



CODIS Operations Manual

SAN DIEGO POLICE DEPARTMENT

January 7, 2025

Approved by: Adam Dutra, DNA Technical Manager

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Introduction

The purpose of this document is to provide a general description of CODIS activities at the San Diego Police Department Crime Laboratory and the tasks required within these CODIS activities. This manual is not meant to cover every step of the CODIS processes, so a working knowledge of the CODIS software is required to fully carry out the tasks within this manual.

The Local CODIS (LDIS) Administrator is the point of contact between the local laboratory, and the administrators of the state CODIS (SDIS), and National CODIS (NDIS) databases. In order to assume the role of local CODIS Administrator, an individual must meet the educational qualifications specified in the FBI Director's *Quality Assurance Standards for Forensic DNA Testing Laboratories*, maintain the FBI security access required to become a CODIS user, and successfully complete the annual FBI CODIS training. The Administrator must also complete the formal FBI led CODIS software and QAS auditor training within six months and one year, respectively, of being appointed to this position.

An Alternate CODIS Administrator shall be designated to fulfill the role of the CODIS Administrator when that person is unavailable. The Alternate shall also meet the above requirements to assume this position. Assuming the role of Alternate, it is recommended that this person work with the Administrator to gain additional insight into the CODIS software and hit tracking databases.

The CODIS Team consists of the Administrator and the Alternate. The Administrator is responsible for all of the duties listed in this document. The Alternate's role is to assist the Administrator with these duties and to technically review match dispositions. It may be necessary to work with the Technical Manager when specific situations are encountered. The CODIS Team has access to a group email account (CODIS@pd.sandiego.gov). This group email account is primarily used for DNA Profile Expungement Form requests sent by detectives.

CODIS Administrator – General Responsibilities

- Ensure that all CODIS users (DNA analysts) in the Forensic Biology section successfully complete the annual FBI CODIS training
- Attend the annual CODIS Conference sponsored by the FBI (if the Admin cannot attend, the Alternate may attend in his/her place)
- Notify SDIS and NDIS of the addition, removal, and/or update of CODIS user information
- Maintain cold hit tracking databases
- Retrieve cold hit names from CHOP (CODIS Hit Outcome Project)
- Communicate with SDIS and NDIS lab personnel in order to exchange information
- Perform Crosslink data entry
- Complete monthly and quarterly tasks
- Maintain compliance with NDIS software upgrades and updates

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Resources

- CODIS section of the Forensic Biology Policy Manual
- FBI CODIS Web Site (<https://codis.fbi.gov>)
- FBI Laboratory NDIS Operation Procedures Manual and CODIS Administrators Handbook – located on CODIS Web Site
- FBI Issued Bulletins – located on CODIS Web Site
- CODIS Administrator Contacts for all labs – located on CODIS Website
- FBI CODIS Help Desk – (877) 263-4743; CODISHD@ecstech.com
- FBI CODIS User Changes (William Bennett) – (703) 632-8311, wbennett@fbi.gov; CODISusermail@fbi.gov
- California DOJ CODIS Unit – (510) 620-3371; CODIS@doj.ca.gov
- California State CODIS Administrator (Jessica James) – (510) 620-3300; Jessica.James@doj.ca.gov
- San Diego Sheriff's CODIS Team – CODIS@sdsheriff.gov
- Local IT Support (Ron Stevenson) – (619) 531-2115; rstevenson@pd.sandiego.gov

Eligibility of DNA Records

The following general criteria must be met prior to uploading a forensic specimen into CODIS:

- A crime has been committed
- The sample was recovered from the crime scene and is attributable to the putative perpetrator
- Elimination samples have been requested, if applicable

Eligibility is determined by the CODIS user (not the CODIS Administrator) and has been verified to meet these criteria through technical review of the case file. 'A Guide for Determining What is Allowable in the Forensic Index at NDIS' can be found on the FBI CODIS website.

Importation, Verification and Searching of CODIS Profiles in LDIS

1. The DNA analyst (CODIS user) will submit CODIS sheets for import into CODIS upon completion of technical review. The analyst will submit a hard copy of the CODIS worksheet for each specimen determined to be suitable for CODIS and export any CODIS profiles created in the current version of COSTaR for those submitted CODIS sheets. A photocopy of the CODIS worksheet must be retained in the technical record.
2. Information from each specimen searched in CODIS is tracked in the CODIS Profiles Form in the CODIS Profiles Access database, which is in the following

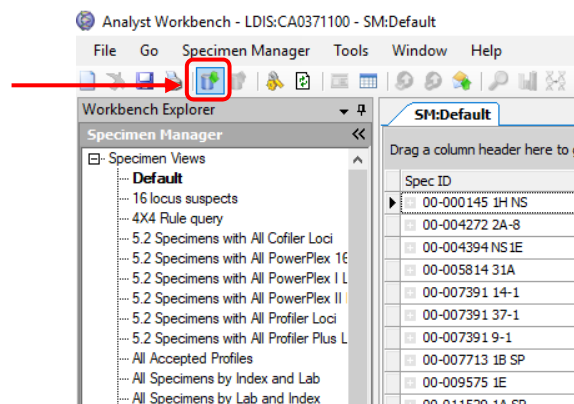
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folder: H:\Misc DATA\CODIS\Access. This database maintains all forensic specimens from unsolved and solved cases, as well as suspects. Example data is shown below.

Case #	Item #	Analyt:	Date	Offense	Status	New Status
20-027829	756-1 (26)	AD	7/8/2020	Homicide	Unsolved	

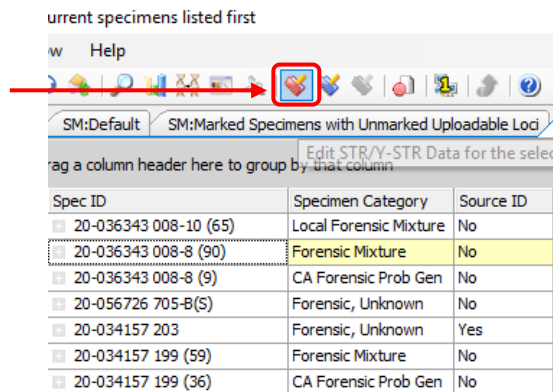
3. Import profiles into CODIS.
 - a. COSTaR upload files are automatically stored in the H:\Misc Data\CODIS Import Files folder when exported from the COSTaR workbook.
 - b. Open the CODIS software and navigate to Specimen Manager in Workbench Explorer. Use the Import Specimens icon on the tool bar to import profiles.



