different loci obtained from multiple injections of the same amplified evidentiary sample and/or multiple amplifications of the same DNA extract. When separate extracts from a given item are combined prior to amplification, the resulting DNA profile is not considered composite. Unless there is a reasonable expectation of samples originating from a common source (e.g., duplicate vaginal swabs, known reference samples, or a bone), allelic data from separate extractions shall not be combined into a composite profile.
  - **Convicted Offender** - A known sample from an individual CONVICTED of a felony and certain misdemeanors in North Carolina that is specifically obtained pursuant to North Carolina law. The DNA record for this specimen category is stored in the Convicted Offender Index.
  - **Core Loci (Expanded)** – 20 loci including D8S1179, D21S11, D7S820, CSF1PO, D3S1358, TH01, D13S317, D16S539, vWA, TPOX, D18S51, D5S818, FGA, D1S1656, D2S441, D2S1338, D10S1248, D12S391, D19S433 and D22S1045.
  - **Core Loci (Original)** – 13 loci including D8S1179, D21S11, D7S820, CSF1PO, D3S1358, TH01, D13S317, D16S539, vWA, TPOX, D18S51, D5S818, FGA.
  - **Deduced Profile** – The application of peak height ratios or a known reference sample to determine the individual contributors of a mixture. If the individual contribution can be resolved, the resulting DNA record shall be stored in the Forensic or Forensic Partial Indices.
  - **DNA Profile** – See Forensic Biology Section Definition List.
  - **DNA Record** - A database record that includes the DNA profile as well as the data required for managing and operating LDIS/SDIS/NDIS, i.e., the Originating Agency Identifier which serves to identify the submitting agency; the Specimen Identification Number; and DNA personnel associated with the DNA profile analysis.
  - **Elimination** - A known sample from an individual known not to be a suspect in a case. Examples

include consensual sex partners, a witness who was injured at a scene, officers who may have inadvertently left DNA on evidence, etc. Elimination profiles SHALL NOT be entered into any CODIS Index.

- **Forensic Mixture** - A DNA profile that originates from a forensic sample that contains DNA contributed from more than one source attributable to a putative perpetrator(s) and is eligible for upload to NDIS. The DNA record for this specimen category is stored in the Forensic Mixture Index.
  - **Forensic Partial** - A DNA profile that originates from a single source forensic sample attributable to a putative perpetrator(s) with either locus or allelic dropout at any of the 13 core CODIS loci and is eligible for upload to NDIS. A DNA profile may also be considered a Forensic Partial if a locus (or loci) is not used for interpretation. The DNA record for this specimen category is stored in the Forensic Partial Index.
  - **Forensic Sample** – A biological sample originating from and/or associated with a crime scene and whose source is attributable to a putative perpetrator. These are not reference samples from known individuals.
  - **Forensic Unknown** - A DNA profile that originates from a single source forensic sample attributable to the putative perpetrator. The DNA record for this specimen category is stored in the Forensic Index.
  - **LDIS** – The local DNA Index System (LDIS) contains the detailed DNA records of a local DNA laboratory (e.g., Charlotte-Mecklenburg Crime Lab for NC).
  - **Mass Screening Samples** - Samples submitted from known individuals that have been obtained by police DNA dragnets in an effort to solve a crime. The donors of these samples have not been identified as suspects in the case. These samples shall not be uploaded to any Index of CODIS.
  - **Match Estimation** – A calculation that produces the moderate or high stringency match rarity estimate for a Forensic Mixture or Forensic Partial DNA profile. The results of this calculation aid in determining eligibility of a sample within the CODIS hierarchy.
  - **Match Rarity Estimate (MRE)** - The multiplication product of the individual-locus random match probabilities. The MRE is dependent on the stringency specified at each locus and the presence of obligate alleles.
  - **Missing Persons** - The known reference sample from an individual who is missing. The source of the DNA has been verified as originating from the missing person and is stored in the Missing Person Index.
  - **Mixture – State** - A DNA profile that originates from a forensic sample that contains DNA contributed from more than one source attributable to a putative perpetrator(s) and is eligible for upload to SDIS, but not NDIS. The DNA record for this specimen category is stored in the Forensic Mixture Index.
  - **Moderate Match Estimate (MME)** – The inverse of the Match Rarity Estimate when all loci are evaluated at moderate stringency.
  - **Multi-allelic Offender** – An offender (arrestee, convicted offender, detainee, or legal index specimen) DNA record having three or more alleles at two or more loci. The DNA record for this specimen category is stored in the Multi-Allelic Offender Index.
  - **NDIS** – The National DNA Index System (NDIS) is the FBI administered centralized system of DNA identification records contributed by all state and local participating laboratories. NDIS receives selected eligible records from every lower level index and supports the searching function of CODIS.
  - **Obligate Allele** - An allele marked with a “+” that is foreign to the victim/elimination standard in a mixture.
  - **Partial-State** - A DNA profile that originates from a single source forensic sample attributable to putative perpetrator(s) with either locus or allelic dropout at any of the 13 core CODIS loci and is eligible for upload to SDIS, but not NDIS. The DNA record for this specimen category is stored in the Forensic Partial Index.
  - **Person of Interest** - A known sample from an individual identified as a person of interest, and listed as such on the evidence submission form by the submitting agency. Profiles developed from persons of interest shall not be uploaded to any CODIS Index.
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- **Quality Control** – A single source DNA profile sample that originates from a proficiency test sample or un-attributable exogenous DNA introduced to a forensic sample or control. The DNA record for this specimen category is stored in the Employee/QC Index.
- **Required Allele Designation** - When entering a mixture into CODIS, a “+” shall be placed after any obligate allele in the mixture. This “+” informs the CODIS software of the alleles required to return a candidate match.
- **SDIS** - The State DNA Index System (SDIS) contains the state-level DNA records available for searching by local DNA laboratories within the state. SDIS, the state’s repository of DNA identification records, is under control of state authorities and typically serves as the central point of contact for access to NDIS. The North Carolina State Crime Laboratory located in Raleigh, NC, shall be the designated SDIS Laboratory.
- **Staff** – A DNA profile obtained from an employee, vendor, or visitor of the State Crime Laboratory. For quality control purposes, DNA samples shall be collected from anyone who enters Laboratory space in the Forensic Biology and/or Database Sections. The DNA record for this specimen category is stored in the Employee/QC Index.
- **Suspect** - A known sample from an individual identified as a suspect, and listed as such on the evidence submission form by the submitting agency. Suspect profiles may be entered into LDIS and SDIS, but not NDIS.
- **Targeted Forensic –State** – A Forensic Mixture or Forensic Partial DNA profile that is not eligible for routine query at SDIS or NDIS. The DNA record for this specimen category is stored in the Targeted Forensic Index. DNA records stored in this Index shall be not routinely queried but may be searched with CODIS Administrator written approval.
- **Unreviewed Casework** – A DNA profile that is generated during casework and is pending technical review and verification of CODIS eligibility. The DNA record for this specimen category is stored in the Unreviewed Casework Index and shall not be uploaded or searched until technical review is approved.
- **Unidentified Human Remains** - The DNA profile developed from the recovered deceased or an individual who is unidentified (e.g., children who can’t and others who can’t or refuse to identify themselves). The DNA record for this specimen category (Unidentified Person) is stored in the Unidentified Human Remains Index.
- **Victim** - A known sample from an individual identified as a victim on the evidence submission form by the submitting agency. Victim profiles shall not be uploaded to any CODIS Index unless the DNA profile is generated for inclusion into the Missing Person or Unidentified Human Remains Indices.
- **Y STR Profile** – A haplotype obtained from DNA analysis testing of the Y chromosome.