- c. Navigate to the folder containing the CODIS import profiles.
 - d. If there is more than one specimen from a single analyst that need to be imported, select the group of profiles from that analyst and click Open. Select the appropriate analyst and select 'Ok'. Make sure that there is a COSTaR export for each hard copy CODIS worksheet.
 - e. Once imported to CODIS, the export files can now be deleted from the folder on the PC (and the H:\ drive if still there).
 - f. The profiles will be imported into Import Reports in Message Center (Workbench Explorer).
4. Verify the consistency of specimens imported into CODIS and the hard copy CODIS sheet.
 - a. Navigate to Specimen Manager, select the specimen to review, and click on the 'Edit data for the selected specimen' in the tool bar.

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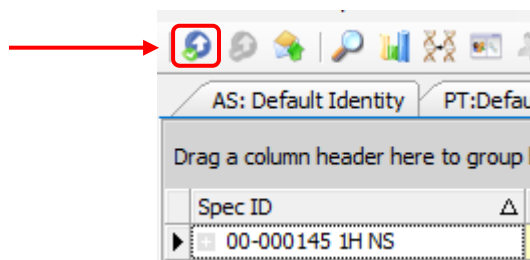
- b. Evaluate the Specimen ID, Specimen Category, Source ID, Partial locus indicator, MME (Moderate Match Estimation) calculations, and the DNA types in the submitted specimen to ensure that the hard copy of the CODIS sheet matches the export CODIS profile.
- c. The verifier should also ensure that the CODIS sheet has been initialed and dated by the case analyst and technical reviewer, the charge is checked, and the Investigative Unit/Detective is filled out (for suspect profiles).
- d. The specimen category should be evaluated to confirm that the specimen will be searched at the appropriate level of CODIS, based on the MME. Please refer to the quick reference guide below:

Level of CODIS	MME required for each level of CODIS
LDIS	1 in 10,000 (Identifiler loci)
SDIS	1 in 500,000 (core 13 loci)
NDIS	1 in 10,000,000 (core 13 loci)

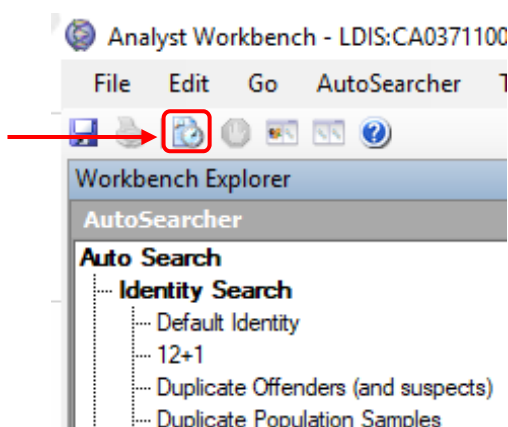
5. Mark the specimens for upload.
 - a. Navigate to Specimen Manager.
 - b. Mark each imported sample that is eligible for SDIS or NDIS upload by selecting the 'Mark specimen for upload' icon on the tool bar (see figure below).
 - i. Note: To ensure all appropriate samples have been marked for upload, specimens can be filtered by date and then sorted by specimen category. All samples marked for upload should have an entry in the 'Marked By' column.
 - c. Specimens marked for uploading are automatically uploaded to SDIS on Friday at 5pm; however, uploads may be initiated manually by selecting 'Generate Upload' from the Tools menu in Specimen Manager.

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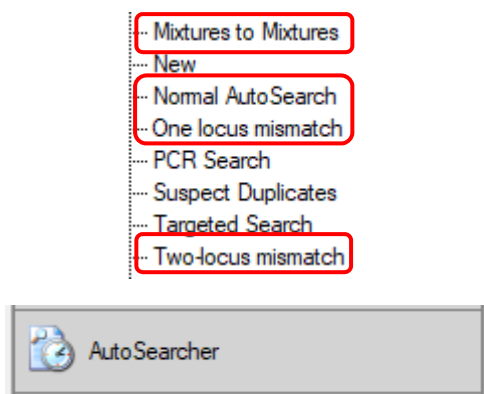
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6. Search newly uploaded CODIS specimens against the entire local database by performing four autosearches to evaluate any matches that happen at the local level, before SDIS or NDIS level search results are returned.
 - a. Navigate to AutoSearcher in Workbench Explorer.
 - b. Click on Normal AutoSearch.
 - c. Click on the 'Perform Search' button in the toolbar (see figure below).



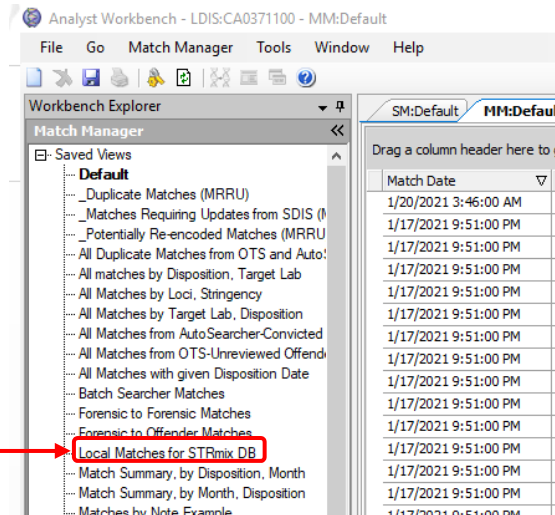
- d. A notification at the top of the pane will read 'All stages of autosearch processing complete' when the search is finished.
- e. Perform the Mixtures to Mixtures, One locus mismatch, and Two-locus mismatch searches the same way the Normal AutoSearch was performed.



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7. Evaluate the resulting AutoSearcher Matches.
 - a. Navigate to Match Manager in Workbench Explorer.
 - b. A STRmix searchable database can be created to evaluate mixture samples matching to single source forensic unknowns or suspect profiles.
 - i. A saved view exists, and can be viewed by double clicking on the 'Local Matches for STRmix DB' saved view in Match Manager



- ii. Select the current date in the Match Date column by clicking on the triangle.
 - iii. This view will sort the data by placing the mixture profile as the Target Specimen and the single source sample as the Candidate Specimen.
 - c. Disposition the matches as appropriate.
 - d. It may be necessary to run both a DB search and an LR for a mixture matching to a single source sample(s).
 - i. This process is described in the 'Evaluation of Potential Database Hits' section of this document.
 - e. Print out and retain the Match Details Report (Short) for all Forensic Hits
 - f. These are typically maintained in a binder for a year and then will be scanned into G:\Misc DATA\CODIS\CODIS Cold Hits.
8. EUSR (Emergency Upload Search Request) – This feature can be used to immediately search an SDIS or NDIS eligible specimen from a rush case in which there is a public safety concern.
- a. To qualify, the specimen must:
 - i. Be marked for upload
 - ii. Not exist at the upper-level processing lab
 - b. Import the sample into Specimen Manager.
 - c. Mark the specimen for upload.

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- d. Right click on the specimen and select 'Submit One Time Search Request' or click the icon on the tool bar.
- e. Evaluate SDIS and NDIS Reconciliation Reports in Message Center
- f. Evaluate matches in Match Manager (refer to 'Evaluation of Potential Database Hits')
- g. Note: CAFPG specimens do not qualify for EUSR. Contact CA SDID for a keyboard search.

Evaluation of Potential Database Hits

The evaluation of potential database hits is performed after local autosearches are done, and after matches are returned from SDIS and NDIS level searches. Matches from CA State searches are returned Sunday, and matches from National searches are returned daily. Any candidate match from these search results will be seen in our LDIS when the higher level lab search has completed. As described in the previous section, local searches are performed after importing specimens into CODIS. Potential hit evaluation involves four basic steps:

- 1) The creation of a STRmix searchable database of candidate profiles
- 2) The evaluation of matches for goodness of fit
 - a. Visual comparison for single source specimen categories
 - b. Likelihood ratio calculation for mixtures
- 3) Disposition of matches (refer to Appendix A for disposition definitions)
- 4) Technical Review of dispositions by a second analyst (i.e. the CODIS Alternate)

The creation of a STRmix searchable database facilitates an efficient evaluation process using the STRmix Database Search feature which involves LR calculations against the deconvolution of interest to all samples in the STRmix searchable database.

The STRmix searchable database must only consist of the complete single source (i.e., Forensic Unknown, Convicted Offender, Arrestee, Detainee, Legal, or Suspect) candidate profiles that are involved in the potential database hits being evaluated. Mixture to mixture matches and mixture to partial matches cannot be evaluated through the Database Search tool in STRmix.

The STRmix Database search feature performs a likelihood ratio calculation between the mixture being searched and each of the single source candidate profiles in the STRmix searchable database. Samples in the database producing LRs above the selected threshold (see Section 3 below) will be displayed in the search report.

1. Create a STRmix searchable database of candidates for evaluation of SDIS and NDIS Search results.
 - a. In Match Manager, a default view called 'SDPD Target Agency' has been created that sorts the data so that the specimen from our lab is the

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Target Specimen and the specimen from the other lab is the Candidate Specimen.

- b. Select the match date range for the matches of interest.
- c. Highlight all the specimens (Control A) and select Print.
- d. Select the 'Match Details Report (Short)' Report and Print Preview.
- e. Export the reports and save them as a CSV file with the nomenclature "MMDDYY Match Detail Reports" in G:/Misc Data/CODIS/CODIS Matches folder, under the appropriate month and year.
- f. Open the STRmix DB Creator Excel file (H:/Worksheets/ CODIS Worksheets) and select the Match Details Reports exported in the previous step and save the database as a CSV file with the nomenclature "MMDDYY Candidates" in the same folder as the Match Detail Reports CSV file.
 - i. This candidates file will be used to run database searches and LR's to evaluate the matches with STRmix.

Candidate matches may now be evaluated using the newly created database. The STRmix Search Database function should be used to calculate likelihood ratios for each profile in the database against a given mixture, returning a list of samples with an LR above a selected threshold.

2. Use the STRmix Searchable Database of Candidates to evaluate potential hits.
 - a. Copy the MCMC folder for the appropriate analyst for the specimen that needs to be evaluated into the appropriate CODIS Matches folder on the G Drive.
 - b. In the STRmix software, browse for this MCMC.
 - c. Select the appropriate STRmix searchable database file that was previously created.
 - d. Select the Minimum LR threshold to be 500,000 for state and national searches, and 50,000 for local searches.
 - e. Select NIST All as the Population for Search.
 - f. Start the search.
3. Evaluate 'goodness of fit' for potential hits.
 - a. If the HPD LR is >50X the size of the relevant database, the match is considered a true association and therefore will be dispositioned as a hit, appropriate to the specimen category of the candidate specimen (e.g., Convicted Offender Hit)
 - i. Note: If the Database Search LR is between 50x the size of the relevant database and 10¹¹, an "LR From Previous" analysis must be performed to confirm the hit
 - b. If the HPD LR is between 10–50X the size of the relevant database, and the match is to a candidate specimen (i.e. Offender/Arrestee) that does

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not have data at the 20 core CODIS loci, then additional data must be requested in order to better evaluate the match.

- i. If data at additional loci is needed to evaluate the match, the request should be directed to the laboratory where the specimen originated, and:
 1. The match should be dispositioned as 'Waiting for More Data' indicating that final disposition is pending additional information.
 2. The laboratory where the specimen originated must be contacted to request additional specimen data.
 3. When the additional data is received, the potential hit will be evaluated and dispositioned as appropriate.
 4. Regardless of the subsequent disposition (i.e., hit or not a match), the originating laboratory must be contacted to inform them of the disposition change.
- c. If the HPD LR is between 10–50X the size of the relevant database, the potential hit will be further reviewed by the CODIS Team and DNA Technical Manager.
 - i. Note: Refer to Appendix C for detailed information on reporting associations.
- d. If the HPD LR is <10X the size of the relevant database, the disposition will be set as No Match.
- e. Matches between complete forensic single source profiles and single source candidates can be assessed visually for goodness of fit.
- f. Matches between forensic partial profiles and single source candidates can be assessed visually for goodness of fit.
 - i. The candidate must have data at all the loci detected in the partial profile.
 - ii. If the candidate does not have data at all loci detected in the evidence profile, the candidate sample must be run with an expanded DNA typing kit in order to determine if it is a hit.
 - iii. If the match is to a specimen from another agency, and that specimen is unable to be run with an expanded DNA typing kit, the CODIS Team will evaluate the match to determine if the investigator will be notified of the potential hit via the 'potential hit' email.
- g. A potential match to a pre-STRmix sample can be evaluated using the RMP worksheet from the case file, if one exists.
 - i. If 1/frequency is >50X the size of the database, the disposition will be set as a Hit.
 - ii. If 1/frequency is between 10–50X the size of the relevant database, the potential hit will be further reviewed by the CODIS Team.