**4.0 Equipment, Materials, and Reagents** – computers with CODIS software, CODIS server, external media storage device, Forensic Advantage (FA) system, SpecMan, Armed Xpert software.

## **5.0 CODIS Responsibilities**

### **5.1 Casework Forensic Scientists Responsibilities**

- 5.1.1** The Casework Forensic Scientist generates DNA profiles and determines whether those profiles are suitable for entry into CODIS.
- 5.1.2** The Casework Forensic Scientist is responsible for documenting all CODIS related information into the FA System. Documentation of CODIS eligibility shall meet NDIS standards (e.g. in the case of a B&E, the item collected from the scene is clearly identified as not belonging to the victim.)
- 5.1.3** The Casework Forensic Scientist is responsible for the entry/upload of CODIS eligible

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profiles.

- 5.1.4** The Casework Forensic Scientist assigned as DNA technical reviewer shall verify results of all samples prior to their entry into a searchable and/or up-loadable specimen category of CODIS.
- 5.1.5** After approved technical review, the Casework Forensic Scientist shall designate the correct specimen category for the DNA record.
- 5.1.6** If a Casework Forensic Scientist uploads a sample to SDIS that is not suitable for upload to NDIS, the Casework Forensic Scientist shall ensure that the specimen is unmarked for upload.
- 5.1.7** The Casework Forensic Scientist is responsible for deleting samples that no longer meet CODIS eligibility requirements.
- 5.1.8** The Casework Forensic Scientist assigned as combined technical/administrative reviewer shall verify that the appropriate samples and results have been entered properly into CODIS by reviewing the Specimen Detail Report.
- 5.1.9** All qualified CODIS Users are responsible for successfully completing the FBI/NDIS Annual Eligibility Training, as assigned.

## **5.2 Local/Casework CODIS Administrator**

- 5.2.1** The Casework CODIS Administrator is responsible for ensuring that the Forensic Biology Section is in compliance with NDIS sample acceptance policy.
- 5.2.2** The Casework CODIS Administrator is responsible for all operations of the Local CODIS system with the exception of entering profiles into LDIS and SDIS.
- 5.2.3** The Casework CODIS Administrator is responsible for administering the Laboratory's Local CODIS network.
  - 5.2.3.1** This responsibility includes, but is not limited to, the following: software updates, user maintenance, national and state uploads, processing of incoming and outgoing search requests, and communication with other laboratories and law enforcement agencies.
- 5.2.4** The Casework CODIS Administrator (or designee) is responsible for evaluating candidate matches to determine if they may have come from the same individual. The Casework CODIS Administrator (or designee) shall view every match that occurs in Match Manager as a result of a state or national upload and shall disposition the matches according to the NDIS operational procedures.
- 5.2.5** The Casework CODIS Administrator shall inform the Casework Forensic Scientists of any CODIS considerations related to new procedures and software upgrades.
- 5.2.6** The Casework CODIS Administrator shall be responsible for the maintenance and completion of all paperwork required for NDIS participation such as the addition of new users, changing user names, and termination of users no longer employed by the State

Crime Laboratory or involved with CODIS. The Casework CODIS Administrator shall ensure that all external audit documentation and Laboratory responses shall be provided to the FBI within 30 days of the Laboratory's receipt of the audit documents or report.

**5.2.7** The Casework CODIS Administrator shall be responsible for ensuring that the security of the DNA profiles stored in CODIS is in accordance with state and/or federal law and NDIS operational procedures.

**5.2.8** The Casework CODIS Administrator shall be responsible for the oversight of CODIS computer training. This includes scheduling and documenting computer training of all casework CODIS users in the laboratory.

**5.2.9** The Casework CODIS Administrator shall be responsible for ensuring that the quality of data stored in CODIS is in accordance with state and/or federal law and NDIS operational procedures.

**5.2.9.1** This is accomplished through the review process.

**5.2.9.2** The Casework CODIS Administrator shall have the authority to remove any profiles that do not meet NDIS requirements.

**5.2.10** The Casework CODIS Administrator shall have the authority to terminate the North Carolina laboratory's participation or that of any user if it is determined by the Casework CODIS Administrator that unreliable data is being uploaded and/or the security of the computer data is not ensured.

**5.2.11** The Casework CODIS Administrator shall be responsible for preparing documentation required for NDIS participation.

**5.2.12** The Casework CODIS Administrator shall successfully complete CODIS software training as well as the FBI's QAS auditor training.

### **5.3 Casework CODIS Assistant Administrator**

**5.3.1** Shall meet the same minimum requirements as the Casework CODIS Administrator.

**5.3.2** Shall perform the duties of Casework CODIS Administrator in his/her absence.

**5.3.3** Shall perform the duties listed above as delegated by the Casework CODIS Administrator.

**5.3.4** Shall complete CODIS software training as well as the FBI's QAS auditor training.

## **6.0 General Procedures**

### **6.1 Procedure for CODIS Systems Operations**

#### **6.1.1 Procedure for CODIS Backups**

**6.1.1.1** NCDOJ IT shall schedule and initiate the backup of CODIS data according to the most current version of the NDIS Security Requirements procedure (CODIS

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website.)

**6.1.1.2** A full backup shall be run automatically once a week and incremental backups shall be run on the remaining days of the week.

**6.1.1.3** A monthly full backup shall also be run.

**6.1.1.4** Monthly backup sets shall be kept offsite.

**6.1.1.5** Backups shall be scheduled to occur during off peak hours.

## **6.1.2 Procedure for CODIS File Storage**

**6.1.2.1** Case analysis files shall be stored in accordance with guidelines set forth in the State Crime Laboratory procedures.

## **6.1.3 Procedure for CODIS Security**

**6.1.3.1** All CODIS users are responsible for security of the software.

**6.1.3.2** When a user is finished with a CODIS work session, the user shall log out of CODIS and out of the Network.

**6.1.3.3** CODIS Helpdesk users shall be monitored by the Casework CODIS Administrator while using Windows Remote Desktop on the State Crime Laboratory CODIS network.

**6.1.3.4** In regards to the physical security of servers/workstations, accessibility to hardware/software, password requirements, timeout features, and firewall requirements refer to the most current version of the NDIS Security Requirements procedure (CODIS website.)

## **6.2 Procedure for Profile Management**

### **6.2.1 Procedure for Acceptance of DNA Records at SDIS and NDIS**

**6.2.1.1** DNA records submitted to SDIS and NDIS shall be *interpretable*.

**6.2.1.2** A forensic unknown, forensic mixture, or forensic partial DNA record submitted to SDIS or NDIS shall originate from and/or be associated with a crime scene; the source of which is attributable to a putative perpetrator. For purposes of SDIS and NDIS eligibility, an item taken directly from a suspect shall be considered a suspect standard, not a forensic sample.

**6.2.1.2.1** If the Forensic Scientist does not have adequate information to make a determination of eligibility, he/she shall contact the investigating officer to seek additional information about the evidence submitted.

**6.2.1.2.1.1** This conversation shall be documented in the communication log in FA.

**6.2.1.2.2** If the Forensic Scientist has additional questions about the eligibility of a sample, he/she may consult the Casework CODIS Administrator.

**6.2.1.2.2.1** This conversation shall be documented in the communication log in FA.

**6.2.1.3** A forensic unknown DNA record originating from a single source submitted to SDIS or NDIS having all 13 Original core CODIS loci shall not have more than 3 alleles at one locus while the remaining loci can have up to 2 alleles.

**6.2.1.4** A forensic mixture DNA record submitted to SDIS or NDIS shall not have more than 4 alleles at any locus.

**6.2.1.5** A forensic partial DNA record originating from a single source with either locus or allelic dropout at any of the 13 Original core CODIS loci submitted to SDIS or NDIS shall not have more than 3 alleles at one locus while the remaining loci can have up to 2 alleles.

**6.2.1.5.1** Any loci with a homozygote allele below stochastic threshold shall be considered partial for CODIS purposes.

**6.2.1.6** Forensic mixture and forensic partial DNA records submitted to SDIS shall be reviewed to ensure that the DNA records have a minimum of 5 Original CODIS Core Loci and satisfy a MME value of fifteen thousand (1.5000E004).

**6.2.1.6.1** Exceptions to the minimum loci requirement may be granted with written approval from the Casework CODIS Administrator.

**6.2.1.6.2** If the MME value is less than fifteen thousand (1.5000E004), then the forensic mixture and forensic partial DNA records may be entered as “Targeted Forensic – State” or a one-time search may be conducted. One-time searches require written approval by the Casework CODIS Administrator.

**6.2.1.7** Forensic mixture and forensic partial DNA records submitted to NDIS shall be reviewed to ensure that the DNA records have a minimum of 8 Original CODIS Core Loci and satisfy a MME value of ten million (1.0000E007).

**6.2.1.7.1** If the MME value is less than ten million (1.0000E007), but is eligible for SDIS, the forensic mixture and forensic partial DNA records shall be entered as “Partial – State” or “Mixture – State.”

**6.2.1.8** A DNA record submitted to the Forensic, Forensic Mixture or Forensic Partial Indices at SDIS or NDIS shall only offer those alleles that are attributed to the putative perpetrator(s). Alleles that are unambiguously attributed to a victim or individuals other than the putative perpetrator(s), such as an elimination standard, shall not be offered to SDIS or NDIS.

**6.2.1.9** A suspect DNA record originating from a single source submitted to SDIS having attempted all CODIS core loci shall have no more than 3 alleles at one locus while the remaining loci can have up to 2 alleles.

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**6.2.1.9.1** Suspect DNA records with potential allelic or locus dropout may be offered to LDIS/SDIS if results are obtained at the Original 13 Core loci.

**6.2.1.10** Profiles matching the victim or human reference samples from a victim shall not be offered to **any** CODIS Index unless the DNA record is generated for inclusion into the Missing Person or Unidentified Human Remains Indices.

**6.2.1.11** Composite DNA records may be submitted to SDIS or NDIS.

**6.2.1.12** Y STR data are accepted at SDIS. There is no minimum CODIS Core Loci requirement for DNA records containing Y STR data at SDIS.