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- iii. If 1/frequency is <10X the size of the relevant database, the disposition will be set as No Match.
- h. Print the Match Details Report (Short) for all Forensic Hits and retain them in the Forensic Hit binder.
 - i. The hard copies are maintained for a calendar year and then will be scanned into G:\Misc DATA\CODIS\CODIS Cold Hits.
- i. Print two copies of the Match Details Report (Short) for Offender/Arrestee/Detainee/Legal Hits: one for the DNA analyst and one to be maintained by the Administrator until the hit letter from the external agency arrives.

Tracking Hits

“Cold” and “Warm” hits in the CODIS database occur when the source of a specimen (or contributor to a mixed specimen) is identified through a CODIS match. The hit can either be to an individual or to a forensic specimen where the source of the DNA has been identified. A cold hit occurs when the identity of the source of the DNA in the specimen was unknown to investigators. A warm hit occurs when a match occurs to an individual named as a suspect in the case. The appropriate database fields, specified below, should be filled out to track hits.

1. Analyst Workbench (change the specimen's source ID from No to Yes)
 - a. Navigate to Specimen Manager, and search for the specimen under Spec ID.
 - b. Right click on the specimen, click 'Set Specimen Properties,' and change the Source ID from No to Yes.
 - c. Associated samples in the case that were dispositioned as Investigative Information should also be changed to source ID Yes.
2. CODIS Profiles Form Access Database (for cold and warm hits)
 - a. Navigate to H:\Misc DATA\CODIS\Access folder.
 - b. Open CODIS Profiles.
 - c. Find the specimen.
 - d. Change the 'New Status' field from Unsolved to Solved.
 - e. Data entry is automatically saved in the Access database.
3. Cold Hit Database (for cold and warm hits)
 - a. Navigate to H:\Misc DATA\CODIS\Access folder.
 - b. Open the Cold Hit Database.
 - c. Fill out the appropriate hit information for both forensic and offender hits.
 - i. If it is a forensic hit entry, ensure that the 'Association Type' drop-down is changed from Offender Hit to Forensic Hit.

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- ii. If a hit occurs at SDIS or NDIS to the named suspect in the case, this is now considered a warm hit and the 'Association Type' should be changed from 'Offender Hit' to 'Warm Hit.'
 - d. Data entry is automatically saved in the Access database.
4. CODIS Hit Counting Scorecard
- a. Navigate to G:\Misc DATA\CODIS\Excel.
 - b. Open the CODIS Hit Counting Scorecard.
 - c. Click on the Casework Lab tab.
 - d. The entries are in Match Date order, so enter new match information at the bottom of the spreadsheet.
 - e. Save the information.
 - f. Do not fill out the scorecard for outsourced cases.
5. Hits Per Year Chart
- a. Navigate to G:\Misc DATA\CODIS\Excel.
 - b. Open the Hits Per Year Chart.
 - c. Click on the Chart 1 tab.
 - d. Add the number of hit counts to the LDIS, SDID, or NDIS for each year, as well as hit counts for case to case or offender hits at LDIS, SDIS, or NDIS.
 - i. Adding hit tallies will increase the total hit count.
 - e. Do not fill out the chart for outsourced cases.

For warm hits, follow steps 1-3 listed above. Under the cold hit database, the 'Association Type' drop-down will be changed to Warm Hit.

Conviction Match Names

When a match to a specimen has been dispositioned as Conviction Match, the lab with the Offender/Arrestee/Detainee/Legal specimen must be queried to ensure any identifying information for the associated individual is consistent between agencies. This communication will be documented through an email to the CODIS Administrator and/or Alternate to the SDIS or NDIS lab.

The email query should include (at a minimum) the:

- Match ID
- Specimen IDs from both labs
- Name of the individual associated with the specimen in our lab
- Other identifying information (if available) such as: CII, DOB, FBI#

Note: If there is no additional identifying information other than the name, then that needs to be indicated in the email to the SDIS or NDIS lab contact. The SDIS or NDIS lab will follow-up with a response verifying their identifying information for the

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named individual is consistent with ours. This email thread must be saved as a PDF and maintained in the Conviction Match email folder (G:\Misc DATA\CODIS\Conviction Match Emails).

Hits at CA SDIS

For Offender/Arrestee Hits, CA SDIS will automatically re-test the sample for the hit confirmation process. The name and identifying information from this hit will be received via CHOP (refer to the CHOP section) generally a week to two weeks after the disposition.

For hits to forensic specimens/Suspects/Legal specimens, case information exchange will either take place via CHOP or via an email to the external agency's CODIS Administrator.

Hits at NDIS

For Offender/Arrestee/Detainee/Legal Hits, the external agency must be emailed to prompt the hit confirmation process. The name and identifying information from this hit will be received via email generally a week to three weeks after the disposition.

For hits to forensic specimens, case information exchange will take place via email.

CHOP (CODIS Hit Outcome Project)

Retrieving Cold Hit Names

Names associated with DNA hits to Convicted Offenders or Arrestees in the CA SDIS database are obtained through the CHOP website. Email notifications are sent to the designated CHOP point of contact when new records are available in the database. Alternatively, the database can be checked for new records. The Alternate will have a CHOP account in order to access information in the absence of the Administrator.

The following is the process for accessing and checking the CHOP database:

1. Go to <https://chop.doj.ca.gov/login>.
2. Sign into the CHOP portal.
3. Hits with available names will be identified in the default Alerts List with the title including "Hit Record Loaded: Initial Data Needed."