**6.2.1.13** Y STR data are accepted at NDIS. DNA records at NDIS containing Y STR data shall meet specimen category specific CODIS Core Loci requirements. Y STR data are searched with the missing person-related indexes only.

## **6.2.2 Procedure for CODIS DNA Records**

**6.2.2.1 Originating Agency Identifier:** Every DNA record submitted to LDIS, SDIS or NDIS shall have an Originating Agency Identifier (ORI) assigned that is associated with the DNA lab in which the DNA record is generated.

**6.2.2.2 User ID:** Every DNA record submitted to LDIS, SDIS or NDIS shall have a User ID assigned that identifies the DNA personnel that generated or has taken ownership of that DNA profile.

**6.2.2.3 Specimen ID Number:** Every DNA record submitted to LDIS, SDIS or NDIS shall have a unique Specimen ID Number. Forensic Scientists shall use the laboratory case number and item number separated by a “#” symbol for each profile to be entered into CODIS. Forensic Scientists shall not use dashes to separate the year and case number when entering forensic samples into CODIS. Additional descriptors shall be used in order to make the Specimen ID Number unique.

Examples:

- Known reference: R200019951#2-2
- Sperm Fraction: R200019951#1-4SP
- Non-sperm fraction: R200019951#1-4NS
- Questioned item (diluted): R200019951#3\_1to10
- Major contributor: R200019951#1-1\_MAJ
- Minor contributor: R200019951#1-1\_MIN
- Mixture w/ assumed known: R200019951#1-1\_DED

## **6.2.3 Procedure for Forensic Mixtures in CODIS**

**6.2.3.1** The Forensic Scientist shall designate the “Forensic Mixture” and “Mixture – State” specimen categories for indistinguishable mixtures only. Derived single source profiles from mixtures (i.e. majors, minors, derived) shall be entered as “Forensic Unknown,” “Forensic Partial,” or “Partial - State.”

**6.2.3.2** For purposes of CODIS entry only, the Forensic Scientist may use an “owner’s” DNA profile on a non-intimate item to further deduce out a putative perpetrator.

**6.2.3.2.1** Obligate alleles, which are alleles that have been determined to not have originated from the victim or elimination standards, shall be marked with a “+” symbol.

## **6.2.4 Procedure for Entering Casework Profiles into CODIS**

**6.2.4.1** DNA profiles may be imported into CODIS directly from GeneMapper ID-X or ArmedXpert.

**6.2.4.1.1** In GeneMapper ID-X go to the Samples tab. Ensure that there is nothing entered into the “UD1” column. Click on CODIS Export Table from the drop down menu of the Table Setting view.

**6.2.4.1.1.1** Under Specimen Category, select “Unreviewed Casework” for export.

**6.2.4.1.1.2** Go to File, select Export Table for CODIS.

**6.2.4.1.1.3** Choose CMF 3.2 (.xml) from the drop down menu for Export File As.

**6.2.4.1.1.4** Under CODIS Laboratory IDs, ensure the Source/Destination IDs are set to NCBCI0094.

**6.2.4.1.1.5** Save the file to an external media storage device.

**6.2.4.1.2** In ArmedXpert, generate an allele call table report using your mixture interpretation.

**6.2.4.1.2.1** Click on CMF button in toolbar.

**6.2.4.1.2.2** In the “Samples & Sources” column (on the left), expand the plus sign so that the names of the mixture components are visible. Select the mixture components (major, minor, etc.) that are to be entered into CODIS. Click on the arrow to add them to the “selected samples & sources” column.

**6.2.4.1.2.3** Ensure the Destination/Source Lab IDs are set to NCBCI0094. Enter in your CODIS user ID.

**6.2.4.1.2.4** In the “selected samples & sources” column, select the sample name to expand the packet attributes field.

**6.2.4.1.2.5** Select “Unreviewed Casework” as the specimen category. Indicate partial and source ID (yes/no). In the comment field, indicate the specimen category in which

the sample will ultimately be entered as.

**6.2.4.1.2.6** Save file to external media storage device.

**NOTE:** Loci designated with obligate alleles (\*) will not import into CODIS at this time – these will have to be hand entered. Loci designated as Allele, Any are able to be imported into CODIS.

**6.2.4.1.3** Open Analyst Workbench and select the Specimen Manager module.

**6.2.4.1.3.1** Select the Import File icon (blue cylinder with green arrow).

**6.2.4.1.3.2** Select the file to be imported.

**6.2.4.1.3.3** Assign profiles to your user ID and click OK.

**6.2.4.1.4** Select the CODIS Message Center module.

**6.2.4.1.4.1** Select Import STR Files, double click on the file to be imported (should be in bold type).

**6.2.4.1.4.2** Select Import STR Reports, double click on the file and review the reconciliation report for the sample to ensure that the import was successful (should be in bold type).

**6.2.4.1.4.3** If there is a problem with the specimen, refer to the reconciliation codes at the bottom of the report.

**6.2.4.1.4.4** If a specimen has an off-ladder or microvariant allele that does not import correctly, refer to the CODIS website for a list of acceptable allele calls for CODIS.

**6.2.4.1.4.5** The Casework Forensic Scientist should contact the Casework CODIS Administrator if further assistance is required.

**6.2.4.1.5** Select the Specimen Manager module, and sort by Assigned Date (double click on column header).

**6.2.4.1.5.1** Highlight the imported sample and select Edit STR/YSTR Data (red book in toolbar.)

**6.2.4.1.5.2** If required, rename Specimen ID to add descriptor (SP, Minor, Derived, etc.) After re-naming you must click OK and CLOSE the STR Data Entry Window. If any further edits to the profile are required, the STR Data Entry window may be re-

opened.

**6.2.4.1.5.3** For Partial Profile, select “Yes” or “No” for both the overall profile and individual locus (Yes = a sample that is missing one or more alleles or loci, No = a sample which contains all alleles at all loci). It is permissible for loci in forensic mixture samples to be marked as partial.