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CODIS HIT OUTCOME PROJECT

ALERTS CASELOAD SEARCH REPORTS RESOURCES FEEDBACK

AGENCY ALERTS LIST Row Count: 8197 Clear Filters and Sorts

<input type="checkbox"/>	Alert Date	Alert Type	CODIS Spec ID
<input type="checkbox"/>	=		
<input type="checkbox"/>	01/20/2021	HIT RECORD LOADED: INITIAL DATA NEEDED	2006-0575 E01A1-SF.1
<input type="checkbox"/>	01/20/2021	CASE TO CASE: INITIAL DATA NEEDED: 3 MATCHES	2006-0505 E02A1-SF.1(86)
<input type="checkbox"/>	01/20/2021	SUBJECT NAME ADDED TO CHOP RECORD FROM C2	2006-0505 E02A1-SF.1(86)

4. After selecting the entry from the list, enter required information (red outlined fields).

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-IDENTITY IS KNOWN-	
Specimen ID: 2006-0575 E01A1-SF.1	
ORIGINATING LOCAL CODIS LAB: SAN DIEGO POLICE DEPT LAB	
LDIS Administrator: CORAL LUCE	
Lab Case #:	
Grant Code:	
ADDITIONAL LOCAL CODIS LAB:	
Local CODIS Lab: Select a LAB	
or ORI #: Select an ORI	
Discontinue Sending Alert Emails for this Sample to SAN DIEGO POLICE DEPT LAB : <input type="checkbox"/> Yes	
Location Specimen Collected From:	
Release Notification Letter to the LEA and DA: <input checked="" type="radio"/> Yes <input type="radio"/> No	
LAW ENFORCEMENT AGENCY:	
Expand LOV <input type="checkbox"/>	
Agency Name: Select an LEA	
or ORI #: Select an ORI	
LEA Case #:	
Date of Incident:	
Incident Crime Type	Crime Category: CRIMES FROM CASELOAD
	Specific Crime: SELECT A CRIME
Investigating Officer:	
Office Telephone: () - Extension:	
Other Telephone: () - Extension:	
Investigator Email:	
Additional Contact Information:	
New Reference Sample Process Date:	
DISTRICT ATTORNEY:	
County of Prosecution: Select a County	
or Agency Name: Select a DA	
LDIS ENTERED SUBJECT NAME:	
Data entry in this section is not allowed for a CODIS HIT.	
Comments:	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

5. Select Save.
6. Select the PDF icon to open the file.
7. Select print to PDF to maintain this hit notification electronically.

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8. Save the CHOP letter to a flash drive and then transfer the file to the Forensic Biology network, to be stored under G:\Misc DATA\CODIS\CODIS Cold Hits.
9. Email a copy of the PDF to the case investigator and DNA analyst.
10. File the letter electronically in the DNA folder in Case File on the LAN G: Drive.
11. Enter the hit information into Crosslink.
12. Enter the Offender Name and CII in the Offender Hits field in the Cold Hit Database.
 - a. If the hit is to the listed suspect in the case (Warm Hit), ensure the Warm Hit 'Association Type' is selected.
13. The Match Detail report that has temporarily been retained while waiting for the CHOP letter can be shredded.

Entering Case-to-Case Information

When a forensic specimen from our lab hits to a forensic specimen from another agency in California, CHOP is used to exchange case-to-case information between agencies.

1. Within CHOP, navigate to the 'Search' tab.
2. Search for the Specimen ID.
3. Double click on the search result.
4. Fill out the required case information (refer to step 4 in the previous section) as well as the Investigator's name, email, and/or phone number for another agency to contact our investigator.
5. Select 'Save.'
6. The Case-to-Case tab will list the case information for the specimen from the other agency.
7. Print this case-to-case information for Crosslink entry.

Evaluating potential hits to legacy kit data

Matches to legacy kit data generated with Identifiler, Identifiler Plus, and MiniFiler (on the 3500 instrument) can be evaluated through reinterpretation of the original data with STRmix and the use of a likelihood ratio comparison. See the Legacy Kit Interpretation Guidelines Manual for additional information. If the original electronic data cannot be located, or a complete text file of the detected peaks in the sample cannot be created (e.g., if stutter peaks were filtered), the sample will be deemed uninterpretable, the association dispositioned as "No Match", and the sample will be removed from CODIS.

Evaluating matches to Profiler Plus, COfiler, or MiniFiler data from the 3130 will require the original interpretation. If acceptable genotypes were determined at the time of the original interpretation, those genotypes must be used in the comparisons

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to the potential database hit candidate, unless reinterpretation is deemed necessary based on articulable issues with the original interpretation.

If no acceptable genotype combinations were originally determined, then the original sample must be reinterpreted using the stutter and peak height ratio data in the Legacy Kit Interpretation Guidelines Manual for the specific kit used. Once an acceptable genotypes list is generated, the potential hit can be evaluated. There must be sufficient statistical discrimination for any reinterpretation for any potential database matches to be dispositioned as a hit. For example, the combination of reinterpreted acceptable genotypes should have sufficient discrimination (i.e., MME >50 times the size of the relevant database), and there should be no information consistent with an exclusion.

Expungement of Specimens from CODIS

Any legacy kit specimens deemed uninterpretable must be removed from the CODIS database. It also may be necessary to delete a specimen in the CODIS database if the specimen turns out to be solely attributable to the victim, consensual partner, or an elimination sample. If a specimen in CODIS that is associated with a victim etc. is a mixture, conditioning the interpretation on this person may be appropriate to refine the CODIS search and remove victim or consensual partner types from CODIS.

Deleting a specimen will remove it from all levels of CODIS; however, the records of any previous matches to those specimens will still exist within Match Manager. Therefore, any agency with which there was a previous hit to the specimen being deleted must be notified. The disposition must be changed from Offender/Arrestee/Forensic Hit to Investigative Information.

Specimens deleted by request of the donor

An individual who has voluntarily provided a DNA reference sample may withdraw their consent and request expungement of their DNA sample. If a "Request for Expungement of Voluntary DNA Reference Sample" form is submitted by the donor, the detective should request expungement by the laboratory. If the form is provided directly to the laboratory, the laboratory should redirect the form to the detective and have them request expungement.

Specimens deleted by request of the investigator or DNA analyst

The CODIS email (CODIS@pd.sandiego.gov) should be routinely checked for expungement forms that have been submitted by investigators. Requests from analysts to delete a specimen from CODIS must be in email form for documentation purposes. Complete the bottom half of the submitted Expungement Form (For Laboratory Use Only).