**6.2.4.1.5.4** For Source ID, select “Yes” or “No” (Yes = a solved case, No = an unsolved case).

**6.2.4.1.5.5** Alleles may need to be edited to reflect the intended CODIS profile (i.e. addition of obligates or removal of minor alleles.)

**6.2.4.1.5.6** Click Save to populate the MME value. Based on this value and the profile type, determine the specimen category in which the profile will eventually reside (i.e. Forensic Unknown, Partial - State.) This specimen category shall be noted in the comments box.

**6.2.4.1.5.7** If it is determined that the profile does not meet eligibility based on MME values, the profile shall be deleted (See Section 6.2.6). The analyst may evaluate the profile for a one-time search (See Section 6.2.8).

**6.2.4.1.5.8** Print the Specimen Detail Report (short) for the FA case record object repository.

**6.2.4.1.5.9** Once the technical review has been approved, the Forensic Scientist shall set the DNA record to the appropriate specimen category. Query the specimen via Specimen Manager and right click to select “Set Specimen Properties.” Select the appropriate Specimen Category. In addition, the Casework Forensic Scientist shall mark eligible profiles for upload (See 6.2.5.) An updated Specimen Detail Report shall be printed.

**6.2.4.2** DNA profiles may be hand-entered into CODIS using STR Data Entry.

**6.2.4.2.1** Open Analyst Workbench and select STR Data Entry.

**6.2.4.2.2** Enter/Select information for the following categories/boxes:

**6.2.4.2.2.1** Enter Specimen ID.

**6.2.4.2.2.2** Select “Unreviewed Casework” as the Specimen Category.

**6.2.4.2.2.3** For Source ID, select “Yes” or “No” (Yes = a solved case, No = an unsolved case).

**6.2.4.2.2.4** For Partial Profile, select “Yes” or “No” for both profile and individual locus (Yes = a sample that is missing one or more alleles or loci, No = a sample which contains all alleles at all loci).

**6.2.4.2.3** Enter correct allelic values for Reading #1 for all loci.

**6.2.4.2.4** Enter correct allelic values for Reading #2 for all loci.

**6.2.4.2.5** Click on the Save to populate the MME value. Based on this value and the profile type, determine the specimen category in which the profile will eventually reside (i.e. Forensic Unknown, Partial - State.) This specimen category shall be noted in the comments box.

**6.2.4.2.6** If it is determined that the profile does not meet eligibility based on MME values, the profile shall be deleted (See Section 6.2.6). The analyst may evaluate the profile for a one-time search (See Section 6.2.8).

**6.2.4.2.7** Print the Specimen Detail Report (short) for the FA case record object repository.

**6.2.4.2.8** Once the technical review has been approved, the Forensic Scientist shall set the DNA record to the appropriate specimen category and shall mark eligible profiles for upload. An updated Specimen Detail Report shall be printed.

## **6.2.5 Procedure for Marking/Unmarking Profiles for NDIS Upload**

**6.2.5.1** Only samples that are eligible per NDIS guidelines shall be marked for transfer beyond SDIS.

**6.2.5.1.1** To mark/unmark a specimen for upload in CODIS, perform the following steps:

**6.2.5.1.1.1** Open Analyst Workbench and select the Specimen Manager module.

**6.2.5.1.1.2** Select File, then select Edit or you may use the “Edit” icon in the tool bar (looks like a wrench.).

**6.2.5.1.1.3** Beside Specimen ID, click on the drop down arrow and select (=).

**6.2.5.1.1.4** Enter the Specimen ID of the sample of interest and then click on OK.

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**6.2.5.1.1.5** Right click on the specimen of interest and select either Mark or Unmark Specimen for Upload.

## **6.2.6 Procedure for Changing/Deletion of Profiles**

**6.2.6.1** A Casework Forensic Scientist may change a specimen if they are considered to be the “Assigned To” user or owner of that specimen (See 6.2.4.1.5.)

**6.2.6.1.1** Renaming - The specimen name may be changed unless it has already been uploaded (e.g., SDIS to NDIS). After upload, if a specimen needs to be renamed, the specimen will need to be deleted and re-entered.

**6.2.6.1.2** Source ID, Partial Flag, Specimen Category, Alleles – May be changed by the “Assigned To” user at any time by using Specimen Manager or STR Data Entry. Please note that changes to alleles may affect the MME value and/or the Specimen Category.

**6.2.6.1.3** If additional loci are developed, (e.g., re-testing of an older sample with a current amp kit or testing of a current sample with a Y-STR amp kit) those additional loci may be added to the specimen via import or STR Data Entry. Please note that the “Assigned To” user does not need to be the same. Each “Assigned To” user will be reflected in the specimen record.

**6.2.6.1.4** The Casework Forensic Scientist shall place a copy of the updated Specimen Detail Report in the FA case record object repository.

**6.2.6.2** The Casework Forensic Scientist may delete a specimen if the scientist is considered to be the “Assigned To” user or owner of that specimen.

**6.2.6.2.1** The Casework Forensic Scientist shall note the reason for deletion in the comments section of the specimen record (i.e. a specimen matches an elimination standard that was subsequently analyzed.) Comments shall be added prior to deleting the profile via Specimen Manager or STR Data Entry.

**6.2.6.2.2** The Casework Forensic Scientist shall query the specimen via Specimen Manager, right click on the specimen, and then select “Delete Specimen.”

**6.2.6.2.3** The Casework Forensic Scientist shall place a copy of the Delete Summary in the FA case record object repository. The Casework Forensic Scientist shall view the Delete Report generated in CODIS Message Center.

**6.2.6.3** The Casework CODIS Administrator shall make changes to or delete specimens if the “Assigned To” user or owner of the specimen is not available or able to do so.

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**6.2.7 Procedure for Comparison and Searching of Unknown DNA Profiles from a Single Contributor**

**6.2.7.1** Prior to technical review, all *interpretable* unknown DNA profiles from a single contributor shall be manually compared to the Casework Forensic Scientist's DNA profile, the DNA profile of any Forensic Biology employee involved in the case, and any DNA profiles generated in cases that were batched with the case in question.