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To delete a specimen from CODIS:

1. In the Analyst Workbench, navigate to Specimen Manager and search for the specimen to be deleted under Spec ID.
2. Right click on the specimen and select 'Delete Specimen'
3. Print to PDF the 'LDIS Delete Summary Report' that is automatically generated.
4. Save the completed Expungement form and LDIS Delete Summary Report to the Forensic Biology Network (G:\Misc DATA\CODIS\CODIS Expungements); note – save any hard copies for 1 week in order to ensure the G: drive has been backed up.
5. Delete the specimen from the Access CODIS Profiles database.
6. Add a note in the Access Cold Hit Database in the Case Status field that the specimen was deleted (i.e., Profile removed from CODIS; hit to consensual partner).
7. Maintain the hard copy of the CODIS sheet, but add a note in the comments that the specimen was deleted.
8. Send the approved expungement email to the detective and DNA analyst.
 - a. See Appendix D for the approved email templates.
 - b. Retain the email in the DNA folder of the electronic case file.
9. If the sample had a prior hit(s), email the appropriate SDIS or NDIS lab to inform them that the sample is being deleted.
10. If this specimen had a previous cold hit that was tracked in the databases, it is scenario dependent whether or not to remove the hit from the cold hit tracking databases.

Note – If the CODIS profile is being refined via STRmix conditioning, in which a portion of the specimen will still be in CODIS, the specimen info in the Access Profiles Form databases will need to be modified. Also, the previous CODIS sheet will be replaced with a new CODIS sheet.

Monthly Tasks

Upload qualifying suspects to NDIS

Per Prop 69 and FBI rules, suspect DNA profiles are eligible to be uploaded to the State and National CODIS databases for a period of two years for the purpose of comparing them to DNA profiles developed from unsolved crimes from external agencies. As legally collected samples, these suspect samples are eligible for entry into the National CODIS database under the Legal specimen category. The two-year mark starts at the date of LDIS upload. Each month, investigators are asked to verify the status of named suspects for which DNA profiles have been generated. A template email is used to fill out the suspect's name and case number. This template is located on the LAN (G:\Laboratory\Forensic Biology\CODIS\Templates and Forms\EMAIL TEMPLATE – CODIS Suspect Verification). A 'YES' response from the detective is required to upload the suspect's reference sample into SDIS and NDIS.

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The entry of suspect profiles into LDIS each month can be queried as follows:

1. Open the CODIS Profiles Form Access Database.
2. Open the Query 'Suspect's Needing Verification Query.'
3. Click the 'Edit the Design View' button.
4. In the Date field, change the 'between' date ranges.
 - a. This is usually done for an entire month (e.g., Between #12/1/20# and #12/31/20#).
5. Save the document.
6. Click 'View' to refresh the query.

If the email is received back from the detective in the affirmative, indicating the named individual is still an active suspect, the Specimen Category in CODIS can be updated per the steps below. If the detective indicates that the individual is no longer a suspect in the case, or if no response is received, the profile will be removed from LDIS and the CODIS Profiles Access database.

1. Open the Analyst Workbench.
2. In Specimen Manager, find the specimen.
3. Right click on the specimen and under Set Specimen Properties, change the Specimen Category from Suspect, Local to Legal.
4. Mark the specimen for upload.
5. Retain a PDF copy of the 'CODIS Suspect Verification' email for at least a period of two years (G:\Misc DATA\CODIS\CODIS Suspect Verification Emails).

Removing Legal (or Suspect, Known) profiles from SDIS

Qualifying suspect DNA profiles are searched at SDIS and NDIS for a period of two years from the "Assigned Date", after which they are returned to the Local level of CODIS.

1. Open the Analyst Workbench.
2. In Specimen Manager, query for Legal (or Suspect, Known) under the 'Specimen Category' tab.
3. Click the 'Assigned Date' tab and sort the date range from oldest to most current.
4. Select the profiles from the date range of interest.
5. Right click on the specimen and under Set Specimen Properties change the Specimen Category from Legal (or Suspect, Known) to Suspect, Local.

Sending hits to the DA's office

1. Navigate to the Table for Chip (G:\Misc DATA\CODIS\Access\SDPDTTableChip).
2. Navigate to the Access Cold Hit Database (H:\Misc DATA\CODIS\Access\Cold Hit Database).
3. In the Cold Hit database, click on the Navigation Pane on the left-hand side.
4. Open 'Query for Chip.'
5. Copy all the records in this query and paste into the 'Table for Chip.'

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- a. The table does not need to be saved.
6. Copy the 'Table for Chip' onto a USB drive.
7. Encrypt or password protect this file.
8. Email the file to the current contacts at DA's office in the IT Division: Jerzy Kakol (jerzy.kakol@sdcca.org) and Andy Barnes (andy.barnes@sdcca.org).

Update the STRmix LDIS Database

The LDIS database consists of single source samples in our LDIS. As new single source specimens are continually being added to LDIS, the master copy of the database needs to be updated as this data is used for STRmix comparisons when making a Reference File.

1. Navigate to the STRmix LDIS database (G:\Misc DATA\CODIS\Monthly Tasks\LDIS DBs).
 - a. Open the LDIS Excel spreadsheet.
 - i. Note the date the database was last updated by referring to the date of the previous file created (e.g., LDIS 010124).
2. Navigate to Specimen Manager in Analyst Workbench.
 - a. Click the 'Edit View' icon.
 - b. Under General Criteria, select the 'Forensic STR' index.
 - c. Click 'OK'.
 - d. Under the 'Assigned Date' tab, select the specimens within the time period between when the database was last updated and today's date.
 - e. Export the Specimen Detail Report (Short) by saving it as a CSV file in a temporary holding folder (i.e. My Documents).
 - f. Open the STRmix DB Creator and create a candidate database from the Specimen Details Report by saving it as a CSV file in a temporary holding folder (i.e. My Documents).
 - g. Select this candidate database and copy and paste them at the bottom of the LDIS Excel spreadsheet to add to the list of single source specimens already there.
 - i. Save a copy of this database with the current date in order to note when the database was last updated.
 - h. Navigate to G:\Misc DATA\CODIS\Excel\LDIS and replace this LDIS database (master copy) with the updated LDIS database just created.