**6.2.7.2** After technical review, all *interpretable* unknown DNA profiles from a single contributor shall be subject to a keyboard search of the Employee/QC Index using the Searcher Program. See 6.2.9.2.5 regarding search parameters. The results of this search shall be printed and saved to the FA case record object repository.

**6.2.8 Procedure for Calculating Match Estimation for the Purpose of a One-Time/Keyboard Search**

**6.2.8.1** A manual Match Estimation calculation is required on Forensic Partial profiles or Forensic Mixtures where a mixture or allelic/locus dropout is observed at the original 13 CODIS core loci and the statistical threshold for match rarity is not met for routine query at SDIS or NDIS (i.e. a one-time search).

**6.2.8.2** Open Analyst Workbench and select the Popstats module; click on the Match Estimation View.

**6.2.8.3** Enter the Specimen ID and the Forensic Mixture or Forensic Partial profile.

**6.2.8.3.1** Match estimation shall be calculated at the original 13 CODIS core loci only.

**6.2.8.3.2** Include the obligate allele designation (+) for Forensic Mixtures, when applicable.

**6.2.8.4** Use the default Database Specimen Count when calculating match rarity.

**6.2.8.5** Allow for zero (0) loci to mismatch.

**6.2.8.6** Set the stringency for each locus. The stringency may be set to high for heterozygote loci or when allelic dropout is not suspected.

**6.2.8.7** Ensure that the NIST Combined STR population database is selected.

**6.2.8.8** Click on the Calculate button.

**6.2.8.9** The Casework Forensic Scientist shall include the Match Estimation report in the FA case object repository.

**6.2.8.10** If approved by the Casework CODIS Administrator, keyboard searches shall use the same stringency configurations as the match estimator.

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**6.2.9 Procedure for Conducting One-Time/Keyboard Searches**

- 6.2.9.1** Keyboard searches (with the exception of Employee/QC searches) are permitted, with written Casework CODIS Administrator approval, on unknown profiles that have been technically reviewed. If the keyboard search results in a CODIS hit, the results of the keyboard search shall not be released (written or orally) until the completion of the CODIS hit confirmation.
- 6.2.9.2** The following procedure shall be used when a Casework Forensic Scientist deems it necessary to search a profile in CODIS:
  - 6.2.9.2.1** Open Analyst Workbench and select the Searcher module.
  - 6.2.9.2.2** Enter the Lab ORI Number (NCBCI0094).
  - 6.2.9.2.3** Enter the Specimen ID Number and the alleles for each locus. If the profile was previously entered, it may be retrieved from the database.
  - 6.2.9.2.4** A keyboard search shall be conducted as follows: the Forensic, Forensic Partial, Forensic Mixture, Offender, Arrestee, Suspect, Missing Person, and Unidentified Human Remains Indices shall be searched at moderate stringency, with a minimum of five (5) core loci, and allowing for zero (0) mismatches or ten (10) Y STR loci and allowing for zero (0) mismatches.
    - 6.2.9.2.4.1** The stringency parameters of a keyboard search may be modified on a case-by-case basis. This modification shall be based solely on the completeness of the DNA profile.
  - 6.2.9.2.5** A keyboard search of the Employee/QC Index shall be conducted as follows: the Employee/QC Index shall be searched at moderate stringency, with a minimum of five (5) core loci and allowing for zero (0) mismatches.
  - 6.2.9.2.6** Click on the Search button.
  - 6.2.9.2.7** Once the search is completed, review the Match Details window.
  - 6.2.9.2.8** The Casework Forensic Scientist shall print the Match Detail Report(s) and shall be saved in the FA case record object repository.
    - 6.2.9.2.8.1** If a match occurs which requires a confirmation, the Casework Forensic Scientist shall provide the Casework CODIS Administrator a copy of the Match Detail Report.
  - 6.2.9.2.9** The Casework Forensic Scientist shall save these matches to Match Manager by selecting the Save Results to Match Manager icon.



**6.2.9.2.10** See 6.2.12 regarding the viewing of matches in Match Manager and hit dispositioning.

## **6.2.10 Procedure for Conducting Routine Searches**

**6.2.10.1** All eligible forensic profiles shall be searched routinely by the Casework CODIS Administrator using Autosearcher.

**6.2.10.1.1** The “State – High Stringency” Autosearch shall be set conducted as follows: the Forensic, Offender, Arrestee, and Suspect Indices shall be searched at high stringency, with a minimum of five (5) core loci and allowing for one (1) mismatch or twenty-one (21) Y STR loci and allowing for one (1) mismatch.

**6.2.10.1.2** The “State-Moderate Stringency” Autosearch shall be set conducted as follows: the Forensic, Forensic Partial, Forensic Mixture, Offender, Arrestee, Multi-allelic Offender, Suspect, Missing Person, and Unidentified Human Remains Indices shall be searched at moderate stringency, with a minimum of five (5) core loci and allowing for zero (0) mismatches or ten (10) Y STR loci and allowing for zero (0) mismatches.

**6.2.10.1.3** The “Employee/QC” Autosearch shall be conducted as follows: the Employee/QC Index shall be searched at moderate stringency against the Arrestee, Forensic, Forensic Mixture, Forensic Partial, Missing Person, Offender, Multi-allelic Offender, Suspect, and Unidentified Human Remains Indices, with a minimum of five (5) core loci and allowing for zero (0) mismatches or ten (10) Y STR loci and allowing for zero (0) mismatches.

## **6.2.11 Procedure for Interstate, Interpol, and Manual NDIS Search Requests**

**6.2.11.1** Casework Forensic Scientists may ask the Casework CODIS Administrator to request that a profile be searched against another database. These requests may be made if the unknown profile in question may help identify the perpetrator of a serious, violent, or serial crime.