Send Disposition Update Messages

At times, when a lab updates a match disposition, the disposition message may not go through and therefore looks like the disposition is pending, even though it has been changed. It is recommended to send disposition update messages on a routine basis.

1. Navigate to Match Manager in Analyst Workbench.
2. Click the 'Edit View' icon.
3. Under the General Criteria tab, select NDIS and SDIS under 'Search Level.'
4. Click 'OK.'

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5. Select the matches within the date range in which you want to send update messages.
6. Under the 'Match Manger' tab at the top of the pane, select 'Send Disposition Update Message.'

Miscellaneous CODIS Tasks

CODIS Software Upgrades and updates

CODIS software upgrades released by the FBI must be installed on the CODIS server as well as each analyst workstation that has the CODIS software. Upgrades to software used in casework require evaluation. To prepare for any upgrade follow the guidance provided by the FBI and determine the extent of evaluation required based on the QAS. The DNA Technical Manager, FBI Help Desk, and SDPD IT are available for support during the upgrade. Evaluation must be completed prior to implementing the CODIS upgrade or update for use in DNA casework.

Maintaining electronic copies of CODIS worksheets

CODIS worksheets from the last few years will be maintained in hard copy. The worksheets will be eventually scanned and maintained electronically on the Forensic Biology G: Drive (G:\Misc DATA\CODIS\CODIS Worksheets), and subsequently shredded. The hard copies of the scanned worksheets must be maintained for a period of at least one week before shredding in order to ensure the electronic files have been backed up. The G: Drive back up occurs once a week.

Crosslink Data Entry

Crosslink is an Access database that contains information on DNA and Latent Print associations and is located on the LAN (G:\Laboratory\Crosslink). The primary purpose of the database is to allow the creation of case-to-case reports when the same individual has been associated via their CII number to DNA or Latent Print evidence in multiple cases.

1. Information will only be included in the Crosslink database when CII information is available.
2. Crosslink will be used to generate case-to-case reports for cases that have been associated to an individual with a known CII number.
3. If a case-to-case hit occurs and the CII number of the associated person is unknown or does not exist, a case-to-case notification will be written using the associated person's DOB.
4. If a case-to-case hit occurs between two or more unsolved cases, a case-to-case notification will be written indicating that the offender is unidentified.
5. Crosslink and case-to-case notifications are sent to investigators by the CODIS Administrator or designee and are filed electronically in Case File on the LAN.

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Appendix A

Disposition Definitions

The following definitions (defined by the FBI) are for dispositions that are commonly used by our laboratory. (N), (S), and (L) indicate at what level(s) each disposition is typically used.

Arrestee Hit (S, N) – A match made between an arrestee’s DNA profile and the DNA profile from a forensic sample in an unsolved case

Benchmark Match (L, S) – Similar to a Conviction Match, except it applies only to the Forensic Index; occurs when profiles from several cases linked externally are also matched by CODIS (for example, the examiner links the cases by matching DNA profiles on the Analyst Workbench); At SDIS, this is used if two unsolved cases within our agency match to each other

Case to Known Case (S) – Disposition specifically used by CA SDIS for when a solved forensic sample from one case matches to a solved forensic sample from another case

Conviction Match (S, N) – CODIS matches a DNA profile developed from crime scene evidence to a DNA profile from a convicted offender, but the crime from which the evidence was collected has already been solved and linked with the offender

Detainee Hit (N) – A match made between a Detainee’s DNA profile and the DNA profile from a forensic sample in an unsolved case

Duplicate (S, N) – Multiple samples are entered into CODIS corresponding to the same individual

Duplicate Match (S, N) – The same match already exists in the database (rarely used)

Forensic Hit (L, S, N) – A match between a DNA profile from a forensic unknown specimen in an unsolved case and a DNA profile from another forensic unknown specimen

Insufficient Data (S, N) – A mixture or partial profile matches to another mixture or partial and there is no way to determine whether these could be a true association (SDIS only); The combination of metadata and genetic information is lacking in either quantity or quality to either confirm or refute kinship (missing persons)

Investigative Information (L, S, N) – A generic category for matches that do not readily fit the other disposition categories (for example, samples in the same case that match to one another at SDIS)

Legal Hit (S, N) – A match made between a Legal sample’s DNA profile and the DNA profile from a forensic sample in an unsolved case

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No Match (L, S, N) – During the confirmation process, a qualified DNA analyst determines that a Candidate, Pending, or Waiting for More Data is not a true match

Offender Hit (S, N) – A match made between a convicted offender's DNA profile and the DNA profile from a forensic sample in an unsolved case

Pending (L, S, N) – An intermediate step indicating that the Candidate Match is in the process of being confirmed or refuted

Waiting for More Data (S) – An intermediate step indicating that the match is undergoing confirmation by at least one qualified analyst; additional data must be analyzed before the match can be confirmed or refuted

Appendix B

CODIS CHEAT SHEET

LDIS

- MME= 1 in 10,000 (IDP 15 loci)
- Minimum loci to upload= 5
- CODIS team evaluates matches
- Casework analyst can also evaluate a match if you search your own profile:
 - Report match if LR HPD= >50x size of the local database (Forensic STR)
 - If LR HPD= 10x-50x size of the database see the CODIS or Tech Manager

SDIS

- MME= 1 in 100,000 (core 13)
- Minimum loci to upload= 7
 - (6 loci for CAFPG)
- Sunday night search
- Wednesday upload to NDIS
- CODIS team evaluates matches

INDEXES

- Forensic Unknown (single source)
 - Full profile; no drop-out
 - All loci genotype weights >99.5%
- CA Forensic Partial (single source)
 - Possible drop-out
- CA Forensic Mixture
 - 4 alleles max at a locus
- CA Forensic Prob Gen (CAFPG)
 - 8 alleles max at a locus

NDIS

- MME= 1 in 10,000,000 (core 13)
- Minimum loci to upload= 8
- 4 alleles max at a locus
- Daily searches
- CODIS team evaluates matches

INDEXES

- Forensic Unknown (single source)
 - Full profile; no drop-out
 - All loci genotype weights >99.5%
- Forensic Partial (single source)
- Forensic Mixture
- Forensic Targeted (NEW)
 - Created for profiles (partial and mixtures) that don't meet MME
 - Allows for high stringency searching at certain loci

If you answer YES to all, your profile can be uploaded to CODIS:

- 1) Has a crime been committed?
- 2) Is the sample from a crime scene?
- 3) Is the sample attributable to the putative perpetrator?