**6.2.11.2** The unknown profile shall be technically and administratively reviewed. If the unknown profile is NDIS eligible, a minimum of one routine search with no matches returned must be conducted prior to requesting any of the following searches:

**6.2.11.2.1** For Interstate Search Requests, the Casework Forensic Scientist shall fill out the “Laboratory to Laboratory DNA Search Request” form (CODIS Website). The Casework CODIS Administrator shall review and submit the request to the appropriate NDIS participating laboratory. This request and any responses shall be documented in FA.

**6.2.11.2.2** For Interpol Search Requests, the Casework Forensic Scientist shall fill out the “Interpol Search Request Form” (CODIS

Website). The Casework CODIS Administrator shall review and submit the request to the NC State Interpol Liaison. This request and any responses shall be documented in FA.

- 6.2.11.2.3** For Manual NDIS Search Requests, the Casework Forensic Scientist shall fill out the “NDIS Keyboard Search Request” form (CODIS Website). The Casework CODIS Administrator shall review and submit the request to the NDIS Custodian. This request and any responses shall be documented in FA.

## **6.2.12 Procedure for Match Manager and Hit Dispositioning**

- 6.2.12.1** In order to view any matches, open Analyst Workbench and select the Match Manager module.

- 6.2.12.1.1** Select the Edit icon.

- 6.2.12.1.2** To sort by Match Date, select (=) and add the date of the search.

- 6.2.12.1.3** Once the parameters are chosen, select OK.

- 6.2.12.1.3.1** For single source samples, determine if there are any match candidates of greater than five (5) core loci at high stringency or greater than twenty-one (21) Y STR loci.

- 6.2.12.1.3.2** Valid moderate stringency matches obtained for single source samples are possible due to allelic/locus dropout.

- 6.2.12.1.3.3** For mixture profiles, determine if there are any match candidates of greater than five (5) core loci at high or moderate stringency or greater than ten (10) Y STR loci.

- 6.2.12.1.3.4** If multiple offenders or arrestees cannot be excluded from a mixture profile, all candidates shall be confirmed. For NC offenders or arrestees, the confirmation shall be completed even if subject information assessment shows the individual to be incarcerated on the date of offense.

- 6.2.12.1.3.5** Low stringency matches must be evaluated for missing persons and Unidentified Human Remains.

- 6.2.12.2** The Casework CODIS Administrator (or designee) shall view every match that occurs in Match Manager as a result of a state or national upload and shall disposition the matches according to the NDIS operational procedures.

- 6.2.12.2.1** A match between an unsolved case and a convicted offender shall be dispositioned as an “Offender Hit.”

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- 6.2.12.2.2** A match between an unsolved case and an arrestee shall be dispositioned as an “Arrestee Hit.”
- 6.2.12.2.3** A match between a solved case and a convicted offender or arrestee, shall be dispositioned as a “Conviction Match.” A name verification shall be performed in order to confirm the match between the offender or arrestee and the solved case. If necessary, the Casework CODIS Administrator (or designee) shall contact the appropriate NDIS participating laboratory in order to verify this information. A confirmation of the arrestee or offender sample shall be performed if there is any discrepancy (see Section 6.3.2).
- 6.2.12.2.4** A match between two (or more) solved cases shall be dispositioned as “Investigative Information” unless the positive association was made outside of CODIS. See 6.2.12.2.5.
- 6.2.12.2.5** A match between two (or more) solved cases where a positive association was made outside of CODIS (i.e. a related case or the same known suspect) shall be dispositioned as a “Benchmark Match.”
- 6.2.12.2.6** A casework match where one (or more) of the cases are unsolved shall be dispositioned as a “Forensic Hit” unless there has been an identified Offender or Arrestee Hit (See 6.2.12.2.7).
- 6.2.12.2.7** A casework match where one (or more) of the cases was associated with a previously identified Offender or Arrestee Hit shall be dispositioned as “Investigative Information.”
- 6.2.12.2.8** A match between two (or more) arrestee or offender samples that have been confirmed as duplicates shall be dispositioned as an “Offender Duplicate.”
- 6.2.12.2.9** A hit between two specimens that have been determined not to match shall be dispositioned as a “No Match.” For matches where only one lab/ORI is involved (e.g., NCBCI0094), the reasoning for the “No Match” disposition will be recorded and verified in the “notes” section of the match disposition window in Match Manager (i.e. a specific locus/loci may be notated). A second Casework CODIS Administrator (or designee) will verify this information. The verification shall be documented by adding the initials of the verifier and the date verified in Match Manager.
- 6.2.12.2.10** A match between an unsolved forensic sample and a known suspect, at the SDIS level, shall be dispositioned as “User Defined 1.”
- 6.2.12.2.11** A match between a solved forensic sample and a known suspect shall be dispositioned as “Investigative Information.”
- 6.2.12.2.12** Additional match situations may occur that shall be dealt with
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on a case-by-case basis. These matches shall be dispositioned according to NDIS procedures.

### **6.3 Procedure for CODIS Hits**

- 6.3.1** A good faith effort shall be made to perform the internal confirmation process, review the DNA data and notify the appropriate parties within 30 business days of the CODIS hit.

#### **6.3.2 Procedure for Forensic Hits**

- 6.3.2.1** In the instance of a Forensic hit, the Casework CODIS Administrator (or designee) shall obtain the information on the North Carolina State Crime Laboratory's cases involved in the hit. If the Forensic Hit is to an NDIS lab the Casework CODIS Administrator (or designee) shall exchange case information with the NDIS laboratory's CODIS Administrator by the use of NDIS' Casework Match Request/Response Forms.

- 6.3.2.1.1** A CODIS hit record in SpecMan shall be created and the status shall be set to "Hit Confirmation Pending."

- 6.3.2.1.2** Once the case information has been obtained for all specimens involved, CODIS hit record shall be updated to the status of "CODIS Hit Confirmed." Proceed to 5.4.3.

#### **6.3.3 Procedure for Offender/Arrestee Hits**

- 6.3.3.1** In the instance of a NC offender/arrestee hit to a NC State Crime Laboratory case, the Casework CODIS Administrator (or designee) shall request the confirmation of the offender/arrestee.

- 6.3.3.1.1** A copy of Match Detail Report shall be provided to the assigned DNA Database Forensic Scientist. The following information shall also be provided: agency name, type of crime, date of offense, and analyst of record.

- 6.3.3.1.2** SpecMan and FA shall be monitored for completion of the confirmation process; Proceed to 5.4.4.

- 6.3.3.2** In the instance of an NDIS offender/arrestee hit to a NC State Crime Laboratory case, the Casework CODIS Administrator (or designee) shall make a written request to the NDIS laboratory for confirmation of the convicted offender or arrestee sample. A copy of the Match Detail Report and the confirmation request shall be included in the FA case record object repository.

- 6.3.3.2.1** A CODIS hit record shall be created in SpecMan. The status shall be set to "Hit Confirmation Pending" upon sending the written confirmation request to the NDIS laboratory.

- 6.3.3.2.2** Once a confirmation response is received from the NDIS laboratory, the status in SpecMan shall be updated to "CODIS

Hit Confirmed.” A copy of the NDIS laboratory response shall be included in the FA case record object repository. Proceed to 5.4.4.

#### **6.3.4 Procedure for Notification of the Investigating Agency – Forensic Hits**

**6.3.4.1** The Casework CODIS Administrator (or designee) shall generate a CODIS Hit Notification report, except in the instance of a forensic hit to a suspect standard or to a solved case. See Procedure for CODIS Reports.

**6.3.4.1.1** The status in SpecMan shall be updated to “Pending Notification of Submitting Agency.”

**6.3.4.2** The Casework Forensic Scientist shall generate a casework report as a result of the analysis of a suspect standard (if the forensic hit was to a suspect reference standard or solved case previously analyzed by the North Carolina State Crime Laboratory).

**6.3.4.2.1** A copy of the Match Detail report shall be provided to the Casework Forensic Scientist.

**6.3.4.2.2** The Casework Forensic Scientist shall update the Source ID of the specimen, with the exception of a Y STR match.

**6.3.4.2.3** All information in the relevant Casework Forensic Scientist(s)’ case record object repositories pertaining to the CODIS hit shall be shared.

**6.3.4.3** Once a CODIS Hit Notification report or casework report is released from FA, the CODIS hit record in SpecMan shall be changed to “Completed.”

#### **6.3.5 Procedure for Notification of the Investigating Agency – Offender/Arrestee Hits**

**6.3.5.1** The Casework CODIS Administrator (or designee) shall generate a CODIS Hit Notification report. See Procedure for CODIS Reports.

**6.3.5.1.1** The CODIS hit record status in SpecMan shall be changed to “Pending Notification of Submitting Agency.”

**6.3.5.1.2** Once a CODIS Hit Notification report is released from FA, the status in SpecMan shall be changed to “Pending Receipt of Standard.”

**6.3.5.1.3** The Casework CODIS Administrator (or designee) shall monitor the “Pending Receipt of Standard” queue in SpecMan. The status shall change to “Standard Received” for those cases in which the standard has been submitted.

**6.3.5.1.4** When the suspect standard has been compared to the forensic unknown specimen, the Casework Forensic Scientist shall update the Source ID of the specimen.

- 6.3.5.1.5** The Casework CODIS Administrator (or designee) shall monitor the “Standard Received” queue in SpecMan. The SpecMan status shall be changed to “Completed” upon analysis of a suspect standard.

#### **6.4 Procedure for CODIS Hit Statistics**

- 6.4.1** For offender/arrestee hits, the Casework Laboratory will report the number of investigations aided and the Offender Laboratory will report the number of offender/arrestee hits.
- 6.4.2** For forensic hits where one case is solved, the Laboratory with the unsolved case will report the number of investigations aided and the Laboratory with the solved case will report the forensic hit.
- 6.4.3** For forensic hits where neither case is solved, each Laboratory will report the number of investigations aided and the Laboratory with the first entered forensic profile should report the forensic hit.

#### **6.5 Procedure for Preparation of Affidavit**

- 6.5.1** The Casework Forensic Scientist shall refer to the example affidavit titled “Application for Search Warrant (Continuation).”
- 6.5.2** The Casework Forensic Scientist shall complete the affidavit utilizing case information in FA and CODIS hit information in SpecMan.
- 6.5.3** The Casework Forensic Scientist shall have the affidavit reviewed for accuracy by the Casework CODIS Administrator (or designee).
- 6.5.4** The affidavit and review correspondence shall be placed in the Case Object repository.
- 6.5.5** The Casework Forensic Scientist may then provide a copy of the affidavit to the requesting officer.

#### **7.0 Limitations – N/A**

#### **8.0 Safety – N/A**

#### **9.0 References**

DNA Database Section Procedure for CODIS Hits

Forensic Biology Section Administrative Policy and Procedure

Forensic Biology Section Definition List

Forensic Biology Section Procedure for Analysis and Interpretation of Promega PowerPlex® Fusion 6C

Samples

Forensic Biology Section Procedure for Analysis and Interpretation of Y-STR Amplification

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Forensic Biology Section Procedure for CODIS Reports

Forensic Biology Section Procedure for Use of ArmedXpert™ for Mixture Interpretation

NDIS Operational Procedures, CODIS Website

State Crime Laboratory Quality Manual

**10.0 Records – N/A**

**11.0 Attachments – N/A**

Revision History		
Effective Date	Version Number	Reason
06/02/2017	1	Original Document
03/12/2018	2	Incorporated DRF changes; 5.1.9 – added NDIS training responsibility; 6.1.3.4 – incorporated recommendations from NDIS assessment; 6.2.1.9 – added requirements for suspect DNA records; 6.2.4.1.5.3 – permissible for mixture loci to be partial; 6.2.11 – added additional search request options; 6.3.1- added 30 day window; 6.4 – added CODIS hit statistics