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Appendix C

If the likelihood ratio is between 10 and 50 times the size of the relevant database:

- The CODIS Administrator or Alternate CODIS Administrator will evaluate the potential hit by assessing the electropherogram of the specimen and running any additional likelihood ratios or MCMCs that would aid in determining if the match could be a true association.
- The CODIS Team (CODIS Administrator and Alternate CODIS Administrator) will confer with the DNA Technical Manager to discuss the potential hit.
 - If the findings indicate that the match is not an association, the potential hit will be dispositioned as No Match, and no further action will be required.
 - If the findings indicate this is a potential hit, the compiled evaluation data will be technically reviewed by a CODIS Team member, Technical Manager, or other qualified analyst, retained electronically in the case file folder, and the disposition will be set as Offender Hit, Arrestee Hit, or Forensic Hit (as appropriate).
 - The process after any association has been deemed a hit will depend on the circumstances as well as the level of CODIS to which the hit was obtained:
 - Offender or Arrestee hits at SDIS: The CA DOJ Hit Notification Letter from the CODIS Hit Outcome Project (CHOP) database will be attached to an email to the investigator and DNA analyst. The email will use the approved 'Potential Hit' language (below). This email will be retained electronically in the case file.
 - If the sample hits to an evidence sample that has a state Offender or Arrestee hit already, and the reference sample from the named individual has not been tested by the SDPD laboratory, a Crosslinks report will be issued to the investigator and DNA analyst. The Crosslinks report will contain the approved 'Potential Hit' language.
 - If the sample hits to an evidence sample for which there is an association to a named individual, and that individual's sample has been tested by the SDPD laboratory, a supplemental report will be issued. The supplemental report will contain a comparison of the named individual's DNA profile to the evidence and use the approved 'Potential Hit' email language in the background section and be disseminated as per our normal report release process.
 - Hits to unsolved forensic sample(s) at LDIS, SDIS, or NDIS: A case-to-case association notification will be issued indicating no offender has been identified. This notification will be sent to the investigator and DNA analyst using the approved 'Potential Hit' language (below).

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Potential Hit Email Template

Dear Investigator,

Attached please find a letter detailing an association between a sample in a case you may be working, and an offender in the CODIS database. This hit* may provide information regarding the investigation.

**Please note that this hit did not meet the statistical threshold used at the SDPD to establish confidence in the association of the named individual to the evidence sample. This potential database hit was subjected to further evaluation by the CODIS Team and DNA Technical Manager. The results of this evaluation indicate that this hit likely represents a valid association, and the name of the individual is being released.*

If this hit will be used in criminal prosecution of the case, a new reference sample must be collected from the identified offender for analysis by the SDPD Crime Laboratory. This is mandated by guidelines from the California Department of Justice.

The sample identifier referenced in the attached is the case number and generally either the item number or the last three digits of the barcode number. If you have any questions concerning the evidence, please contact the analyst assigned to the case, copied on this email.

If a reference sample will not be submitted, please email Coral Luce at clluce@pd.sandiego.gov to indicate the status of this case and the reason for not submitting a reference sample. Examples include:

- Evidence is insufficient to pursue charges
- Evidence is not probative to solving crime
- District attorney's office declines to prosecute
- Victim is uncooperative or declines to prosecute
- Statute of limitations has passed for criminal charge

Potential Hit Email Template (No Offender Identified)

Dear Investigator,

Attached please find a notification detailing an association between a sample in a case you may be working, and a DNA sample from another case. This hit* may provide information regarding your investigation.

**Please note that this hit did not meet the statistical threshold used at the SDPD for establishing confidence in the association between the evidence samples. This potential hit was subjected to additional evaluation by the CODIS Team and DNA Technical*

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Manager. The results of this evaluation indicate that this hit likely represents a valid association between the samples.

At this time, an offender associated with the DNA evidence for the above listed cases has not been identified.

Bode hit to named individual (reference sample data ran locally with GF)

Investigator,

An association was obtained between a sample in Bode CASE # SPEC ID and a sample in the CODIS database (*see attached notification letter*).

This individual's reference sample has been analyzed by the SDPD DNA Unit.

If this association is relevant to the investigation and you would like a comparison between this reference profile data and the evidence, please contact Supervising Criminalist Shawn Montpetit (smontpetit@pd.sandiego.gov) and the DNA data from the reference sample can be provided to the vendor laboratory.

Investigator already has name from a CODIS hit, but we worked the reference so a supplemental report with stats can be written

Dear Investigator,

A sample in your case (CASE# BARCDOE #) previously had an Offender (*or Arrestee*) Hit at our CA DOJ Laboratory to NAME, CII. This individual's reference mouth swab was recently processed by our laboratory for a separate case. If you would like this individual compared to the evidence previously analyzed in your case, in order to generate a statistical calculation, please submit a LabOnQ request. Please only request the barcode for the reference sample, as follows, and do not re-list any evidence:

NAME – BARCODE

Investigator is being notified of a CODIS hit to a suspect for the first time

Dear Investigator,

A sample in your case (CASE # BARCODE #) recently had a hit to NAMED SUSPECT (DOB or CII) in our local CODIS database. If you would like this individual compared to the evidence analyzed in your case, in order to generate a statistical calculation, please submit a LabOnQ request. Please only request the barcode for the reference sample, as follows, and do not re-list any evidence:

NAME – BARCODE

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Appendix D

Expungement email Templates

Regarding Case #XXX, an expungement form was received indicating that a sample has been associated with (Name), identified as a consensual partner/victim in this case. This is to confirm that the CODIS profile(s) from samples XXX has/have been removed from CODIS.

Regarding Case #XXX, the X% DNA contributor from sample XXX has been associated with (Name), identified as a consensual partner/victim in this case. The CODIS profile was refined based on this information to remove the DNA component associated to the consensual partner/victim and better target a potential perpetrator profile. The refined data is now eligible to be searched in the Local/State/National CODIS database, and you will be informed of any hits to this sample. Please don't hesitate to contact me if you have any questions.